TECHNICAL PROGRAM

SPIE. MEDICAL IMAGING

18–22 FEBRUARY 2024
SAN DIEGO, CALIFORNIA, USA

SPIE. MEDICAL IMAGING

THE EVENT WHERE THE SCIENCE OF MEDICAL IMAGING IS EXPLORED

Cutting-Edge Research

Training and Education

18–22 February 2024

Conferences and Courses

Town and Country Resort & Convention Center
San Diego, California, USA

Download the SPIE Conference and Exhibition App

Enhance your SPIE conference experience

Download the mobile app to enrich your meeting experience. View events, exhibitors, and connect with participants all in the palm of your hand. The app is free, easy to use, and loaded with features designed for planning and connecting on the go.

Make the most of your time with these app features:

» Real-time program updates
» Customize your schedule
» Organize your meeting notes
» Add new connections to your contacts
» Plan exhibitor visits
» Navigate the venue
» Bookmark specific research
» Create meeting reports
» And a whole lot more.

Get the App

Explore the meeting with the SPIE App

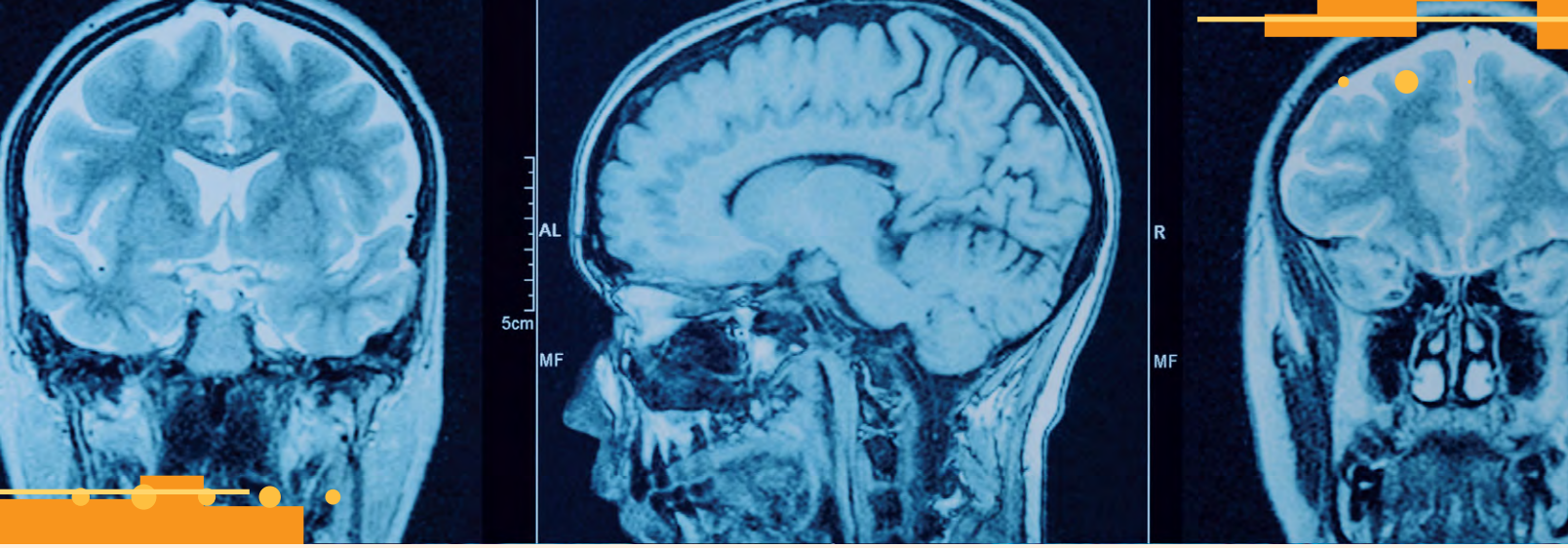
It's free.

SPIE.

SPIE is the international society for optics and photonics. We bring together engineers, scientists, students, and industry leaders, strengthening the global optics and photonics community through conferences, publications, and professional development. Inspired by the transformative power of photonics to enhance life around the globe, over the past five years SPIE has contributed more than $24 million to the international optics community.

www.spie.org

SPIE is a registered trademark of the Society of Photo-Optical Instrumentation Engineers.
All rights reserved.



Experience the energy of Medical Imaging

Get ready to enjoy real conversations, hear the latest breakthroughs, and make important in-person connections. Join us for five days of exciting cutting-edge research in image processing, physics, computer-aided diagnosis, perception, image-guided procedures, biomedical applications, ultrasound, informatics, radiology, and digital and computational pathology, and more. Attend technical presentations, courses, plenary presentations, and a variety of networking activities.

CONTENTS

Event Schedule . . . . . PAGES 4–13

Courses . . . . . PAGES 14–15

Plenary and Keynote Events . . . . . PAGES 16–17

Hear highlights from leading researchers. Medical Imaging plenary and keynote sessions feature presentations from a wide range of leaders in the field, with focus on developing research and visions of the future of imaging technologies.

Technical Events . . . . . PAGES 18–19

Connect with your colleagues and explore topics in depth. Events include daily technical networking sessions and poster sessions.

Community Lounge . . . . . PAGE 20

Learn about resources and events that support equitable and inclusive environments in medical imaging

Social and Networking Events . . . . . PAGE 22

Connect with colleagues in variety of ways throughout the week.

Technical Conferences . . . . . PAGES 25–153

Conference 12925: **Physics of Medical Imaging** . PAGES 26–46

Conference 12926: **Image Processing** . . . . . PAGES 47–64

Conference 12927: **Computer-Aided Diagnosis** . PAGES 65–83

Conference 12928: **Image-Guided Procedures, Robotic Interventions, and Modeling** . . . . . PAGES 84–98

Conference 12929: **Image Perception, Observer Performance, and Technology Assessment** . . . . PAGES 99–108

Conference 12930: **Clinical and Biomedical Imaging** . . . . . PAGES 109–122

Conference 12931: **Imaging Informatics for Healthcare, Research, and Applications** . . . . . PAGES 123–133

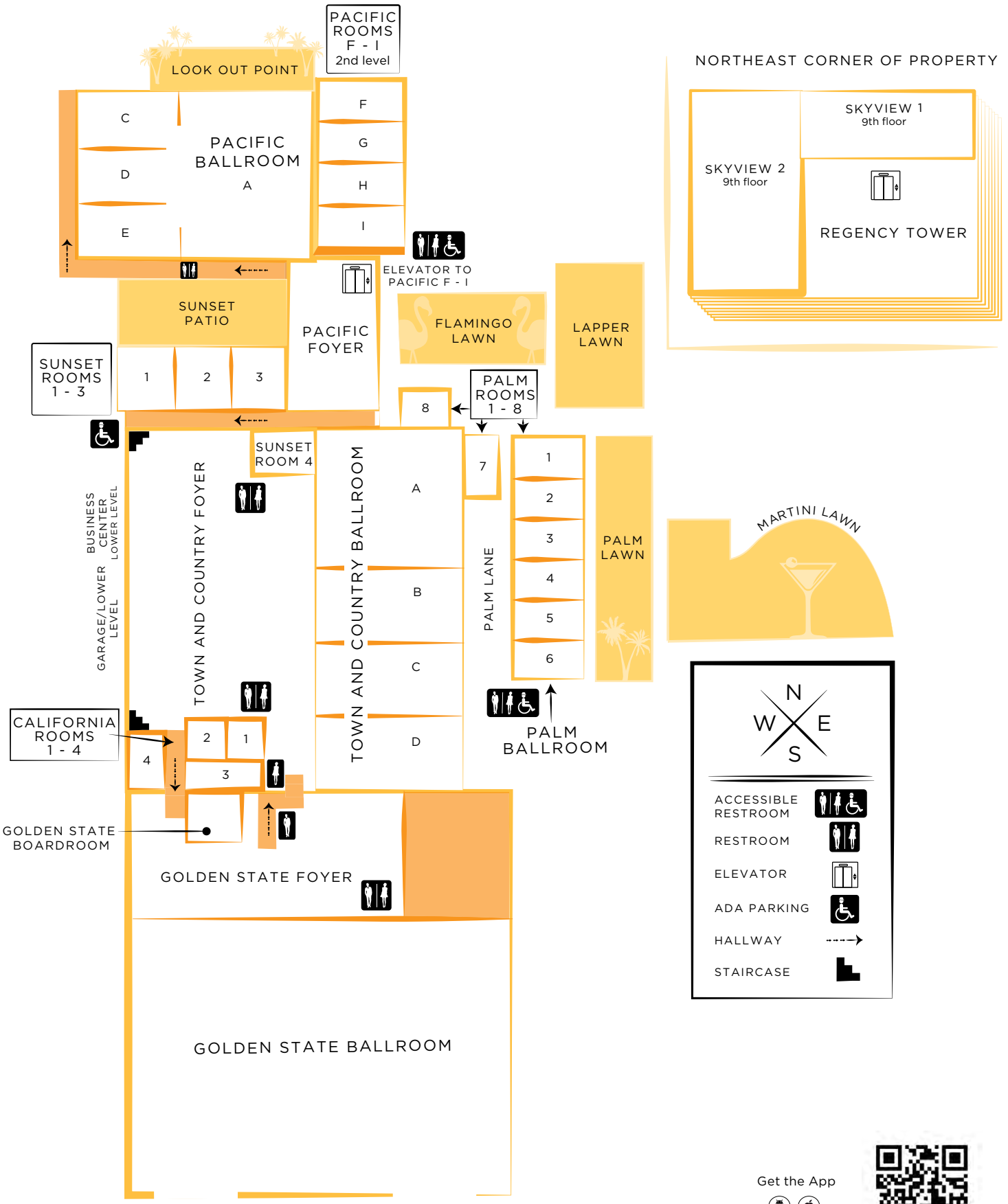
Conference 12932: **Ultrasonic Imaging and Tomography** . . . . . PAGES 134–143

Conference 12933: **Digital and Computational Pathology** . . . . . PAGES 144–153

General Information . . . . . PAGES 23–24

SPIE Policies . . . . . PAGE 154

TOWN AND COUNTRY RESORT



Get the App

SPIE.

Make sure you are part of the conversation...

It remains vitally important to stay fully connected with your customers.

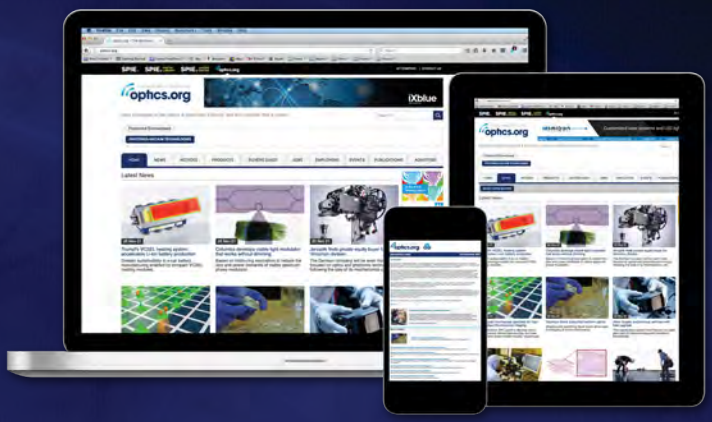
As the leading online resource for professionals using photonics-based technologies, applications and for the diverse markets they serve, optics.org offers a comprehensive range of digital and print marketing solutions to support and drive your marketing strategies.

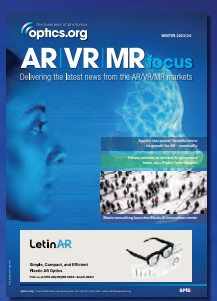
Contact our Sales team today to discuss how optics.org can help you create a targeted customer experience and put your brand and products in front of key decision makers.

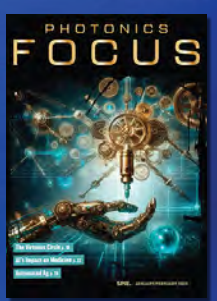
...and in touch with your target audience.

the business of photonics
optics.org

optics.org
e: rob.fisher@optics.org t: +44 (0)117 905 5330
e: dylan.byrne@optics.org t: +44 (0)117 905 5351







NEW FOR 2024

optics.org
QUANTUM FOCUS

Your gateway to the latest advances in Quantum technology.

EVENT SCHEDULE

TIME	Conference 12925 Physics of Medical Imaging Rebecca Fahrig; John M. Sabol; Ke Li 19–22 February 2024 LOCATION: **Town & Country A**	Conference 12926 Image Processing Olivier Colliot; Jhimli Mitra 19–22 February 2024 LOCATION: **Town & Country B**	Conference 12927 Computer-Aided Diagnosis Weijie Chen; Susan M. Astley 19–22 February 2024 LOCATION: **Town & Country C**	Conference 12928 Image-Guided Procedures, Robotic Interventions, and Modeling Jeffrey H. Siewerdsen; Maryam E. Rettmann 19–22 February 2024 LOCATION: **Pacific C**	Conference 12929 Image Perception, Observer Performance, and Technology Assessment Claudia R. Mello-Thoms; Yan Chen 20–22 February 2024 LOCATION: **Palm 4**
SUNDAY 18 FEBRUARY					
COURSES 8:30 AM–12:30 PM **SC1183: Modern Diagnostic X-ray Sources** Instructor: **Rolf K. Behling,** KTH Royal Institute of Technology (Germany)					
8:30 AM–5:30 PM **SC1324: Transformers: A Powerful Tool for Image Analysis and Generation** Instructors: **Markus T. Wenzel,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Hans Meine,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Felix Thielke,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)					
1:30 PM–5:30 PM **SC1129: Photon Counting CT** Instructors: **Mats Danielsson,** KTH Royal Institute of Technology (Sweden); **Mats U. Persson,** KTH Royal Institute of Technology (Sweden)					
EVENING	5:30 PM–6:30 PM | Town & Country A **SPIE Medical Imaging Awards and Plenary** **Welcome and Introduction,** Symposium Chairs: **Despina Kontos,** Columbia Univ. Irving Medical Ctr. (USA) and **Joseph Lo,** Duke Univ. School of Medicine (USA) **Robert F. Wagner All-Conference Best Student Paper Award Announcement—***Award Sponsored by:* **MIPS and SPIE** **Acknowledgment of New SPIE Fellows** **SPIE Harrison H. Barrett Award in Medical Imaging** **Interpretable Deep Learning in Medical Imaging** *(Keynote Presentation)* **Cynthia Rudin,** Duke Univ. (USA)				

Thank you to the following cooperating organizations for their support

Conference 12930 Clinical and Biomedical Imaging	Conference 12931 Imaging Informatics for Healthcare, Research, and Applications	Conference 12932 Ultrasonic Imaging and Tomography	Conference 12471 Digital and Computational Pathology
Barjor S. Gimi; Andrzej Krol 20–22 February 2024 LOCATION: **Palm 7**	Hiroyuki Yoshida; Shandong Wu 19–21 February 2024 LOCATION: **Palm 8**	Christian Boehm; Nick Bottenus 19–20 February 2024 LOCATION: **Pacific E**	John E. Tomaszewski; Aaron D. Ward 19–21 February 2024 LOCATION: **Town & Country D**

Event Schedule continues on next page

SYMPOSIUM CHAIRS:

Despina Kontos
Columbia Univ. Irving Medical Ctr. (USA)

Joseph Lo
Duke Univ. School of Medicine (USA)

SPIE. DIGITAL LIBRARY

INCLUDED WITH REGISTRATION

Presentations on the Digital Library

The Medical Imaging conference proceedings papers and presentations are published in the SPIE Digital Library. All paid conference registrations include 50 downloads for ongoing access.

All-Symposium Welcome Reception

18 February 2023 • 6:30 PM–8:00 PM • Flamingo Lawn

Join your colleagues on the lawn for food and drinks as we welcome each other to SPIE Medical Imaging 2024.

See full details and updates at **spie.org/mi** or on the **SPIE App**

EVENT SCHEDULE

TIME	Conference 12925 Physics of Medical Imaging Rebecca Fahrig; John M. Sabol; Ke Li 19–22 February 2024 LOCATION: **Town & Country A**	Conference 12926 Image Processing Olivier Colliot; Jhimli Mitra 19–22 February 2024 LOCATION: **Town & Country B**	Conference 12927 Computer-Aided Diagnosis Weijie Chen; Susan M. Astley 19–22 February 2024 LOCATION: **Town & Country C**	Conference 12928 Image-Guided Procedures, Robotic Interventions, and Modeling Jeffrey H. Siewerdsen; Maryam E. Rettmann 19–22 February 2024 LOCATION: **Pacific C**	Conference 12929 Image Perception, Observer Performance, and Technology Assessment Claudia R. Mello-Thoms; Yan Chen 20–22 February 2024 LOCATION: **Palm 4**

MONDAY 19 FEBRUARY

COURSE

8:30 AM–5:30 PM

SC1295 From Analytic to Clinical Validation: Moving AI/ML into Practice
Instructors: **William Y. Hsu,** Univ. of California, Los Angeles (USA); **Matthew S. Brown,** UCLA Ctr. for Computer Vision and Imaging Biomarkers (USA); **Robert M. Nishikawa,** Univ. of Pittsburgh (USA); **Elizabeth A. Krupinski,** Emory Univ. School of Medicine (USA)

MORNING

8:30 AM–10:45 AM | Location: Town & Country A

Monday Morning Keynotes

Welcome and Introduction

Robert F. Wagner Award Finalists Announcements for Conferences 12927, 12928, and 12932

Image-Guided Procedures, Robotic Interventions, and Modeling Student Paper and Early-Career Investigator Award Announcements—*Award Sponsored by:* **INTUITIVE** and **Siemens Healthineers**

Clinical translation of machine learning for medical imaging *(Keynote Presentation)*
Curtis Langlotz, Stanford Univ. (USA)

Beyond the visible: The true state of AI in medical imaging *(Keynote Presentation)*
Lena Maier-Hein, German Cancer Research Center (DKFZ) (Germany)

From dolphins in the sea to stars in the sky: The inspired birth of ultrasound tomography *(Keynote Presentation)*
Neb Duric, Univ. of Rochester, Delphinus Medical Technologies (USA)

COFFEE BREAK • 10:45 AM

11:10 AM Town & Country A **SESSION 1: Photon Counting Imaging**	11:10 AM Town & Country B **SESSION 1: Foundation Models**	11:10 AM Town & Country C **SESSION 1: Segmentation I**	11:10 AM Pacific C **SESSION 1: Robotic Assistance**	
	12:00 PM–5:00 PM Pacific A **Monday Poster Viewing**	12:00 PM–5:00 PM Pacific A **Monday Poster Viewing**	12:00 PM–5:00 PM Pacific A **Monday Poster Viewing**	

AFTERNOON

LUNCH BREAK • 12:30 PM

1:40 PM Town & Country A **SESSION 2: Applications of Machine Learning**	1:40 PM Town & Country B **SESSION 2: Image Representation, Restoration and Enhancement**	1:40 PM Town & Country C **SESSION 2: Lung**	1:40 PM Pacific C **SESSION 2: Moving Targets**	

COFFEE BREAK • 3:00 PM

3:30 PM Town & Country A **SESSION 3: Advances in Detector Design and Characterization**	3:30 PM Town & Country B **SESSION 3: Cardiovascular Imaging**	3:30 PM Town & Country C **SESSION 3: Breast**	3:50 PM Pacific C **SESSION 3: Tracking and Localization**	

EVENING

	5:30–7:00 PM Pacific A **Monday Poster Session**	5:30–7:00 PM Pacific A **Monday Poster Session**	5:30–7:00 PM Pacific A **Monday Poster Session**	

	Conference 12930 Clinical and Biomedical Imaging Barjor S. Gimi; Andrzej Krol 20–22 February 2024 LOCATION: **Palm 7**	Conference 12931 Imaging Informatics for Healthcare, Research, and Applications Hiroyuki Yoshida; Shandong Wu 19–21 February 2024 LOCATION: **Palm 8**	Conference 12932 Ultrasonic Imaging and Tomography Christian Boehm; Nick Bottenus 19–20 February 2024 LOCATION: **Pacific E**	Conference 12471 Digital and Computational Pathology John E. Tomaszewski; Aaron D. Ward 19–21 February 2024 LOCATION: **Town & Country D**
	COFFEE BREAK • 10:45 AM			
			11:10 AM Pacific E **SESSION 1: Ultrasound Image Processing and Analysis**	11:10 AM Town & Country D **SESSION 1: Grading and Classification of Pathology Images I**
			12:00 PM–5:00 PM Pacific A **Monday Poster Viewing**	
	LUNCH BREAK • 12:30 PM			
		2:00 PM Palm 8 **SESSION 1: Large Language Models**	1:40 PM **PACIFIC ESESSION 2: Elastography and Tissue Characterization**	1:40 PM Town & Country D **SESSION 2: Computer-Aided Diagnosis, Prognosis, and Predictive Analysis I**
	COFFEE BREAK • 10:45 AM			
		3:30 PM Palm 8 **SESSION 2: Augmentation of Clinical Workflow**	3:55 PM Pacific E **SESSION 2: Ultrasound Computed Tomography**	3:30 PM Town & Country D **SESSION 3: Segmentation of Cellular and Tissue Structures I**
			5:30–7:00 PM Pacific A **Monday Poster Session**	

Event Schedule continues on next page

EXECUTIVE ORGANIZING COMMITTEE

Susan M. Astley
The Univ. of Manchester (United Kingdom)

Christian Boehm
ETH Zurich (Switzerland)

Nick Bottenus
Univ. of Colorado Boulder (USA)

Weijie Chen
U.S. Food and Drug Administration (USA)

Yan Chen
The Univ. of Nottingham (United Kingdom)

Olivier Colliot
Ctr. National de la Recherche Scientifique (France)

Rebecca Fahrig
Siemens Healthineers (Germany)

Barjor Gimi
Trinity Health Corp. (USA)

Andrzej Krol
SUNY Upstate Medical Univ. (USA)

Ke Li
Univ. of Wisconsin School of Medicine and Public Health (USA)

Jhimli Mitra
GE Research (USA)

Claudia Mello-Thoms
Univ. Iowa Carver College of Medicine (USA), Univ. of Pittsburgh (USA)

Maryam E. Rettmann
Mayo Clinic (USA)

John Sabol
Konica Minolta Healthcare Americas, Inc. (USA)

Jeffrey Siewerdsen
Johns Hopkins Univ. (USA)

John Tomaszewski
Univ. at Buffalo (USA)

Aaron Ward
The Univ. of Western Ontario (Canada)

Shandong Wu
Univ. of Pittsburgh (USA)

Hiroyuki Yoshida
Massachusetts General Hospital (USA) and Harvard Medical School (USA)

EVENT SCHEDULE

TIME	Conference 12925 Physics of Medical Imaging Rebecca Fahrig; John M. Sabol; Ke Li 19–22 February 2024 LOCATION: **Town & Country A**	Conference 12926 Image Processing Olivier Colliot; Jhimli Mitra 19–22 February 2024 LOCATION: **Town & Country B**	Conference 12927 Computer-Aided Diagnosis Weijie Chen; Susan M. Astley 19–22 February 2024 LOCATION: **Town & Country C**	Conference 12928 Image-Guided Procedures, Robotic Interventions, and Modeling Jeffrey H. Siewerdsen; Maryam E. Rettmann 19–22 February 2024 LOCATION: **Pacific C**	Conference 12929 Image Perception, Observer Performance, and Technology Assessment Claudia R. Mello-Thoms; Yan Chen 20–22 February 2024 LOCATION: **Palm 4**
TUESDAY 20 FEBRUARY					
MORNING	8:30 AM–10:00 AM | Location: Town & Country A **Tuesday Morning Keynotes** **Welcome and Introduction** **Robert F. Wagner Award Finalists Announcements for Conferences 12930 and 12933** **Unlocking the value of 3D printing medical devices in hospitals and universities** *(Keynote Presentation)* **Frank J. Rybicki,** Banner Medical Group, Univ. of Arizona (USA) **Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare** *(Keynote Presentation)* **David McClintock,** Mayo Clinic (USA)				
	COFFEE BREAK • 10:00 AM				
	10:30 AM Town & Country A **SESSION 4:** **Phase Contrast and Preclinical Imaging**	10:30 AM Town & Country B **SESSION 4:** **Deep Learning: Transformers**	10:30 AM Town & Country C **SESSION 4:** **Classification and Prediction**	10:30 AM Pacific C **SESSION 4:** **Surgical Data Science / Video Analysis**	10:30 AM Palm 4 **SESSION 1:** **Breast I**
AFTERNOON	**LUNCH BREAK • 12:30 PM**				
	1:40 PM Town & Country A **SESSION 5:** **Mammography and Breast Imaging**	1:40 PM Town & Country B **SESSION 5:** **Trustworthy AI: Validation, Reproducibility, Biases**	1:40 PM Town & Country C **SESSION 5:** **Segmentation II**	1:40 PM Pacific C **SESSION 5:** **Neurosurgery/ Neurotology**	2:00 PM Palm 4 **SESSION 2:** **Observer Performance**
	COFFEE BREAK • 3:20 PM				
	3:50 PM Town & Country A **SESSION 6:** **Angiography and Radiography**	3:50 PM Town & Country B **SESSION 6:** **Brain Imaging**	3:50 PM Town & Country C **SESSION 6:** **Deep Learning I**	3:50 PM Pacific C **SESSION 6:** **Joint Session with Conferences 12928 and 12932**	3:50 PM Palm 4 **SESSION 3:** **Model Observers**
EVENING	5:30 PM–7:00 • Pacific A **Live Demonstrations Workshop** 5:30 PM–7:00 • Pacific A **Publicly Available Data and Tools to Promote Machine Learning: an interactive workshop exploring MIDRC** 5:30 PM–7:00 PM • Pacific A **3D printing in imaging: phantoms and system components** 5:30 PM–7:00 PM • Palm 4 **Establishing Ground Truth in Radiology and Pathology**				

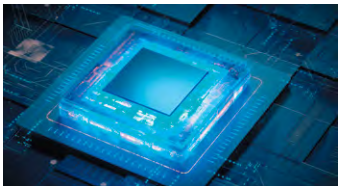
	Conference 12930 Clinical and Biomedical Imaging Barjor S. Gimi; Andrzej Krol 20–22 February 2024 LOCATION: **Palm 7**	Conference 12931 Imaging Informatics for Healthcare, Research, and Applications Hiroyuki Yoshida; Shandong Wu 19–21 February 2024 LOCATION: **Palm 8**	Conference 12932 Ultrasonic Imaging and Tomography Christian Boehm; Nick Bottenus 19–20 February 2024 LOCATION: **Pacific E**	Conference 12471 Digital and Computational Pathology John E. Tomaszewski; Aaron D. Ward 19–21 February 2024 LOCATION: **Town & Country D**
	COFFEE BREAK • 10:00 AM			
	10:40 AM Palm 7 **SESSION 1: Soft Tissue and Bone Imaging** 11:25 AM Palm 7 **SESSION 2: Vessel and Airway Imaging**	10:30 AM Palm 8 **SESSION 3: Informatics Data Management**	10:30 AM Pacific E **SESSION 4: Ultrasound Beam-forming, Signal Processing, and Novel Applications**	10:30 AM Town & Country D **SESSION 4: Segmentation of Cellular and Tissue Structures II**
	LUNCH BREAK • 12:30 PM			
	1:30 PM Palm 7 **SESSION 3: Cardiac Structure and Function**	2:00 PM Palm 8 **SESSION 4: Generative AI - GANs and Flow Models**	1:45 PM Pacific E **SESSION 5: Applications of ML**	1:40 PM Town & Country D **SESSION 5: Grading and Classification of Pathology Images II**
	CCOFFEE BREAK • 3:20 PM			
	3:20 PM Palm 7 **SESSION 4: Image Processing, Detection, Segmentation, Registration, and Analysis**	3:50 PM Palm 8 **SESSION 5: Generative AI - Diffusion Models**	3:50 PM Pacific C **SESESSION 6: Joint Session with Conferences 12928 and 12932**	3:50 PM Town & Country D **SESSION 6: Computer-Aided Diagnosis, Prognosis, and Predictive Analysis II**

Event Schedule continues on next page

Application tracks

Application tracks enable attendees to group and explore presentations in the conference programs to more easily plan their event schedule around the topic of interest. Application track filters span across all conferences at an SPIE event. The ability to group presentations has the reciprocal benefit of helping authors' presentations be more easily found.

See conference app or website for a full listing of presentations in each of these tracks: **spie.org/mi**



AI/ML

Papers that showcase the use of artificial intelligence, machine learning, and deep learning to create and implement intelligent systems across multiple sectors, technologies, and applications.

Sustainability

Papers that highlight the use of optics and photonics for renewable energy, natural resource management, sustainable manufacturing, and greenhouse gas mitigation in support of the UN Sustainable Development Goals.

EVENT SCHEDULE

TIME	Conference 12925 Physics of Medical Imaging Rebecca Fahrig; John M. Sabol; Ke Li 19–22 February 2024 LOCATION: **Town & Country A**	Conference 12926 Image Processing Olivier Colliot; Jhimli Mitra 19–22 February 2024 LOCATION: **Town & Country B**	Conference 12927 Computer-Aided Diagnosis Weijie Chen; Susan M. Astley 19–22 February 2024 LOCATION: **Town & Country C**	Conference 12928 Image-Guided Procedures, Robotic Interventions, and Modeling Jeffrey H. Siewerdsen; Maryam E. Rettmann 19–22 February 2024 LOCATION: **Pacific C**	Conference 12929 Image Perception, Observer Performance, and Technology Assessment Claudia R. Mello-Thoms; Yan Chen 20–22 February 2024 LOCATION: **Palm 4**
WEDNESDAY 21 FEBRUARY					
MORNING	8:00 AM–10:10 AM | Town & Country A **Wednesday Morning Keynotes** **Welcome and Introduction** **Robert F. Wagner Award Finalists Announcements for Conferences 12929 and 12931** **The journey to better breast cancer detection: a trilogy** *(Keynote Presentation)* **Bob Nishikawa,** Dept. of Radiology, Univ. of Pittsburgh (USA) **A tale of two imaging informatics translational licensing models: commercial and open source** *(Keynote Presentation)* **Gordon Harris,** Dept. of Radiology, Massachusetts General Hospital, Harvard Medical School (USA)				
	COFFEE BREAK • 10:00 AM				
	10:30 AM Town & Country A **SESSION 7:** **Nuclear Medicine and Dental Imaging**	10:30 AM Town & Country B **SESSION 7:** **Segmentation**	10:30 AM Town & Country C **SESSION 7:** **Joint Session with Conferences 12927 and 12929**	10:30 AM Pacific C **SESSION 7:** **Image Segmentation/ Registration**	10:30 AM Town & Country C **SESSION 4:** **Joint Session with Conferences 12927 and 12929**
	12:00 PM–5:00 PM Pacific A **Wednesday Poster Viewing**				12:00 PM–5:00 PM Pacific A **Wednesday Poster Viewing**
AFTERNOON	**LUNCH BREAK • 12:30 PM**				
	1:40 PM Town & Country A **SESSION 8:** **CT Reconstruction and Image Quality**	1:40 PM Town & Country B **SESSION 8:** **Deep Dive**	1:40 PM Town & Country C **SESSION 8:** **Neurology**	1:40 PM Pacific C **SESSION 8:** **Spine / Orthopaedic Surgery**	2:00 PM Palm 4 **SESSION 5:** **Breast II**
	COFFEE BREAK • 3:20 PM				
	3:50 PM Town & Country A **SESSION 9:** **CBCT Development and Reconstruction**	3:50 PM Town & Country B **SESSION 9:** **Explainable and Trustworthy AI**	3:50 PM Town & Country C **SESSION 9:** **Head, Neck and Eye**	3:50 PM Town & Country D **SESSION 9:** **Deep Image Analysis for Image-Guided Interventions**	3:50 PM Palm 4 **SESSION 6:** **Technology Assessment and Statistics**
EVENING	5:30 PM–7:00 PM Pacific A **Wednesday Poster Session**				5:30 PM–7:00 PM Pacific A **Wednesday Poster Session**

	Conference 12930 Clinical and Biomedical Imaging Barjor S. Gimi; Andrzej Krol 20–22 February 2024 LOCATION: **Palm 7**	Conference 12931 Imaging Informatics for Healthcare, Research, and Applications Hiroyuki Yoshida; Shandong Wu 19–21 February 2024 LOCATION: **Palm 8**	Conference 12932 Ultrasonic Imaging and Tomography Christian Boehm; Nick Bottenus 19–20 February 2024 LOCATION: **Pacific E**	Conference 12471 Digital and Computational Pathology John E. Tomaszewski; Aaron D. Ward 19–21 February 2024 LOCATION: **Town & Country D**
	COFFEE BREAK • 10:00 AM			
	10:40 AM Palm 7 **SESSION 5: Functional Neuroimaging and Brain Mapping** 11:25 AM Palm 7 **SESSION 6: Magnetic Resonance Imaging (MRI): Methods Development, MRI Quantitation**	10:30 AM Palm 8 **SESSION 6: AI/ML for Data Analytics**		10:30 AM Town & Country D **SESSION 7: Emerging Tools**
	12:00 PM–5:00 PM Pacific A **Wednesday Poster Viewing**	12:00 PM–5:00 PM Pacific A **Wednesday Poster Viewing**		12:00 PM–5:00 PM Pacific A **Wednesday Poster Viewing**
	LUNCH BREAK • 12:30 PM			
	1:30 PM Palm 7 **SESSION 7: Preclinical, Clinical Imaging, and Co-Clinical Imaging**	1:40 PM Palm 8 **SESSION 7: AI/ML for Precision Medicine**		1:40 PM Town & Country D **SESSION 8: From Imaging to Observer Studies**
	COFFEE BREAK • 3:20 PM			
	3:45 PM Palm 7 **SESSION 8: Novel Molecular and Functional Imaging Technologies**	3:50 PM Palm 8 **SESSION 8: Multimodal and Hybrid Data/Systems**		
	5:30 PM–7:00 PM Pacific A **Wednesday Poster Session**	5:30 PM–7:00 PM Pacific A **Wednesday Poster Session**		5:30 PM–7:00 PM Pacific A **Wednesday Poster Session**

Event Schedule continues on next page

SPIE. DIGITAL LIBRARY

INCLUDED WITH REGISTRATION

Presentations on the Digital Library

The Medical Imaging conference proceedings papers and presentations are published in the SPIE Digital Library. All paid conference registrations include 50 downloads for ongoing access.

See full details and updates at **spie.org/mi** or on the **SPIE App**

EVENT SCHEDULE

TIME	Conference 12925 Physics of Medical Imaging Rebecca Fahrig; John M. Sabol; Ke Li 19–22 February 2024 LOCATION: **Town & Country A**	Conference 12926 Image Processing Olivier Colliot; Jhimli Mitra 19–22 February 2024 LOCATION: **Town & Country B**	Conference 12927 Computer-Aided Diagnosis Weijie Chen; Susan M. Astley 19–22 February 2024 LOCATION: **Town & Country C**	Conference 12928 Image-Guided Procedures, Robotic Interventions, and Modeling Jeffrey H. Siewerdsen; Maryam E. Rettmann 19–22 February 2024 LOCATION: **Pacific C**	Conference 12929 Image Perception, Observer Performance, and Technology Assessment Claudia R. Mello-Thoms; Yan Chen 20–22 February 2024 LOCATION: **Palm 4**
THURSDAY 22 FEBRUARY					
MORNING	8:30 AM–10:00 AM | Town & Country A **Thursday Morning Keynotes** **Welcome and Introduction** **Robert F. Wagner Award Finalists Announcements for Conferences 12925 and 12926** **Physics of Medical Imaging Best Student Paper Award Announcement Award —** *Award Sponsored by:* **Konica Minolta** **Image Processing Best Paper Announcements —** *Award Sponsored by:* **Philips** **Medical Imaging Applications for Additive Manufacturing: Challenges and Opportunities** *(Keynote Presentation)* **David Holdsworth**, Western Univ. (Canada) **Prompt, language, context and external knowledge: Pathways toward large medical image model** *(Keynote Presentation)* **Shuo Li**, Case Western Reserve Univ. (USA)				
	COFFEE BREAK • 10:00 AM				
	10:30 AM Town & Country A **SESSION 10: T Clinical Applications**	10:50 AM Town & Country B **SESSION 10: Quality Control and Harmonization**	10:30 AM Town & Country C **SESSION 10: Radiomics**	10:30 AM Pacific C **SESSION 10: Novel Imaging and Visualization**	10:30 AM Palm 4 **SESSION 7: Technology Assessment II**
AFTERNOON	**LUNCH BREAK • 12:00 PM**				
	1:40 PM Town & Country A **SESSION 11: Physical and Virtual Phantom Development**		1:40 PM Town & Country C **SESSION 11: Lung AI**	1:40 PM Pacific C **SESSION 11: Interventional Radiology**	
	COFFEE BREAK • 3:20 PM				
	3:50 PM Town & Country A **SESSION 12: Joint Session with Conferences 12925 and 12928**		3:50 PM Town & Country C **SESSION 12: Deep Learning II**	3:50 PM Town & Country A **SESSION 12: Joint Session with Conferences 12925 and 12928**	

Thank you for participating at

	Conference 12930 Clinical and Biomedical Imaging Barjor S. Gimi; Andrzej Krol 20–22 February 2024 LOCATION: **Palm 7**	Conference 12931 Imaging Informatics for Healthcare, Research, and Applications Hiroyuki Yoshida; Shandong Wu 19–21 February 2024 LOCATION: **Palm 8**	Conference 12932 Ultrasonic Imaging and Tomography Christian Boehm; Nick Bottenus 19–20 February 2024 LOCATION: **Pacific E**	Conference 12471 Digital and Computational Pathology John E. Tomaszewski; Aaron D. Ward 19–21 February 2024 LOCATION: **Town & Country D**
	COFFEE BREAK • 10:00 AM			
	10:30 AM Palm 7 **SESSION 9: Biomechanical Imaging and Modeling**		10:30 AM Town & Country D **SESSION 4: Ultrasound Image Quantification and Classification**	
	LUNCH BREAK • 12:00 PM			
	11:30 AM Palm 7 **SESSION 10: Optical Imaging and Optical Coherence Tomography (OCT)**		1:30 PM Town & Country D **SESSION 5: Ultrasound Waveform Tomography**	
	COFFEE BREAK • 3:20 PM			
			3:30 PM Town & Country D **SESSION 6: Applications of Machine Learning in Ultrasound**	

SPIE Medical Imaging 2024.

PROMOTIONAL PARTNERS

Electro-Optics

optics.org

Photonics Media

Thank you to the following sponsors

GE Research

GLOBUS MEDICAL

Guerbet

INTUITIVE

KONICA MINOLTA

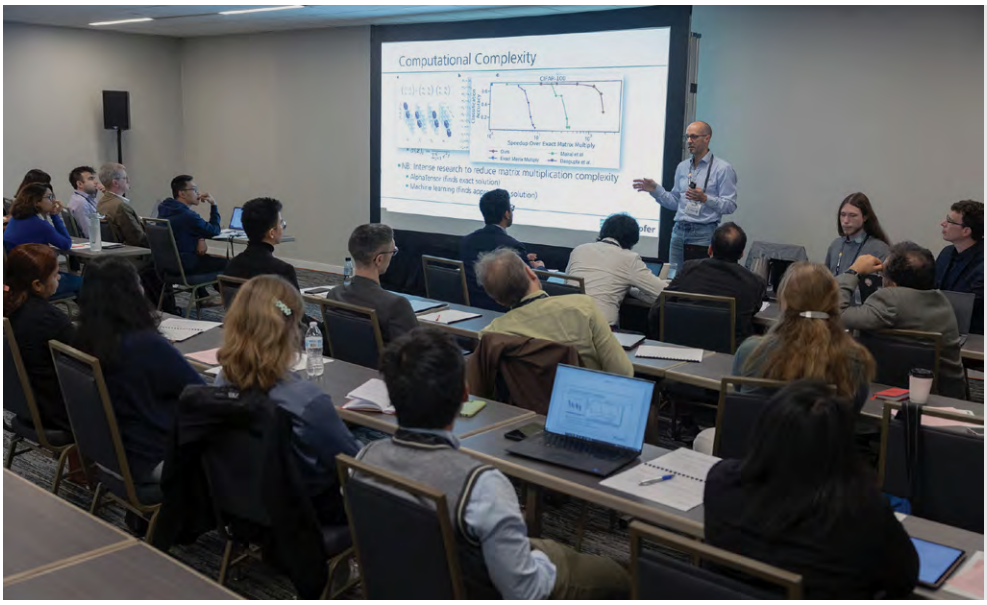
Medtronic

MERCK

NDI

PHILIPS

SIEMENS Healthineers



Courses for SPIE Medical Imaging

Advance your career by adding in-person training

Created and taught by experts, SPIE courses are designed to expand professional knowledge and skills.

Photon Counting CT

SC1129 • Level: Introductory
Sunday, 18 February 2024 • 1:30 PM–5:30 PM

Member: $495.00 | Non-member: $560.00
Student member: $324.00

INSTRUCTORS
Mats Danielsson, KTH Royal Institute of Technology (Sweden)
Mats U. Persson, KTH Royal Institute of Technology (Sweden)

This course explains the principles of photon counting detectors for spectral x-ray imaging. Typical technical implementations are described and fundamental differences to energy integrating systems are pointed out. In particular, the issues of high-rate handling and the effect of detector cross talk on energy resolution are described. Requirements on electronics for spectral imaging in computed tomography is also discussed. A second objective of the course is to describe how energy sensitive counting detectors make use of the energy sampling of the linear attenuation coefficients of the background and target materials for any given imaging task; methods like material basis decomposition and optimal energy weighting will be explained. The second objective highlights the interesting fact that while the spatial-frequency descriptor of signal-to-noise-ratio transfer (DQE) of a system gives a complete characterization of performance for energy integrating (and pure photon counting) systems, it fails to characterize multibin systems since a complete description of the transfer characteristics requires specification of how the information of each energy bin is handled. The latter is in turn dependent on the imaging case at hand which shows that there is no such thing as an imaging case independent system DQE for photon counting multibin systems. We also suggest how this issue could be resolved.

ATTENDEE TESTIMONIAL:
The instructor has a lot of knowledge and is shown when the course members are asking questions.

It was a very complete presentation. I was able to leave having a general knowledge on photon counting CT and its applications. Now I have some new research ideas to explore.

Very worth to participate that course again! Looking forward to next year!

Modern Diagnostic X-ray Sources

SC1183 • Level: Introductory
Sunday, 18 February 2024 • 8:30 AM–12:30 PM

Member: $495.00 | Non-member: $560.00
Student member: $324.00

INSTRUCTOR
Rolf K. Behling, KTH Royal Institute of Technology (Germany)

During recent decades, in particular since the advent of computed tomography and the increasing sophistication of interventional X-ray systems, progress in the development of diagnostic X-ray sources has been tremendous. More than 100,000 diagnostic X-ray tubes are being installed or replaced every year. Tubes for dental application, non-destructive testing and

MONEY-BACK GUARANTEE

We are confident that once you experience an SPIE course for yourself you will look to us for your future education needs. However, if for any reason you are dissatisfied, we will gladly refund your money. We just ask that you tell us what you did not like; suggestions for improvement are always welcome.

Digital badges and certificates

SPIE awards digital badges and certificates to participants who attend courses and complete the evaluation and quiz. Digital credentials are always accessible, easily shareable, printable at any time, and verified. For more information visit spie.org/digital-badges

SPIE reserves the right to cancel a course due to insufficient advance registration.

Onsite courses

View course descriptions and register online.

SPIE Members and Student Members receive discounts on courses.

material analytics add to this. As a sound basis for their work, specialists and academians working in the realm of X-rays like system developers, medical and X-ray physicists and clinicians may want to improve their background knowledge. Literature on the topic has grown recently, among others with several publications by the lecturer, including a standard textbook. In addition, this course will offer 1:1 interaction to improve understanding the physics of production of "clinical" X-rays for diagnostics. It will comprehensively treat functional principles of X-ray sources. Design aspects, special features, radiation protection, modern performance metric, manufacturing technology, and cost aspects will be discussed. Why is vacuum technology not at all regarded outdated? Will we find the X-ray LED, compact X-ray Lasers or flat panel sources in medical imaging soon? Why do hundreds of tube types populate the market? The lecture will cover system performance aspects related to the source, material boundary conditions, and manufacturing technology. The quest for affordable healthcare demands for trade-offs between value and cost, and objective comparison of tube types. Initial costs and costs of tube replacement will be discussed as well as means to extend tube life and to save natural resources. Recent technology and applicaton will be treated. Last but not least, the lecture may spark fascination for these vacuum electronic light sources off the scientific mainstream.

ATTENDEE TESTIMONIAL:

Very informative, very comprehensive.

From Analytic to Clinical Validation: Moving AI/ML into Practice

SC1295 • Level: Intermediate
Monday, 19 February 2024 • 8:30 AM–5:30 PM

Member: $795.00 | Non-member: $905.00
Student member: $462.00

INSTRUCTORS
William Y. Hsu, Univ. of California, Los Angeles (USA)

Matthew S. Brown, UCLA Ctr. for Computer Vision and Imaging Biomarkers (USA)

Robert M. Nishikawa, Univ. of Pittsburgh (USA)

Elizabeth A. Krupinski, Emory Univ. School of Medicine (USA)

Artificial Intelligence (AI) is increasingly being used in a wide variety of medical imaging applications. Most of the focus, however, is on algorithm and scheme development, but this is only part of the picture. In order to have an impact on clinical decision making, workflow and patient care these AI tools must be evaluated using real-world cases and actual clinical providers that are expected to use them in routine care. The techniques used to conduct these types of studies are less well known in this field thus investigators need to be trained the proper study design and analysis methods. This course will cover basic principles, techniques, and process for validating models developed using artificial intelligence (AI)/machine learning (ML) techniques. The primary goal of this course is to help the audience understand and apply fundamental principles related to designing, executing, and interpreting model evaluation studies. The course will be organized around two parts: analytic validation and clinical validation. In the first half, the audience will be exposed to approaches for performing a technical validation of a prediction model, including different study designs, appropriate statistical tests, metrics, dataset considerations, and decision curve analysis. The second half will cover the process of undertaking clinical validation that would address real-world use of models, regulatory and deployment issues. Topics include workflow integration, prospective clinical trials, reader impact studies, and regulatory approvals. Examples will focus on imaging-related models that are drawn from literature and the instructors' personal experiences in prognostic modeling, computer-aided diagnosis, and imaging biomarker development.

ATTENDEE TESTIMONIAL:

Course was very valuable for me. Great interactions with all instructors. Very relevant.

It was the best course ever

Transformers: A Powerful Tool for Image Analysis and Generation

SC1324 • Level: Intermediate
Sunday, 18 February 2024 • 8:30 AM–5:30 PM PST

Member: $865.00 | Non-member: $975.00
Student member: $490.00

This is an interactive course and participants will need to bring their own laptops.

INSTRUCTORS
Markus T. Wenzel, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)
Hans Meine, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)
Felix Thielke, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

Compared to the tremendous success models like GPT4, Bard, or Llama, which are all based on transformers, had in the field of text analysis, machine translation, and de-novo text generation, it took longer for transformers to enter the scene of image analysis and image generation. Reasons being the high demands in terms of compute and data. More successful approaches in training transformers have led to a change that will likely be as impactful as the introduction of CNNs for image classification. Already, first (still limited) "image foundation models" have been published, and also in medical image analysis, several attempts are being made to parallel the semantic understanding and emergence seen in large language models for image models. In this course, we explain the thought model and elementary mathematics of the attention mechanism underlying transformers. You will learn in theory and explore in hands-on work the reason for their modeling capacity and understand why this creates the need of larger training datasets. The course traces the development of transformers for image analysis tasks and shows ways to pre-train transformers on weak or unlabeled data. The course concludes with examples of applications used in medical image analysis tasks.

ATTENDEE TESTIMONIAL:

I really enjoyed the course!

Loved it! Thank you for such a great overview!

PLENARY AND KEYNOTE EVENTS

HEAR HIGHLIGHTS FROM LEADING RESEARCHERS

Medical Imaging plenary and keynote sessions feature presentations from a wide range of leaders in the field, with focus on developing research and visions of the future of imaging technologies.

PLENARY EVENT

SPIE Medical Imaging Awards and Plenary

18 February 2024 • 5:30 PM–6:30 PM | Town & Country A

5:30 pm:

Symposium Chair Welcome and Robert F. Wagner All-Conference Best Student Paper Award Announcement

Despina Kontos
Columbia Univ. Irving Medical Ctr.(USA)

Joseph Lo
Duke Univ. School of Medicine (USA)

Welcome to SPIE Medical Imaging 2022 attendees and the announce the first-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award.

AWARD SPONSORED BY:

5:40 pm:

Acknowledgment of New SPIE Fellows
Recognition of members of the medical imaging community who have been selected this year as new SPIE Fellows.

5:45 pm:

SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging.

5:50 pm:

Interpretable Deep Learning in Medical Imaging

Cynthia Rudin
Duke Univ. (USA)

We would like deep learning systems to aid radiologists with difficult decisions instead of replacing them with inscrutable black boxes. “Explaining” the black boxes with XAI tools is problematic, particularly in medical imaging where the explanations from XAI tools are inconsistent and unreliable. Instead of explaining the black boxes, we can replace them with interpretable deep learning models that explain their reasoning processes in ways that people can understand. One popular interpretable deep learning approach uses case-based reasoning, where an algorithm compares a new test case to similar cases from the past (“this looks like that”), and a decision is made based on the comparisons. Radiologists often use this kind of reasoning process themselves when evaluating a new challenging test case. In this talk, I will demonstrate interpretable machine learning techniques through applications to mammography and EEG analysis.

Monday Morning Keynotes

19 February 2024 • 8:30 AM–10:45 AM | Town & Country A

Get a good start to your Monday with keynote talks from the Computer-Aided Diagnosis, Image-Guided Procedures, Robotic Interventions, and Modeling, and Ultrasonic Imaging and Tomography conferences.

8:30 AM:

Welcome and Introduction

8:35 AM:

Robert F. Wagner Award Finalists Announcements for Conferences 12927, 12928, and 12932

Computer-Aided Diagnosis Best Paper Award Announcements

AWARD SPONSORED BY:

Image-Guided Procedures, Robotic Interventions, and Modeling Student Paper and Early-Career Investigator Award Announcements

AWARDS SPONSORED BY:

8:45 AM

Clinical translation of machine learning for medical imaging

Curtis Langlotz
Stanford Univ. (USA)

9:25 AM

Beyond the visible: The true state of AI in medical imaging

Lena Maier-Hein
German Cancer Research Center (DKFZ) (Germany)

10:05 AM

From dolphins in the sea to stars in the sky: The inspired birth of ultrasound tomography

Neb Duric
Univ. of Rochester, Delphinus Medical Technologies (USA)

Tuesday Morning Keynotes

20 February 2024 • 8:30 AM–10:00 AM | Town & Country A

Wake up on Tuesday with keynote speakers from the Clinical and Biomedical Imaging and Digital and Computational Pathology conferences.

8:30 AM:

Welcome and Introduction

8:35 AM:

Robert F. Wagner Award Finalists Announcements for Conferences 12930 and 12933

8:40 AM

Unlocking the value of 3D printing medical devices in hospitals and universities

Frank J. Rybicki
Banner Medical Group, Univ. of Arizona (USA)

9:20 AM

Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare

David McClintock
Mayo Clinic (USA)

Wednesday Morning Keynotes

21 February 2024 • 8:30 AM–10:00 AM | Town & Country A

Shake off your Wednesday morning with keynote speakers from the Image Perception, Observer Performance, and Technology Assessment and Imaging Informatics for Healthcare, Research, and Applications conferences.

8:30 AM:

Welcome and Introduction

8:35 AM:

Robert F. Wagner Award Finalists Announcements for Conferences 12929 and 12931

8:40 AM

The journey to better breast cancer detection: a trilogy

Bob Nishikawa
Dept. of Radiology, Univ. of Pittsburgh (USA)

9:20 AM

A tale of two imaging informatics translational licensing models: commercial and open source

Gordon Harris
Dept. of Radiology, Massachusetts General Hospital, Harvard Medical School (USA)

Thursday Morning Keynotes

22 February 2024 • 8:30 AM–10:00 AM | Town & Country A

Thursday morning kicks off with keynote talks from the Physics of Medical Imaging and Image Processing conferences.

8:30 AM:

Welcome and Introduction

8:35 AM:

Robert F. Wagner Award Finalists Announcements for Conferences 12925 and 12926

Physics of Medical Imaging Best Student Paper Award Announcement Award

AWARD SPONSORED BY:

KONICA MINOLTA

Image Processing Best Paper Announcements

AWARDS SPONSORED BY:

PHILIPS

8:40 AM

Medical Imaging Applications for Additive Manufacturing: Challenges and Opportunities

David Holdsworth
Western Univ. (Canada)

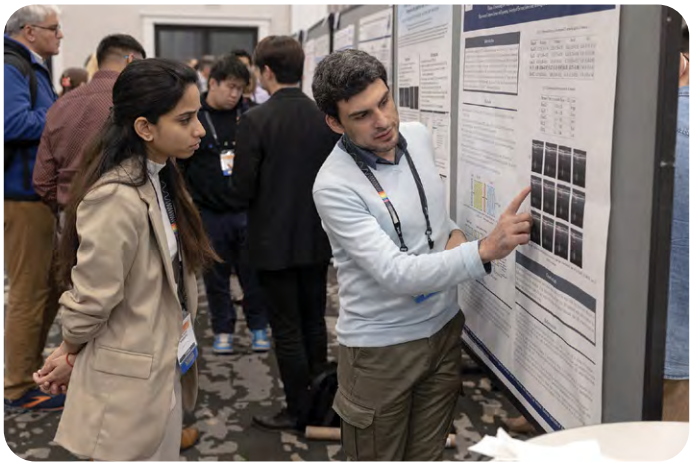
9:20 AM

Prompt, language, context and external knowledge: Pathways toward large medical image model

Shuo Li
Case Western Reserve Univ. (USA)

TECHNICAL EVENTS

Connect with your colleagues and explore topics in depth. Events include technical networking sessions, and poster sessions.



Monday Poster Session

19 February 2024 • 5:30 PM–7:00 PM | Pacific A

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster presentations from the following conferences will be included:

- Computer-Aided Diagnosis
- Image Processing
- Image-Guided Procedures, Robotic Interventions, and Modeling
- Ultrasonic Imaging and Tomography

24-Hour Poster Setup Period:
7:30 AM Monday – 5:00 PM Monday*

**In order to be considered for a poster award, it is recommended to have your poster set up by 1:00 PM Monday. Judging may begin after this time. Posters must remain on display until the end of the Monday evening poster session, but may be left hanging until 1:00 PM Tuesday. After 1:00 PM on Tuesday, posters will be removed and discarded*

12:00 PM to 5:00 PM:
Pre-Session Viewing Posters will be on display as presenters arrive and hang them. Stop by any time between noon and 5:00 PM on Monday to browse the available posters before the evening session begins.

Next-Day Viewing and Tear-Down Posters may be left hanging until 1:00 PM on Tuesday for extended viewing. All Posters must be removed by 1:00 PM on Tuesday. Any unclaimed posters will be discarded.

View poster presentation guidelines and set-up instructions at:
https://spie.org/MI/Poster-Presentation-Guidelines

Trustworthy AI: Validation, Reproducibility, Biases

20 February 2024 • 1:40 PM–3:20 PM | Town & Country B

How to ensure that medical imaging AI is trustworthy? How to know if one can trust the results presented in research papers? These are fundamental questions that the field of medical imaging needs to address to lead to true advances in clinical care. At this workshop, three world-class experts will address the following key issues in trustworthy AI: 1) the selection of appropriate metrics for validating AI algorithms in medical imaging; 2) the reproducibility of results which is a cornerstone of the scientific method; 3) the risk that AI algorithms are contaminated by bias, making their outputs potentially misleading and their application unfair. The talks will be followed by a discussion of learnings and Q&A involving the three speakers.

1:40 PM

Introduction
Workshop chair **Olivier Coillot,** Ctr. National de la Recherche Scientifique (France), introduces the workshop and speakers

1:45 PM

Speaker Presentations

Metrics Reloaded

Lena Maier-Hein
Professor
German Cancer Research Center (DKFZ) and Heidelberg University (Germany)

2:10 PM

Reproducibility in medical image processing

Ninon Burgos
CNRS Researcher
CNRS - Paris Brain Institute (France)

2:35 PM

Bias in radiology artificial intelligence: causes, evaluation and mitigation

Imon Banerjee
Associate Professor
(Department of Radiology,
Mayo Clinic (USA)

3:00 PM **Panel Discussion**

Live Demonstrations Workshop

20 February 2024 • 5:30 PM–7:00 PM | Pacific A

Apply now to participate in this workshop featuring interactive demonstrations for systems and algorithms developers to show off their creations, complementary to the topics of SPIE Medical Imaging.

Workshop Chairs: **Karen Drukker,** The Univ. of Chicago Medicine (USA); **Lubomir M. Hadjiiski,** Michigan Medicine (USA); **Horst Karl Hahn,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

See full details and updates at **spie.org/mi** or on the **SPIE App**

Establishing Ground Truth in Radiology and Pathology

20 February 2024 • 5:30 PM–7:00 PM | Palm 4

In this workshop we'll talk to Pathologists, Radiologists, an Imaging Scientist to determine how to best deal with establishing ground truth.

Panel Moderator
Ronald Summers
National Institutes of Health (USA)

Panelists

Richard Levenson
Univ. of California, Davis (USA)

Abhinav Kumar Jha
Washington Univ. in St. Louis (USA)

Steven Horii
Univ. of Pennsylvania (USA)

Miguel Lago
U.S. Food and Drug Administration (USA)

3D printing in imaging: phantoms and system components

20 February 2024 • 5:30 PM–7:00 PM | Town & Country A

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of short presentations followed by a panel discussion.

Point of care manufacturing at Mayo Clinic

Jonathan M. Morris
Co-director Anatomic Modeling Lab
Department of Radiology, Mayo Clinic (USA)

3D printing patient-specific implants

Devarsh Vyas
Senior Product Portfolio Manager,
3D Systems Healthcare (USA)

Ben Johnson
VP Regulatory and Portfolio,
3D Systems Healthcare (USA)

3D-printed anatomical models for vascular device development

Alex Grenning
Senior Program Manager
The Jacobs Institute (USA)

Additive manufacturing: the promise and the challenge

David W. Holdsworth
Professor
Western Univ. (Canada)

Publicly Available Data and Tools to Promote Machine Learning: an interactive workshop exploring MIDRC

20 February 2024 • 5:30 PM–7:00 PM | Pacific A

Workshop Chairs: **Weijie Chen,** US Food & Drug Administration (USA) and **Heather Whitney,** the Univ. of Chicago (USA)

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of Co-led by AAPM, ACR and RSNA, the Medical Imaging and Data Resource Center (MIDRC; midrc.org) aims to foster machine learning innovation through data sharing for rapid and flexible collection, analysis, and dissemination of imaging and associated clinical data by providing researchers with unparalleled resources in the fight against COVID-19 and beyond. The infrastructure and resources in MIDRC are designed with the intent to facilitate the effective and efficient translation of innovative tools into clinical practice.

Wednesday Poster Session

21 February 2024 • 5:30 PM–7:00 PM | Pacific A

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster presentations from the following conferences will be included:

- Physics of Medical Imaging
- Image Perception, Observer Performance, and Technology Assessment
- Clinical and Biomedical Imaging
- Imaging Informatics for Healthcare, Research, and Applications
- Digital and Computational Pathology

24-Hour Poster Setup Period:
5:00 PM Tuesday–5:00 PM Wednesday *

**In order to be considered for a poster award, it is recommended to have your poster set up by 12:00 PM Wednesday. Judging may begin after this time. Posters must remain on display until the end of the Wednesday evening poster session, but may be left hanging until 1:00 PM Thursday. After 1:00 PM, any posters left hanging will be discarded.*

12:00 PM to 5:00 PM:
Pre-Session Viewing Posters will be on display as presenters arrive and hang them. Stop by any time between noon and 5:00 PM on Wednesday to browse the available posters before the evening session begins.

Next-Day Viewing and Tear-Down Posters may be left hanging until 1:00 PM on Thursday for extended viewing. All Posters must be removed by 1:00 PM on Thursday. Any unclaimed posters will be discarded.

View poster presentation guidelines and set-up instructions at:
https://spie.org/MI/Poster-Presentation-Guidelines

SPIE Community Lounge

19 February 2024 • 8:00 AM–2:00 PM
SPIE Community Lounge (Palm 1)

Join us as we continue to learn how diversity drives success on global collaborations or just relax and recharge between sessions. Check out some of the featured events happening in the Lounge.

The lounge is open to all attendees.

Learn and Engage

Exploring Careers in Medical Imaging
21 February 2024
3:30 PM–4:30 PM

Career Networking Social
22 February 2024
4:30 PM–5:30 PM

Network and Socialize

LGBTQ+ Meetup
19 February 2024
8:00 PM–9:00 PM

Women's Networking Lunch
20 February 2024
12:00 PM–1:30 PM

Student Member Meetup
20 February 2024
3:00 PM–4:00 PM

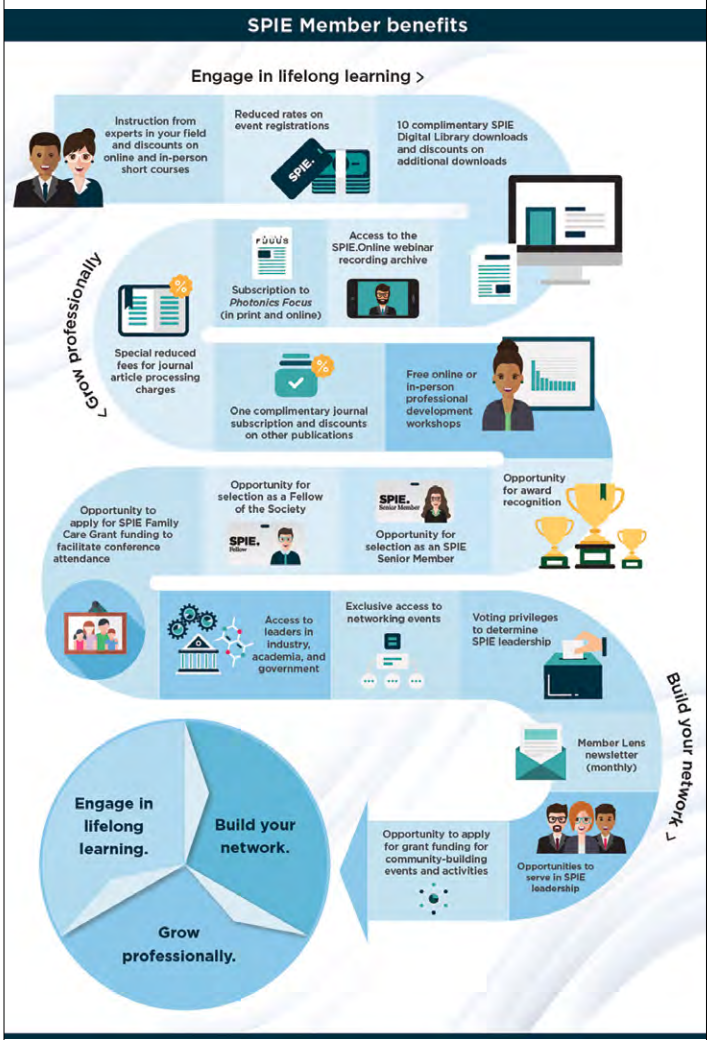
Relax and Recharge
Catch up with colleagues, help yourself to refreshments, or simply decompress in the SPIE Community Lounge.

Event details can be found in individual event listings.

SPIE.MEMBERSHIP

Your Membership. Your way.

Create a Membership experience that grows with you, each step of your professional journey



Join or renew today to make more progress toward your next career move

BioPhotonics

Bringing Light to the Life Sciences®

Stay at the Forefront of **Photonics Innovations.**

Scan to Subscribe

www.biophotonics.com

PHOTONICS MEDIA photonics.com

WORLDWIDE COVERAGE OF

LASERS • OPTICS • IMAGING • SPECTROSCOPY • MICROSCOPY

SOCIAL AND NETWORKING EVENTS

These sessions give you the opportunity to network, learn, and discuss with medical imaging professionals from around the world.

All-Symposium Welcome Reception

18 February 2024 • 6:30 PM–8:00 PM | Flamingo Lawn

All registered conference attendees are invited to join your colleagues at the Welcome Reception. This informal networking event will be held on the Flamingo Lawn, located within the Town & Country grounds. Dress is casual.

SPIE Community Lounge

19–22 February | SPIE Community Lounge (Palm 1)

Visit the SPIE Community Lounge to attend networking and professional development events or relax and recharge between sessions.

LGBTQ+ Meetup

19 February 2024 • 8:00 PM–9:00 PM | SPIE Community Lounge (Palm 1)

Come join us in the Community Lounge to socialize and network with other LGBTQ+ and allies in the medical imaging community.

Women's Networking Lunch

20 February 2024 • 12:00 PM–1:00 PM | SPIE Community Lounge (Palm 1)

Join other women in the Medical Imaging field for informal discussions and networking during the scheduled lunch.

Tuesday Networking Lunch

20 February 2024 • 12:30 PM–1:40 PM | Flamingo Lawn

Join your colleagues for an informal networking lunch.

SPIE Student Member Meetup

20 February 2024 • 3:00 PM–4:00 PM | SPIE Community Lounge (Palm 1)

Student Members are invited to join this networking event to meet other students attending SPIE Medical Imaging over delightful refreshments.

JMI Editor Reception

20 February 2024 • 7:30 PM–9:30 PM | Presidential Suite

The editorial volunteers for the *Journal of Medical Imaging* are invited to a private reception. Location information will be sent via invitation.

Wednesday Networking Lunch

21 February 2024 • 12:30 PM–1:40 PM | Flamingo Lawn

Join your colleagues for an informal networking lunch.

Exploring Careers in Medical Imaging

21 February 2024 • 3:30 PM–4:30 PM | SPIE Community Lounge (Palm 1)

Open to all technical conference attendees. Come hear expert panelists discuss their personal experiences navigating a wide array of career paths in medical imaging fields, so you can make informed decisions for your future.

Career Networking Social

21 February 2024 • 4:30 PM–5:30 PM | SPIE Community Lounge (Palm 1)

Join us for a welcoming and casual networking session over light refreshments.

Badge pick up and registration hours

Town and Country Resort - Pacific Foyer

Sunday 18 February	7:30 AM–6:00 PM
Monday 19 February	7:30 AM–4:00 PM
Tuesday 20 February	7:30 AM–4:00 PM
Wednesday 21 February	7:30 AM–4:00 PM
Thursday 22 February	7:30 AM–1:30 PM

SPIE Cashier

Location: Town and Country Resort, Pacific Foyer
Open during registration hours

Registration payments
If you are planning to register onsite, please do so at the "Need to Register" laptop station. Your credit card payment will be processed during registration. If you wish to pay with cash or check, you will be directed to the Cashier once you have completed registration for final payment.

If you have already registered and wish to add a course, workshop, or special event, you may do this online by signing into your SPIE account.

Receipt and Certificate of Attendance
Preregistered attendees who need an SPIE-stamped receipt or attendees who need a Certificate of Attendance may obtain those at the Cashier.

Badge Corrections
Badge corrections can be made at the Cashier. Please mark your badge with your changes before approaching the counter.

Speaker check-in and preview station

Location: Town and Country Resort, Sunset 1
Open during registration hours

All speakers must stop at Speaker Check-In to upload and preview their slide presentation files at least two hours before their scheduled session or the day before if they present in the first session. Speakers are not able to present using their own devices. All conference rooms are equipped with a laptop, projector, screen, lapel microphone, and laser pointer.

SPIE will record the audio plus screen content of all presentations; Recordings will be published on the SPIE Digital Library.

Health and safety products

Location: Town and Country Resort, Pacific Foyer
Open during registration hours

Stop by SPIE Registration to pick up face masks, hand sanitizer, and other safety products all free from SPIE.

Internet access

Location: Lobbies, Meeting Rooms, and Registration area

Free Wifi will be available throughout the meeting space. Login information will be posted onsite.

SPIE Conference and Exhibition app

This useful tool allows you to search and browse the program, special events, participants, exhibitors, courses, and more. It is free and available for iPhone and Android phones.

Check out the useful Restaurant Guide within the event section of the SPIE App by clicking:

More > Nearby > Nearby Restaurants

If you don't already have it, Download the SPIE App.

SPIE Course materials

Location: Town and Country Resort, Pacific Foyer
Open during registration hours

Browse course offerings or learn more about SPIE courses available in portable formats such as online and customizable, in-company courses.

SPIE Bookstore

Location: Town and Country Foyer

Monday . . . . . Exact time TBD

Stop by the SPIE Bookstore to browse the latest SPIE Press Books. While there, get a t-shirt or educational toy to bring home to the family.

Credit and debit cards only will be accepted; no cash.

SPIE luggage & coat check

Location: Town and Country Resort, Pacific Foyer

Wednesday. . . . . 7:30 AM–4:00 PM

Thursday . . . . . 7:30 AM–1:30 PM

Luggage can be dropped near SPIE Registration. Note that no attendant will be present and owners assume risk for lost or stolen bags.

Child care services

Sitterwise
Email: sarah@sitterwise.com
Office: 619.303.4379 or text 619.663.4379
Make a reservation online. Sitterwise.com

Note: SPIE does not imply an endorsement or recommendation of these services. They are provided on an "information only" basis for your further analysis and decision. Other services may be available.

Did you know SPIE offers Family Care Grants to SPIE members? For more information on deadlines and how to apply check the details here.

Gender inclusive restroom

Location: Town and Country Resort, Town and Country Foyer Level 2

Quiet Room

Location: California 3–open during registration hours

The Quiet Room is intended for silent meditation, reflection, and prayer. No mobile devices or computer use is allowed, and no food or beverages are allowed.

Mothers' Room

Location: California 4–open during registration hours

The Mothers' Lounge is a lockable room intended for nursing mothers. There is no storage, running water, or refrigeration available in this space.

Urgent message line

An urgent message line is available during registration hours: 360.685.5529

Lost and found

Location: Town and Country Resort, Pacific Foyer–Open during registration hours

Found items will be kept at the SPIE Cashier in the Registration area during the meeting and available only during registration hours. At the end of the meeting, all found items will be turned over to the Town and Country Resort Security.

Food and beverage services

Coffee Breaks–Daily complimentary coffee

Sunday: Pacific Foyer. . . . . .7:30 AM–4:00 PM

Monday–Thursday: Town and Country Foyer. . .7:30 AM–4:00 PM

SPIE Hosted Lunches

Location: Town and Country Resort, Flamingo Lawn

Tuesday and Wednesday only* . . . . . 12:00 PM–1:00 PM

*These two lunches are included with conference registrations.

Food and Refreshments for Purchase

Location: Town and Country Resort

Sunday–Thursday . . . . . .Hours vary

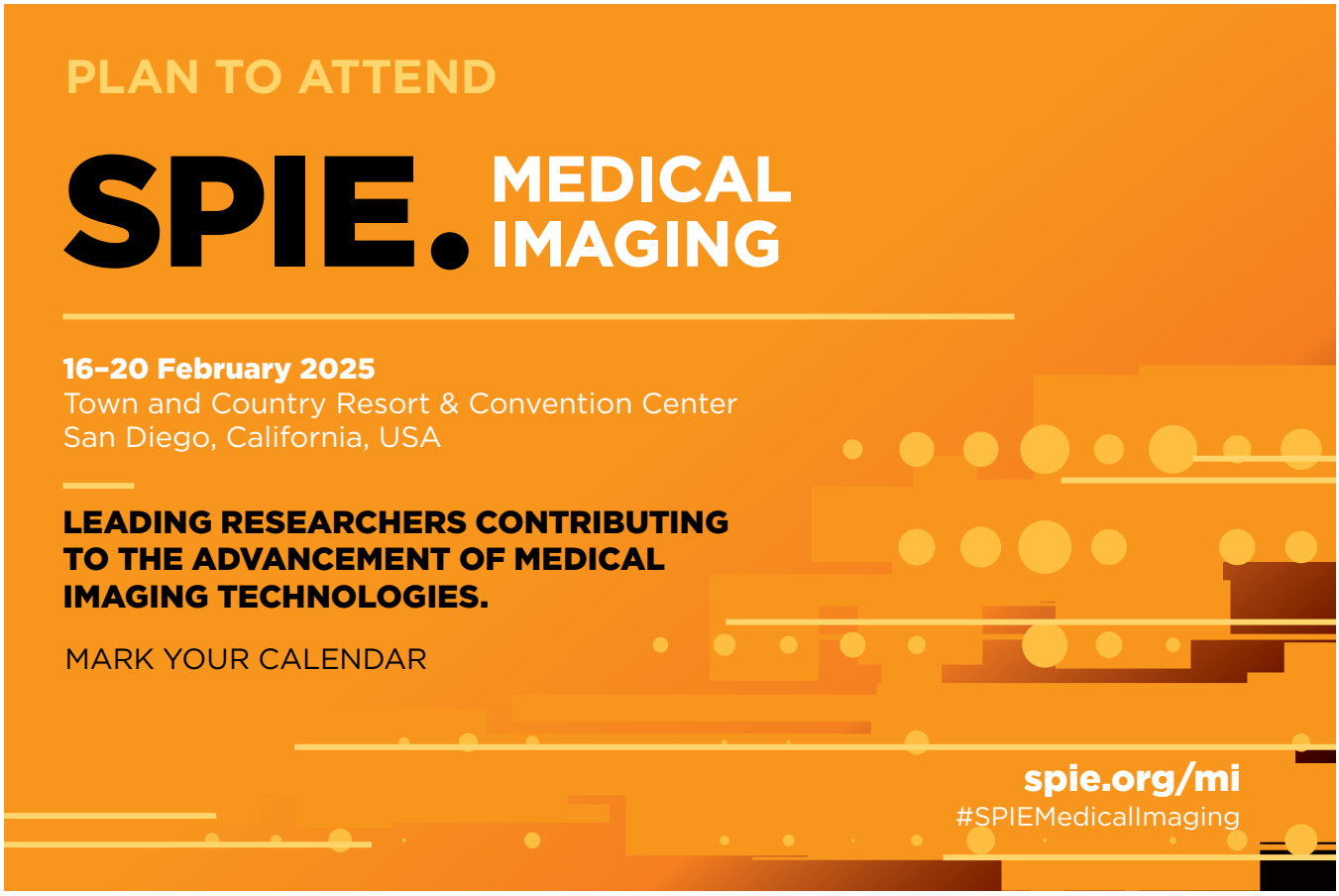
Various food outlets will be open and available during the week. Visit the Town and Country Resort website for hours and menu options.

Restaurants and City Information

Restaurants near the Town and Country Resort: https://www.opentable.com/landmark/restaurants-near-town-and-country-resort-hotel-and-convention-center

Additional Hotel Information

Services and amenities provided by the Town and Country Resort can be found here: https://www.towncountry.com



CONTENTS

CONFERENCE 12925 26–46
Physics of Medical Imaging
Chairs: Rebecca Fahrig; John M. Sabol; Ke Li
19 - 22 February 2024 | Town & Country A

CONFERENCE 12926 47–64
Image Processing
Chairs: Olivier Colliot; Jhimli Mitra
19 - 22 February 2024 | Town & Country B

CONFERENCE 12927. 65–83
Computer-Aided Diagnosis
Chairs: Weijie Chen; Susan M. Astley
19 - 22 February 2024 | Town & Country C

CONFERENCE 12928 84–98
Image-Guided Procedures, Robotic Interventions, and Modeling
Chairs: Jeffrey H. Siewerdsen; Maryam E. Rettmann
19 - 22 February 2024 | Pacific C

CONFERENCE 12929 99–108
Image Perception, Observer Performance, and Technology Assessment
Chairs: Claudia R. Mello-Thoms; Yan Chen
20 - 22 February 2024 | Palm 4

CONFERENCE 12930 109–122
Clinical and Biomedical Imaging
Chairs: Barjor S. Gimi; Andrzej Krol
20 - 22 February 2024 | Palm 7

CONFERENCE 12931. 123–133
Imaging Informatics for Healthcare, Research, and Applications
Chairs: Hiroyuki Yoshida; Shandong Wu
19 - 21 February 2024 | Palm 8

CONFERENCE 12932 134–143
Ultrasonic Imaging and Tomography
Chairs: Christian Boehm; Nick Bottenus
19 - 20 February 2024 | Pacific E

CONFERENCE 12933 144–153
Digital and Computational Pathology
Chairs: John E. Tomaszewski; Aaron D. Ward
19 - 21 February 2024 | Town & Country D

CONFERENCE 12925

Physics of Medical Imaging

19 - 22 February 2024 | Town & Country A

CONFERENCE CO-SPONSORS

KONICA MINOLTA

SIEMENS Healthineers

Conference Chair(s): **Rebecca Fahrig,** Siemens Healthineers (Germany); **John M. Sabol,** Konica Minolta Healthcare Americas, Inc. (United States)

Conference Co-Chair(s): **Ke Li,** Univ. of Wisconsin School of Medicine and Public Health (United States)

Program Committee: **Shiva Abbaszadeh,** Univ. of California, Santa Cruz (United States); **Adam M. Alessio,** Michigan State Univ. (United States); **Hilde Bosmans,** Univ. Ziekenhuis Leuven (Belgium); **Seungryong Cho,** KAIST (Korea, Republic of); **Mini Das,** Univ. of Houston (United States); **Mats E. Danielsson,** KTH Royal Institute of Technology (Sweden); **Maria Drangova,** Robarts Research Institute (Canada); **Thomas G. Flohr,** Siemens Healthineers (Germany); **Grace J. Gang,** Penn Medicine (United States); **Arundhuti Ganguly,** TibaRay (United States); **Yongshuai Ge,** Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences (China); **Stephen J. Glick,** U.S. Food and Drug Administration (United States); **Taly Gilat Schmidt,** Marquette Univ. (United States); **Marc Kachelriess,** Deutsches Krebsforschungszentrum (Germany); **Karim S. Karim,** Univ. of Waterloo (Canada); **Patrick J. La Riviere,** The Univ. of Chicago (United States); **Quanzheng Li,** Massachusetts General Hospital (United States); **Joseph Y. Lo,** Carl E. Ravin Advanced Imaging Labs. (United States); **Andreas Maier,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Jonathan S. Maltz,** GE HealthCare (United States); **Peter B. Noël,** Univ. of Pennsylvania (United States); **Frédéric Noo,** The Univ. of Utah (United States); **Jinyi Qi,** Univ. of California, Davis (United States); **Ioannis Sechopoulos,** Radboud Univ. Medical Ctr. (Netherlands); **Behrouz Shabestari,** National Institute of Biomedical Imaging and Bioengineering (United States); **Shobhit Sharma,** Canon Medical Research USA, Inc. (United States); **Michael A. Speidel,** Univ. of Wisconsin School of Medicine and Public Health (United States); **Joseph W. Stayman,** Johns Hopkins Univ. (United States); **Karl Stierstorfer,** Siemens Healthineers (Germany); **Anders Tingberg,** Skåne Univ. Hospital (Sweden); **Adam S. Wang,** Stanford Univ. School of Medicine (United States); **Yuxiang Xing,** Tsinghua Univ. (China); **Lifeng Yu,** Mayo Clinic (United States); **Wei Zhao,** Stony Brook Univ. (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Coffee Break 10:45 AM - 11:10 AM

SESSION 1: PHOTON COUNTING IMAGING

19 February 2024 • 11:10 AM - 12:30 PM | Town & Country A
Session Chair(s): **Ke Li**, Univ. of Wisconsin School of Medicine and Public Health (United States); **Mats Danielsson**, KTH Royal Institute of Technology (Sweden)

12925-1 • 11:10 AM - 11:30 AM
Optimal weighting strategies for maximizing contrast-to-noise ratio in photon counting CT images
Author(s): **Yirong Yang**, **Sen Wang,** Stanford Univ. School of Medicine (United States); **Grant Stevens**, **Jiahua Fan,** GE HealthCare (United States); **Adam S. Wang,** Stanford Univ. School of Medicine (United States)

12925-2 • 11:30 AM - 11:50 AM
Physics-based modeling of energy threshold induced spectral inconsistency and its adaptive correction scheme for photon-counting CT
Author(s): **Yuting Chen**, **Yuxiang Xing,** Tsinghua Univ. (China), The Key Lab. of Particle and Radiation Imaging (China); **Hewei Gao,** Tsinghua Univ. (China), The Key Lab. of Particle and Radiation Imaging (China)

12925-3 • 11:50 AM - 12:10 PM
Performance assessment of photon counting versus energy integrated CT: concordance of in vivo and phantom measurements
Author(s): **Francesco Ria**, **Mojtaba Zarei**, **Mridul Bhattarai**, **Steve Bache**, **Njood Alsaihati**, **Fides R. Schwartz, Ehsan Samei,** Duke Univ. Health System (United States)

12925-4 • 12:10 PM - 12:30 PM
MACE CT reconstruction for modular material decomposition from energy resolving photon-counting data
Author(s): **Natalie M. Jadue**, **Madhuri Nagare,** Purdue Univ. (United States); **Jonathan S. Maltz,** GE HealthCare (United States); **Gregery T. Buzzard, Charles A. Bouman,** Purdue Univ. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 2: APPLICATIONS OF MACHINE LEARNING

19 February 2024 • 01:40 PM - 03:00 PM | Town & Country A
Session Chair(s): **Behrouz Shabestari**, National Institute of Biomedical Imaging and Bioengineering (United States); **Joseph Y. Lo**, Carl E. Ravin Advanced Imaging Labs. (United States)

12925-5 • 01:40 PM - 02:00 PM
May denoising remove structures? How to reconstruct invariances of CT denoising algorithms
Author(s): **Elias Eulig**, **Joscha Maier,** Deutsches Krebsforschungszentrum (Germany); **Björn Ommer,** Ludwig-Maximilians-Univ. München (Germany); **Marc Kachelrieß,** Deutsches Krebsforschungszentrum (Germany)

12925-6 • 02:00 PM - 02:20 PM
Deep-learning-based motion artifact reduction for photon- counting spectral cardiac CT
Author(s): **Ruihan Huang**, **Karin Larsson, Mats U. Persson,** KTH Royal Institute of Technology (Sweden)

12925-7 • 02:20 PM - 02:40 PM
Evaluation of data uncertainty for deep-learning-based CT noise reduction using ensemble patient data and a virtual imaging trial framework
Author(s): **Zhongxing Zhou**, **Hao Gong**, **Cynthia H. McCollough, Lifeng Yu,** Mayo Clinic (United States)

12925-8 • 02:40 PM - 03:00 PM
Iodine map generation from single-kV contrast-enhanced CT using a conditional generative model
Author(s): **Ran Zhang**, **Yijing Wu**, **John W. Garrett**, **Ke Li**, **Meghan G. Lubner**, **Thomas M. Grist, Guang-Hong Chen,** Univ. of Wisconsin School of Medicine and Public Health (United States)

Coffee Break 03:00 PM - 03:30 PM

SESSION 3: ADVANCES IN DETECTOR DESIGN AND CHARACTERIZATION

19 February 2024 • 03:30 PM - 05:30 PM | Town & Country A
Session Chair(s): **Shiva Abbaszadeh**, Univ. of California, Santa Cruz (United States); **Karl Stierstorfer**, Siemens Healthineers (Germany)

12925-9 • 03:30 PM - 03:50 PM
Experimental methods to estimate the dead time of photon counting detectors
Author(s): **Linying Zhan**, **Ran Zhang**, **Guang-Hong Chen, Ke Li,** Univ. of Wisconsin-Madison (United States)

12925-10 • 03:50 PM - 04:10 PM
Experimental evaluation of a micron-resolution CT detector
Author(s): **Rickard Brunskog**, **Mats Persson**, **Zihui Jin, Mats Danielsson,** KTH Royal Institute of Technology (Sweden)

12925-11 • 04:10 PM - 04:30 PM
Activating the interpixel septa of scintillator-photodiode detectors using an X-ray fluorescent reflector material
Author(s): **Scott S. Hsieh,** Mayo Clinic (United States)

12925-12 • 04:30 PM - 04:50 PM
Recycling scattered X-rays within edge-on Si photon counting detectors via Si-scintillator lamination
Author(s): **Christian De Caro**, **Guang-Hong Chen, Ke Li,** Univ. of Wisconsin-Madison (United States)

12925-13 • 04:50 PM - 05:10 PM
CASYMIR: A generalized cascaded linear system model implementation for X-ray imaging detectors
Author(s): **Gustavo Pacheco**, **Juan J. Pautasso**, **Koen Michielsen,** Radboud Univ. Medical Ctr. (Netherlands); **Ioannis Sechopoulos,** Radboud Univ. Medical Ctr. (Netherlands), Dutch Expert Ctr. for Screening (LRCB) (Netherlands), Technical Medicine Ctr., Univ. Twente (Netherlands)

12925-14 • 05:10 PM - 05:30 PM
Reconstruction with an alternating aperture, photon counting detector
Author(s): **Scott S. Hsieh,** Mayo Clinic (United States); **Katsuyuki Taguchi,** Johns Hopkins Univ. (United States); **Shuai Leng, Cynthia H. McCollough,** Mayo Clinic (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: PHASE CONTRAST AND PRECLINICAL IMAGING

20 February 2024 • 10:30 AM - 12:30 PM | Town & Country A
Session Chair(s): **Karim Salaudin Karim**, Univ. of Waterloo (Canada); **Peter B. Noël**, Univ. of Pennsylvania (United States)

12925-15 • 10:30 AM - 10:50 AM
Advancing X-ray dark-field imaging for human-scale applications: helical CT and surview imaging
Author(s): **Jakob Haeusele**, **Clemens Schmid**, **Manuel Viermetz**, **Nikolai Gustschin**, **Tobias Lasser,** Technische Univ. München (Germany); **Thomas Köhler,** Philips Research (Germany); **Franz Pfeiffer,** Technische Univ. München (Germany)

12925-16 • 10:50 AM - 11:10 AM
Nonprewhitening observer applied on grating-based and grating-less phase-contrast imaging, a simulation study
Author(s): **Rickard Brunskog,** KTH Royal Institute of Technology (Sweden); **Michael Bertilson**, **Olof von Hofsten,** Eclipse Optics AB (Sweden); **Mats Persson,** KTH Royal Institute of Technology (Sweden)

12925-17 • 11:10 AM - 11:30 AM
X-ray diffraction imaging of glioblastoma and ductal carcinoma in-situ
Author(s): **Joel A. Greenberg**, **Xiang Li,** Quadridox, Inc. (United States); **Zachary W. Gude,** Duke Univ. (United States); **Arnav Nanda**, **David Coccarelli**, **Anuj Kapadia,** Quadridox, Inc. (United States); **Shannon McCall,** Duke Univ. (United States)

12925-18 • 11:30 AM - 11:50 AM
Advancing preclinical micro-photon counting CT perfusion imaging: from phantom experiments to in vivo applications
Author(s): **Alex J. Allphin**, **Darin P. Clark,** Duke Univ. Medical Ctr. (United States); **Carmen J. Gil**, **Martin L. Tomov**, **Vahid Serpooshan,** Emory Univ. (United States), Georgia Institute of Technology (United States); **Cristian T. Badea,** Duke Univ. Medical Ctr. (United States)

12925-19 • 11:50 AM - 12:10 PM
Kidney Stone Compositional Analysis and Identification using a Benchtop High-Resolution Multi-Modal X-ray Phase-Contrast micro-CT Imaging System
Author(s): **Abdollah Pil-Ali,** Univ. of Waterloo (Canada), KA Imaging Inc. (Canada); **Zachary Birch**, **Sahar Adnani,** Univ. of Waterloo (Canada); **Christopher C. Scott,** KA Imaging Inc. (Canada); **Karim S. Karim,** Univ. of Waterloo (Canada)

12925-20 • 12:10 PM - 12:30 PM
Cramér-Rao lower bound in the context of spectral X-ray imaging with propagation-based phase contrast
Author(s): **Giavanna L. Jadick, Patrick J. La Rivière,** The Univ. of Chicago (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 5: MAMMOGRAPHY AND BREAST IMAGING

20 February 2024 • 01:40 PM - 03:20 PM | Town & Country A
Session Chair(s): **Ioannis Sechopoulos**, Radboud Univ. Medical Ctr. (Netherlands); **Anders Tingberg**, Skåne Univ. Hospital (Sweden)

12925-21 • 01:40 PM - 02:00 PM
An accretion approach to glandularity estimation in digital breast tomosynthesis
Author(s): **Leonardo Coito Pereyra**, **Ioannis Sechopoulos, Koen Michielsen,** Radboud Univ. Medical Ctr. (Netherlands)

12925-22 • 02:00 PM - 02:20 PM
Improved isotropic resolution and small detail detectability in a digital breast tomosynthesis system with flying focal spot technology
Author(s): **Katrien Houbrechts,** KU Leuven (Belgium); **Nicholas Marshall,** KU Leuven (Belgium), Univ. Ziekenhuis Leuven (Belgium); **Lesley Cockmartin,** Univ. Ziekenhuis Leuven (Belgium); **Hilde Bosmans,** KU Leuven (Belgium), Univ. Ziekenhuis Leuven (Belgium)

12925-23 • 02:20 PM - 02:40 PM
Hybrid thick-slice reconstruction in wide-angle DBT for optimal micro-calcification and mass perceptibility
Author(s): **Marcel Beister**, **Ferdinand Lück**, **Ludwig Ritschl, Steffen Kappler,** Siemens Healthcare GmbH (Germany)

12925-24 • 02:40 PM - 03:00 PM
Exploring the effect of observer task in evaluating performance of FFDM with in silico modeling
Author(s): **Dan Li**, **Andrey Makeev, Stephen Glick,** U.S. Food and Drug Administration (United States)

12925-25 • 03:00 PM - 03:20 PM
Breast shape-specific subtraction for improved contrast enhanced mammography imaging
Author(s): **Marta C. Pinto**, **Koen Michielsen,** Radboud Univ. Medical Ctr. (Netherlands); **Ramyar Biniazan**, **Steffen Kappler,** Siemens Healthcare GmbH (Germany); **Ioannis Sechoupolos,** Radboud Univ. Medical Ctr. (Netherlands), Dutch Expert Ctr. for Screening (LRCB) (Netherlands), Univ. Twente (Netherlands)

Coffee Break 03:20 PM - 03:50 PM

SESSION 6: ANGIOGRAPHY AND RADIOGRAPHY

20 February 2024 • 03:50 PM - 05:30 PM | Town & Country A
Session Chair(s): **Arundhuti Ganguly**, TibaRay (United States); **John M. Sabol**, Konica Minolta Healthcare Americas, Inc. (United States)

12925-26 • 03:50 PM - 04:10 PM
Anti-correlated noise reduction in triple-energy, photon-counting X-ray angiography
Author(s): **Jesse Tanguay, Sarah Aubert,** Toronto Metropolitan Univ. (Canada)

12925-27 • 04:10 PM - 04:30 PM
A CT-system free approach for brain perfusion assessment: temporal perfusion index assessment
Author(s): **Shalini Subramanian,** Johns Hopkins Univ. (United States); **Paul W. Segars,** Duke Univ. (United States); **Ting-Yim Lee,** Western Univ. (Canada), Robarts Research Institute (Canada), Lawson Health Research Institute (Canada); **Andreia V. Faria**, **Donghyeon Lee**, **Mathias Unberath, Katsuyuki Taguchi,** Johns Hopkins Univ. (United States)

12925-28 • 04:30 PM - 04:50 PM
X-ray source array optimization for mobile chest tomosynthesis
Author(s): **Christina R. Inscoe**, **Alex J. Billingsley**, **Alan Zhao**, **Heaven Laramy-Jade Burel**, **Stephen Chesser**, **Gavin Lyda**, **Jianping Lu**, **Yueh Z. Lee, Otto Zhou,** The Univ. of North Carolina at Chapel Hill (United States)

12925-29 • 04:50 PM - 05:10 PM
Design optimization of a triple-layer flat-panel detector for three material decomposition
Author(s): **Xiao Jiang,** Johns Hopkins Univ. (United States); **Matthew Tivnan,** Harvard Medical School (United States), Massachusetts General Hospital (United States); **Xiaoxuan Zhang**, **Grace J. Gang,** Univ. of Pennsylvania (United States); **Joseph W. Stayman,** Johns Hopkins Univ. (United States)

12925-30 • 05:10 PM - 05:30 PM
Denoising X-ray images with deep learning: impact of spatially correlated noise
Author(s): **Alice Ku**, **Sen Wang, Adam S. Wang,** Stanford Univ. (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:40 AM

SESSION 7: NUCLEAR MEDICINE AND DENTAL IMAGING

21 February 2024 • 10:40 AM - 12:00 PM | Town & Country A
Session Chair(s): **Marc Kachelrieß**, Deutsches Krebsforschungszentrum (Germany); **Jinyi Qi**, Univ. of California, Davis (United States)

12925-32 • 10:40 AM - 11:00 AM
WIN-PDQ: A Wiener-estimator-based projection-domain quantitative SPECT method that accounts for intra-regional uptake heterogeneities
Author(s): **Zekun Li,** Washington Univ. in St. Louis (United States); **Daniel L. J. Thorek**, **Nadia Benabdallah,** Mallinckrodt Institute of Radiology (United States); **Abhinav K. Jha,** Washington Univ. in St. Louis (United States), Mallinckrodt Institute of Radiology (United States)

12925-33 • 11:00 AM - 11:20 AM
Unsupervised-learning material decomposition for dual-energy CT with sinogram data fidelity
Author(s): **Junbo Peng,** Emory Univ. School of Medicine (United States); **Huiqiao Xie,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Chih-Wei Chang**, **Justin Roper**, **Richard L. J. Qiu,** Emory Univ. School of Medicine (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Xiangyang Tang, Xiaofeng Yang,** Emory Univ. School of Medicine (United States)

12925-35 • 11:20 AM - 11:40 AM
Neural attenuation fields for metal artifact reduction in dental CT
Author(s): **Jooho Lee**, **Junhyun Ahn,** Yonsei Univ. (Korea, Republic of); **Jongduk Baek,** Yonsei Univ. (Korea, Republic of), Bareunex Imaging, Inc. (Korea, Republic of)

12925-36 • 11:40 AM - 12:00 PM
Development of a true 14.8 um pixel resolution intraoral sensors for dental X-ray imaging
Author(s): **Seungman Yun**, **Seunghyeon Lee**, **Carter Williamson**, **Wonjun Lee,** Qpix Solutions, Inc. (United States); **Kangmin Hwang**, **Hoseok Lee**, **Jiuk Kim, Jaejeong Seo,** Rayence Co., Ltd. (Korea, Republic of)

Lunch Break 12:00 PM - 01:40 PM

SESSION 8: CT RECONSTRUCTION AND IMAGE QUALITY

21 February 2024 • 01:40 PM - 03:20 PM | Town & Country A
Session Chair(s): **Adam S. Wang**, Stanford Univ. School of Medicine (United States); **Joseph Webster Stayman**, Johns Hopkins Univ. (United States)

12925-37 • 01:40 PM - 02:00 PM
Fourier diffusion for sparse CT reconstruction
Author(s): **Anqi Liu,** Johns Hopkins Univ. (United States); **Grace J. Gang,** Univ. of Pennsylvania (United States); **Joseph W. Stayman,** Johns Hopkins Univ. (United States)

12925-38 • 02:00 PM - 02:20 PM
Patient-specific NEQ(f): automatic local and global determination of spatial-frequency dependent SNR and task performance in clinical CT
Author(s): **Parvathy Sudhir Pillai**, **Jeffrey H. Siewerdsen**, **Tatiana Rypinski**, **Anshuj Deva**, **Bhavin Soni**, **A. Kyle Jones, Moiz Ahmad,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

12925-39 • 02:20 PM - 02:40 PM
An alternative Bayesian reconstruction of sparse-view CT by optimizing deep learning parameters
Author(s): **Changyu Chen,** Tsinghua Univ. (China), Key Lab. of Particle and Radiation Imaging, Tsinghua Univ. (China); **Zhiqiang Chen,** Tsinghua Univ. (China), The Key Lab. of Particle and Radiation Imaging, Tsinghua Univ. (China); **Li Zhang, Yuxiang Xing,** Tsinghua Univ. (China), Key Lab. of Particle and Radiation Imaging, Tsinghua Univ. (China)

12925-40 • 02:40 PM - 03:00 PM
Diffusion posterior sampling for nonlinear CT reconstruction
Author(s): **Shudong Li,** Johns Hopkins Univ. (United States); **Matthew Tivnan,** Harvard Medical School (United States), Massachusetts General Hospital (United States); **Joseph W. Stayman,** Johns Hopkins Univ. (United States)

12925-41 • 03:00 PM - 03:20 PM
Retrospective tube current modulation optimization of individualized organ-level CT dose and image quality
Author(s): **Sen Wang**, **Maria Jose Medrano Matamoros,** Stanford Univ. School of Medicine (United States); **Grant Stevens,** GE HealthCare (United States); **Justin R. Tse, Adam S. Wang,** Stanford Univ. School of Medicine (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 9: CBCT DEVELOPMENT AND RECONSTRUCTION

21 February 2024 • 03:50 PM - 05:10 PM | Town & Country A
Session Chair(s): **Grace Jianan Gang**, Penn Medicine (United States); **Seungryong Cho**, KAIST (Korea, Republic of)

12925-42 • 03:50 PM - 04:10 PM
Multi-source semi-stationary CT for brain imaging: development and assessment of a prototype system and image formation algorithms
Author(s): **Thomas McSkimming,** Johns Hopkins Univ. (United States), Flinders Univ. (Australia), Micro-X Ltd. (Australia); **Alejandro Lopez-Montes,** Johns Hopkins Univ. (United States); **Anthony Skeats**, **Chris Delnooz,** Micro-X Ltd. (Australia); **Brian Gonzales,** Micro-X Inc. (United States); **Egon Perilli**, **Karen Reynolds,** Flinders Univ. (Australia); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Wojciech Zbijewski, Alejandro Sisniega,** Johns Hopkins Univ. (United States)

12925-43 • 04:10 PM - 04:30 PM
Dual-energy CBCT by spectral filtration of a dual-focus CNT x-ray source
Author(s): **Boyuan Li**, **Yuanming Hu**, **Christina R. Inscoe**, **Shuang Xu**, **Donald A. Tyndall**, **Yueh Lee**, **Jianping Lu, Otto Zhou,** The Univ. of North Carolina at Chapel Hill (United States)

12925-44 • 04:30 PM - 04:50 PM
Motion-compensated 4DCT reconstruction from single-beat cardiac CT scans using convolutional networks
Author(s): **Zhenyao Yan,** Tsinghua Univ. (China); **Zhennong Chen,** Massachusetts General Hospital (United States); **Li Zhang,** Tsinghua Univ. (China); **Quanzheng Li, Dufan Wu,** Massachusetts General Hospital (United States)

12925-46 • 04:50 PM - 05:10 PM
One-shot estimation of epistemic uncertainty in deep learning image formation with application to high-quality cone-beam CT reconstruction
Author(s): **Stephen Z. Liu**, **Prasad Vagdargi**, **Craig K. Jones**, **Mark G. Luciano**, **William S. Anderson,** The Johns Hopkins Univ. School of Medicine (United States); **Patrick A. Helm,** Medtronic, Inc. (United States); **Ali Uneri,** The Johns Hopkins Univ. School of Medicine (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Wojciech Zbijewski, Alejandro Sisniega,** The Johns Hopkins Univ. School of Medicine (United States)

POSTERS - WEDNESDAY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/wednesday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 5:00 PM Tuesday – 5:00 PM Wednesday

- In order to be considered for a poster award, it is recommended to have your poster set up by 12:00 PM Wednesday. Judging may begin after this time. Posters must remain on display until the end of the Wednesday evening poster session, but may be left hanging until 1:00 PM Thursday. After 1:00 PM, any posters left hanging will be discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

Poster groupings are listed below by topic.

POSTERS: CT

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-61 • 05:30 PM - 07:00 PM
Patient-specific data augmentation method to improve the training efficiency of convolutional neural network for metal artifact reduction with a single patient dental CT volume
Author(s): **Junhyun Ahn, Jongduk Baek,** Yonsei Univ. (Korea, Republic of)

12925-62 • 05:30 PM - 07:00 PM
A method to generate patient CT noise for deep learning network training
Author(s): **Minah Han, Jongduk Baek,** Yonsei Univ. (Korea, Republic of), Bareunex Imaging, Inc. (Korea, Republic of)

12925-63 • 05:30 PM - 07:00 PM
A challenge for high-speed and high-resolution CT for extremities with clinical feasibility
Author(s): **Hiroki Kawashima, Katsuhiro Ichikawa,** Kanazawa Univ. (Japan)

12925-64 • 05:30 PM - 07:00 PM
Genuine "one-stop-shop" stress myocardial CT perfusion: taking full advantage of a 320-row CT imaging system
Author(s): **Wanhui Zhou,** Central Research Institute, United Imaging Healthcare Co., Ltd. (China); **Cheng Yan,** Zhongshan Hospital, Fudan Univ. (China); **Shijie Xu**, **Wei Wang,** Central Research Institute, United Imaging Healthcare Co., Ltd. (China); **Wenying Wang,** United Imaging Healthcare Co., Ltd. (United States); **Guozhi Zhang,** Central Research Institute, United Imaging Healthcare Co., Ltd. (China)

12925-65 • 05:30 PM - 07:00 PM
Enhancing personalized contrast injection in computed tomography: clinical validation of a machine learning algorithm for accurate fat-free mass estimation
Author(s): **Natalie Heracleous**, **Hugues G. Brat**, **Benoit Dufour**, **Benoit Rizk**, **Cyril Thouly, Federica Zanca,** 3R Swiss Imaging Network SA (Switzerland)

12925-66 • 05:30 PM - 07:00 PM
Wavelet domain-based deep residual learning for metal artifact reduction in computed tomography
Author(s): **Seungwan Lee,** Konyang Univ. (Korea, Republic of); **Seonghee Kang,** Seoul National Univ. Hospital (Korea, Republic of); **Youngeun Choi,** Konyang Univ. (Korea, Republic of); **Chanrok Park,** Eulji Univ. (Korea, Republic of)

12925-67 • 05:30 PM - 07:00 PM
An iterative reconstruction network for incomplete projections of static CT
Author(s): **Yukang Wang**, **Chunliang Ma**, **Keyang Zha,** Southeast Univ. (China); **Yunxiang Li,** Nanovision Technology (Beijing) Co., Ltd. (China); **Shouhua Luo,** Southeast Univ. (China)

12925-68 • 05:30 PM - 07:00 PM
Automatic tuning of CT imaging parameters with reinforcement learning
Author(s): **Haoyu Zhang**, **Le Shen, Yuxiang Xing,** Tsinghua Univ. (China)

12925-69 • 05:30 PM - 07:00 PM
Feasibility of data-driven scatter correction method in a Triple-Source CT (TSCT)
Author(s): **Linjie Chen**, **Ying Cheng**, **Shuo Yang, Guohua Cao,** ShanghaiTech Univ. (China)

12925-70 • 05:30 PM - 07:00 PM
Dual-domain fusion network for metal artifact reduction in CT
Author(s): **Jiayi Wu,** ShanghaiTech Univ. (China); **Yuan Li,** SHPIC, 9th People's Hospital, Shanghai Jiao Tong Univ. School of Medicine (China); **Zhe Wang**, **Huamin Wang,** ShanghaiTech Univ. (China); **Maurizio Tonetti,** SHPIC, 9th People's Hospital, Shanghai Jiao Tong Univ. School of Medicine (China); **Guohua Cao,** ShanghaiTech Univ. (China)

12925-71 • 05:30 PM - 07:00 PM
SGM-based sparsity reconstruction under non-standard geometry of robotic CT
Author(s): **Xuan Zhou,** Institute of High Energy Physics (China), School of Nuclear Science and Technology, University of Chinese Academy of Sciences (China); **Qiong Xu,** Institute of High Energy Physics (China), Jinan Lab. of Applied Nuclear Science (China); **Yuedong Liu,** Institute of High Energy Physics (China), Univ. of Chinese Academy of Sciences (China); **Cunfeng Wei, Long Wei,** Institute of High Energy Physics (China), Univ. of Chinese Academy of Sciences (China), Jinan Lab. of Applied Nuclear Science (China)

12925-72 • 05:30 PM - 07:00 PM
Jacobian analysis in deep learning CT denoising networks
Author(s): **Xiaoxuan Zhang,** Univ. of Pennsylvania (United States); **Patrick Li**, **Junyuan Li,** Johns Hopkins Univ. (United States); **Grace J. Gang,** Univ. of Pennsylvania (United States)

12925-73 • 05:30 PM - 07:00 PM
An investigation of correlation between external surrogate signal and internal motion according to respiratory irregularity
Author(s): **Changhwan Kim**, **Jiwon Jang**, **Eunho Lee**, **Seyjoon Park**, **Soorim Han**, **Min Cheol Han**, **Chae-Seon Hong, Jin Sung Kim,** Yonsei Univ. College of Medicine (Korea, Republic of)

12925-74 • 05:30 PM - 07:00 PM
PixelPrint: generating patient-specific phantoms for spectral CT using dual filament 3D Pprinting
Author(s): **Pouyan Pasyar**, **Jessica Y. Im**, **Kai Mei**, **Leening P. Liu**, **Olivia F. Sandvold**, **Michael Geagan, Peter B. Noel,** Univ. of Pennsylvania (United States)

12925-75 • 05:30 PM - 07:00 PM
Enhanced CT simulation using realistic vascular flow dynamics
Author(s): **Cyrus Tanade**, **Nicholas Felice**, **Ehsan Abadi**, **Ehsan Samei**, **Amanda Randles, William P. Segars,** Duke Univ. (United States)

12925-76 • 05:30 PM - 07:00 PM
Sensitivity analysis of dual-energy computed tomography multi-triplet material decomposition
Author(s): **Giavanna L. Jadick**, **Ingrid Reiser, Patrick J. La Rivière,** The Univ. of Chicago (United States)

12925-77 • 05:30 PM - 07:00 PM
Noise variance estimator of log-processed projection data in energy integrating detector CT
Author(s): **Linying Zhan**, **Ran Zhang**, **Ke Li, Guang-Hong Chen,** Univ. of Wisconsin-Madison (United States)

12925-78 • 05:30 PM - 07:00 PM
Improved coronary artery calcium (CAC) detection in conventional CT with deep-learning image de-blurring
Author(s): **Christian Wülker,** Lufthansa Technik (Germany); **Niels R. van der Werf,** Philips Healthcare (Netherlands); **Nikolas D. Schnellbächer,** Philips GmbH Innovative Technologies (Germany); **Marcel J. W. Greuter,** Univ. Medical Ctr. Groningen (Netherlands); **Michael Grass,** Philips GmbH Innovative Technologies (Germany)

12925-79 • 05:30 PM - 07:00 PM
Impact of deep-learning CT image denoising on the accuracy of radiomics parameter estimation
Author(s): **Pontus Pandurevic**, **Alex Back**, **Dennis Hein, Mats U. Persson,** KTH Royal Institute of Technology (Sweden)

12925-80 • 05:30 PM - 07:00 PM
Validating a simulation tool for use with patient data for evaluation of advanced CT reconstruction
Author(s): **Daniel W. Shin,** Canon Medical Systems Corp. (Japan); **Ilmar Hein,** Canon Medical Research USA, Inc. (United States); **Naruomi Akino, Kirsten L. Boedeker,** Canon Medical Systems Corp. (Japan)

12925-81 • 05:30 PM - 07:00 PM
Rotating projection based localizer radiograph: enable sparse sampling for dose saving and scan speed enhancement with transformer combined CNN
Author(s): **Kairui Feng**, **Yougu Yang, Yi Tian,** Siemens Shanghai Medical Equipment Ltd. (China)

12925-82 • 05:30 PM - 07:00 PM
Virtual NLST: towards replicating national lung screening trial
Author(s): **Fakrul Islam Tushar**, **Liesbeth Vancoillie**, **Cindy McCabe**, **Amareswararao Kavuri**, **Lavsen Dahal**, **Brian Harrawood**, **Milo Fryling**, **Mojtaba Zarei**, **Saman Sotoudeh-Paima**, **Fong Chi Ho**, **Dhrubajyoti Ghosh**, **Sheng Luo**, **William P. Segars**, **Ehsan Abadi**, **Kyle J. Lafata**, **Ehsan Samei, Joseph Y. Lo,** Duke Univ. (United States)

12925-83 • 05:30 PM - 07:00 PM
Metal Artifact Reduction in CT Using Unsupervised Sinogram Manifold Learning
Author(s): **Junbo Peng**, **Chih-Wei Chang,** Emory Univ. School of Medicine (United States); **Huiqiao Xie,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Mingdong Fan,** Emory Univ. School of Medicine (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Justin Roper**, **Richard L. J. Qiu**, **Xiangyang Tang, Xiaofeng Yang,** Emory Univ. School of Medicine (United States)

12925-84 • 05:30 PM - 07:00 PM
Multi-Channel Reconstruction (MCR) Toolkit v2.0: open-source Python-based tools for X-ray CT reconstruction
Author(s): **Darin P. Clark**, **Alex Allphin**, **Rohan Nadkarni, Cristian T. Badea,** Duke Univ. Medical Ctr. (United States)

12925-85 • 05:30 PM - 07:00 PM
Local motion detection, characterization, and quantification for X-ray CT
Author(s): **Jiang Hsieh,** GE HealthCare (United States)

12925-87 • 05:30 PM - 07:00 PM
Automated web-based software for CT quality control testing of low-contrast detectability using model observers
Author(s): **Zhongxing Zhou**, **Jarod Wellinghoff**, **Mingdong Fan**, **Scott S. Hsieh**, **David Holmes**, **Cynthia H. McCollough, Lifeng Yu,** Mayo Clinic (United States)

12925-88 • 05:30 PM - 07:00 PM
Image texture aided spectral CT material decomposition
Author(s): **JC Rodriguez Luna**, **Diego Andrade, Mini Das,** Univ. of Houston (United States)

POSTERS: PHOTON COUNTING IMAGING

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-105 • 05:30 PM - 07:00 PM
Spectral correction of photon-counting detectors in contrast-enhanced mammography using a convolutional neural network
Author(s): **Colin Schaeffer,** Henry Ford Health System (United States); **Stephen Glick, Bahaa Ghammraoui,** U.S. Food and Drug Administration (United States)

12925-106 • 05:30 PM - 07:00 PM
Applicability of high tube voltage imaging to achieve accurate quantitative images when applying photon counting detectors to general radiography
Author(s): **Rina Nishigami**, **Hiroaki Hayashi**, **Daiki Kobayashi**, **Tatsuya Maeda**, **Takashi Asahara,** Kanazawa Univ. (Japan); **Yuki Kanazawa,** Tokushima Univ. (Japan); **Natsumi Kimoto, Shuichiro Yamamoto,** JOB Corp. (Japan)

12925-107 • 05:30 PM - 07:00 PM
Dual-source photon-counting CT: impact of residual cross-scatter on quantitative spectral results
Author(s): **Leening P. Liu**, **Edgar Salazar,** Univ. of Pennsylvania (United States); **Pooyan Sahbaee,** Siemens Healthineers (United States); **Harold L. Litt, Peter B. Noël,** Univ. of Pennsylvania (United States)

12925-108 • 05:30 PM - 07:00 PM
Spectral photon-counting CT for quantification of iodized oil in mouse tumors
Author(s): **Yuedong Liu,** Institute of High Energy Physics (China), Univ. of Chinese Academy of Sciences (China); **Qiong Xu,** Institute of High Energy Physics (China), Jinan Lab. of Applied Nuclear Science (China); **Xuan Zhou,** Institute of High Energy Physics (China), Univ. of Chinese Academy of Sciences (China); **Cunfeng Wei, Long Wei,** Institute of High Energy Physics (China), Univ. of Chinese Academy of Sciences (China), Jinan Lab. of Applied Nuclear Science (China)

12925-110 • 05:30 PM - 07:00 PM
Proton-stopping power ratio prediction using photon-counting computed tomography and deep learning
Author(s): **Karin Larsson**, **Dennis Hein**, **Ruihan Huang,** KTH Royal Institute of Technology (Sweden); **Daniel Collin,** GE HealthCare (Sweden); **Jonas Andersson,** Umeå Univ. (Sweden); **Mats Persson,** KTH Royal Institute of Technology (Sweden)

12925-111 • 05:30 PM - 07:00 PM
Learned high-resolution cardiac CT imaging from ultra-high-resolution PCD-CT
Author(s): **Emily K. Koons**, **Hao Gong**, **Andrew Missert**, **Shaojie Chang**, **Timothy Winfree**, **Zhongxing Zhou**, **Cynthia H. McCollough, Shuai Leng,** Mayo Clinic (United States)

12925-112 • 05:30 PM - 07:00 PM
Improving stenosis assessment in energy integrating detector CT via learned monoenergetic imaging capability
Author(s): **Shaojie Chang**, **Emily K. Koons**, **Hao Gong**, **Jamison E. Thorne**, **Cynthia H. McCollough, Shuai Leng,** Mayo Clinic (United States)

12925-113 • 05:30 PM - 07:00 PM
Deep grid inpainting for photon-counting CT detectors
Author(s): **Jan Magonov,** Deutsches Krebsforschungszentrum (Germany), Siemens Healthineers (Germany), Univ. Heidelberg (Germany); **Joscha Maier,** Deutsches Krebsforschungszentrum (Germany); **Eric Fournié**, **Johan Sunnegårdh**, **Karl Stierstorfer,** Siemens Healthineers (Germany); **Marc Kachelrieß,** Deutsches Krebsforschungszentrum (Germany), Univ. Heidelberg (Germany)

12925-114 • 05:30 PM - 07:00 PM
Iodine K-edge imaging in photon counting CT through multiple two-basis decompositions and deep learning
Author(s): **Sara S. M. Tehrani**, **Karin Larsson,** KTH Royal Institute of Technology (Sweden); **Fredrik Grönberg**, **Johannes Loberg**, **Hugo Linder,** GE HealthCare (Sweden); **Mats U. Persson,** KTH Royal Institute of Technology (Sweden)

12925-115 • 05:30 PM - 07:00 PM
A comparative study on the utility and choice parameters of photon-counting CT for bone quantification
Author(s): **Cindy McCabe,** Carl E. Ravin Advanced Imaging Labs. (United States); **Steve Bache,** Duke Univ. (United States); **Gengxin Shi,** Johns Hopkins Univ. (United States); **Ryan Breighner,** Hospital for Special Surgery (United States); **Wojciech Zbijewski,** Johns Hopkins Univ. (United States); **Ehsan Samei, Ehsan Abadi,** Carl E. Ravin Advanced Imaging Labs. (United States)

12925-116 • 05:30 PM - 07:00 PM
An acquisition-based approach for high-fidelity infilling of photon-counting x-ray detector pixel gaps
Author(s): **Alex J. Allphin**, **Rohan Nadkarni**, **Darin P. Clark, Cristian T. Badea,** Duke Univ. Medical Ctr. (United States)

12925-117 • 05:30 PM - 07:00 PM
Comparison of energy-integrating detectors and photon-counting detectors for MV-kV dual-energy imaging on a tomographic therapy system
Author(s): **Maya M. Ventura**, **Giavanna L. Jadick, Patrick J. La Riviere,** The Univ. of Chicago (United States)

12925-118 • 05:30 PM - 07:00 PM
A generalized supervised training approach for adaptive spectral harmonization in photon-counting CT
Author(s): **Wenying Wang,** United Imaging Healthcare Co., Ltd. (United States); **Xi Zhang**, **Wenda Zhang**, **Xiaojuan Liu**, **Jinglu Ma, Guotao Quan,** United Imaging Healthcare Co., Ltd. (China)

12925-119 • 05:30 PM - 07:00 PM
Deep learning models for rapid denoising of 5D cardiac photon-counting micro-CT images
Author(s): **Rohan Nadkarni**, **Darin P. Clark**, **Alex J. Allphin, Cristian T. Badea,** Duke Univ. School of Medicine (United States)

12925-120 • 05:30 PM - 07:00 PM
Evaluation of a CdTe photon-counting detector in medical imaging: performance metrics and distortion correction approaches
Author(s): **Joseph Manus**, **Muhammad Ghani**, **Andrey Makeev**, **Stephen Glick, Bahaa Ghammraoui,** U.S. Food and Drug Administration (United States)

12925-121 • 05:30 PM - 07:00 PM
Dose-efficient characterization of coronary artery plaques with a prototype CdZnTe-based photon-counting CT scanner
Author(s): **Thomas W. Holmes,** Emory Univ School of Medicine (United States); **Patrick Gleason,** Emory Univ. School of Medicine (United States); **Shobhit Sharma**, **Kurt Schultz**, **Steven Ross**, **Shuoxing Wu**, **Thomas Labno**, **Ruoqiao Zhang**, **Richard Thompson**, **Zhou Yu,** Canon Medical Research USA, Inc. (United States); **Amir Pourmorteza,** Emory Univ. School of Medicine (United States), Winship Cancer Institute of Emory Univ. (United States), Georgia Institute of Technology (United States)

12925-122 • 05:30 PM - 07:00 PM
A generic model of semiconductor-based photon-counting detectors for spectral CT
Author(s): **Mridul Bhattarai,** Ctr. for Virtual Imaging Trials (CVIT), Duke Univ. (United States), Duke Univ. Medical Physics Graduate Program (United States); **Raj K. Panta,** Ctr. for Virtual Imaging Trials (CVIT), Duke Univ. (United States); **Darin P. Clark,** Ctr. for Virtual Imaging Trials (CVIT), Duke Univ. (United States), Duke Univ. (United States); **William P. Segars,** Ctr. for Virtual Imaging Trials (CVIT), Duke Univ. (United States); **Ehsan Abadi, Ehsan Samei,** Ctr. for Virtual Imaging Trials (CVIT), Duke Univ. (United States), Duke Univ. Medical Physics Graduate Program (United States)

12925-123 • 05:30 PM - 07:00 PM
Boundary artifact reduction in projection-based material decomposition using cluster analysis in Timpepix3 detector
Author(s): **JC Rodriguez Luna, Mini Das,** Univ. of Houston (United States)

POSTERS: DETECTORS

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-124 • 05:30 PM - 07:00 PM
A direct Monte Carlo method for the performance assessment of pixelized detectors
Author(s): **Karl Stierstorfer, Martin Hupfer,** Siemens Healthineers (Germany)

12925-125 • 05:30 PM - 07:00 PM
Novel high-stopping power scintillators for medical applications
Author(s): **Jarek Glodo**, **Edgar van Loef**, **Yimin Wang**, **Lakshmi Soundara Pandian**, **Urmila Shirwadkar,** Radiation Monitoring Devices, Inc. (United States); **Pijush Bhattacharya**, **Isabella Hubble**, **Jarod Schott, Matthias Muller,** Radiation Monitoring Devices (United States)

12925-126 • 05:30 PM - 07:00 PM
Development of GaN semiconductor X-ray detector for low-energy medical X-ray applications
Author(s): **Toru Aoki**, **Junichi Nishizawa**, **Kosuke Hida**, **Kohei Toyoda,** Shizuoka Univ. (Japan); **Hyun-Jae Lee**, **Young-Hoon Shin**, **Joung-Hun Shin,** BTOZ Co. Ltd. (Korea, Republic of); **Hiroki Kase**, **Kento Tabata, Katsuyuki Takagi,** Shizuoka Univ. (Japan)

12925-127 • 05:30 PM - 07:00 PM
Investigation of correction and decomposition algorithms in bedside X-ray imaging simulating a multi-layer flat panel detector
Author(s): **Jamin V. Schaefer,** Siemens Healthcare GmbH (Germany); **Stephen Z. Liu,** Johns Hopkins Univ. (United States); **Steffen Kappler**, **Ferdinand Lueck**, **Ludwig Ritschl**, **Thomas E Weber,** Siemens Healthineers AG (Germany); **Wojciech Zbijewski,** Johns Hopkins Univ. (United States); **Georg Rose,** Otto-von-Guericke-Univ. Magdeburg (Germany)

12925-128 • 05:30 PM - 07:00 PM
An alloyed a-Se-Te indirect flat panel imager for improved performance in a dual layer X-ray detector
Author(s): **Kaitlin Hellier,** Univ. of California, Santa Cruz (United States); **Kellii Fusari,** Univ. of California, Santa Cruz (United States), Univ. of California, Berkeley (United States); **Akyl Swaby,** Univ. of California, Santa Cruz (United States); **Paul Pryor**, **Ivan Mollov,** Varex Imaging Corp. (United States); **Shiva Abbaszadeh,** Univ. of California, Santa Cruz (United States)

12925-129 • 05:30 PM - 07:00 PM
Enhancing temporal performance of a-Se detectors using a low-temperature hole-blocking bilayer design
Author(s): **Sahar Adnani**, **Abdollah Pil-Ali, Karim S. Karim,** Univ. of Waterloo (Canada)

POSTERS: CBCT

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-89 • 05:30 PM - 07:00 PM
Utilizing U-Net Architectures with Auxiliary Information for Scatter Correction in CBCT Across Different Field-of-View Settings
Author(s): **Harshit Agrawal,** Aalto Univ. (Finland), Planmeca Oy (Finland); **Ari Hietanen,** Planmeca Oy (Finland); **Simo Särkkä,** Aalto Univ. (Finland)

12925-90 • 05:30 PM - 07:00 PM
Diffusion model-based single-scan dual-energy cone-beam CT using primary beam splitting
Author(s): **Junbo Peng**, **Chih-Wei Chang**, **Richard L. J. Qiu**, **Justin Roper,** Emory Univ. School of Medicine (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Pretesh R. Patel**, **David Yu**, **Xiangyang Tang, Xiaofeng Yang,** Emory Univ. School of Medicine (United States)

12925-91 • 05:30 PM - 07:00 PM
Evaluating the accuracy of a multisource CBCT for measuring the bone mineral density
Author(s): **Yuanming Hu**, **Shuang Xu**, **Boyuan Li**, **Christina R. Inscoe**, **Donald A. Tyndall**, **Yueh Z. Lee**, **Jianping Lu, Otto Zhou,** The Univ. of North Carolina at Chapel Hill (United States)

12925-92 • 05:30 PM - 07:00 PM
3D metal segmentation from few X-ray images for metal artifact avoidance
Author(s): **Maximilian Rohleder,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), Siemens Healthineers (Germany); **Holger Kunze,** Siemens Healthineers (Germany); **Andreas Maier,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Bjoern Kreher,** Siemens Healthineers (Germany)

12925-93 • 05:30 PM - 07:00 PM
suRi 1.0: Super resolution CBCT imaging in dual-layer flat-panel detector with half-pixel shifted binning
Author(s): **Ting Su**, **Jiongtao Zhu**, **Xin Zhang, Yongshuai Ge,** Shenzhen Institute of Advanced Technology (China)

12925-94 • 05:30 PM - 07:00 PM
suRi 2.0: Super resolution CBCT imaging in dual-layer flat-panel detector without half-pixel shifted binning
Author(s): **Jiongtao Zhu**, **Ting Su**, **Xin Zhang, Yongshuai Ge,** Shenzhen Institute of Advanced Technology (China)

12925-95 • 05:30 PM - 07:00 PM
Multisource cone beam computed tomography using a carbon nanotube X-ray source array
Author(s): **Shuang Xu**, **Yuanming Hu**, **Boyuan Li**, **Christina R. Inscoe**, **Donald A. Tyndall**, **Yueh Z. Lee**, **Jianping Lu, Otto Zhou,** The Univ. of North Carolina at Chapel Hill (United States)

12925-96 • 05:30 PM - 07:00 PM
Deep learning-based dose estimation in cone-beam computed tomography
Author(s): **Jinwoo Kim,** OSSTEM IMPLANT Co., Ltd. (Korea, Republic of); **Ho Kyung Kim,** Pusan National Univ. (Korea, Republic of); **Min Kook Cho,** OSSTEM IMPLANT Co., Ltd. (Korea, Republic of)

12925-97 • 05:30 PM - 07:00 PM
Real-time dynamic 3D CBCT reconstruction from two projections using latent information of past time steps
Author(s): **Cem Daloglu,** Deutsches Krebsforschungszentrum (Germany); **Tim Vöth,** Deutsches Krebsforschungszentrum (Germany), Ziehm Imaging GmbH (Germany); **Marc Kachelrieß,** Deutsches Krebsforschungszentrum (Germany)

12925-98 • 05:30 PM - 07:00 PM
A metal artifacts reducing method in dental cone-beam CT by utilizing intra-oral scan data
Author(s): **Yuyang Wang,** Tsinghua Univ. (China); **Xiaomo Liu,** Peking Univ. (China); **Liang Li,** Tsinghua Univ. (China)

12925-99 • 05:30 PM - 07:00 PM
Motion correction algorithm for cone-beam computed tomography
Author(s): **Jiyoung Lee**, **Jinwoo Kim, Min Kook Cho,** OSSTEM IMPLANT Co., Ltd. (Korea, Republic of)

12925-100 • 05:30 PM - 07:00 PM
Investigation on substantial asymmetry of HU value in dental cone-beam CT with offset detector
Author(s): **Sungho Yun**, **Dain Choi,** KAIST (Korea, Republic of); **Sung-Joon Ye,** Seoul National Univ. (Korea, Republic of); **Seungryong Cho, Gyuseong Cho,** KAIST (Korea, Republic of)

12925-101 • 05:30 PM - 07:00 PM
Effect of scatter suppression with 2D antiscatter grids in photon counting compact CBCT
Author(s): **Ryan Sabounchi**, **Uttam Pyakurel**, **Farhang Bayat**, **Mohamed Eldib, Cem Altunbas,** Univ. of Colorado Denver (United States)

12925-102 • 05:30 PM - 07:00 PM
Deep learning-based enhancement of ultra-low-dose cone-beam CT image using simulated data
Author(s): **Sunjung Kim**, **Hyunwoo Lee,** OSSTEM IMPLANT Co., Ltd. (Korea, Republic of); **Won-Jin Yi,** Seoul National Univ. (Korea, Republic of); **Min Kook Cho,** OSSTEM IMPLANT Co., Ltd. (Korea, Republic of)

12925-103 • 05:30 PM - 07:00 PM
Optimizing proton stopping power ratio prediction with dual-energy cone-beam CT using the Cramér-Rao lower bound
Author(s): **David Leibold,** Technische Univ. Delft (Netherlands); **Dennis R. Schaart,** Technische Univ. Delft (Netherlands), Holland Proton Therapy Ctr. (Netherlands); **Marlies C. Goorden,** Technische Univ. Delft (Netherlands)

12925-104 • 05:30 PM - 07:00 PM
Unsupervised medical image generation for dental imaging: super-resolution of synthetic panoramic x-ray images with CycleGAN
Author(s): **Gibok Kim**, **Sungho Yun**, **Taewon Lee, Seungryong Cho,** KAIST (Korea, Republic of)

POSTERS: PHASE CONTRAST IMAGING

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-130 • 05:30 PM - 07:00 PM
Phase and dark field tomography with structured illumination
Author(s): **Wadiah H. Allahyani**, **Arthur Redgate**, **Carolyn A. MacDonald, Jonathan C. Petruccelli,** Univ. at Albany (United States)

12925-131 • 05:30 PM - 07:00 PM
Towards a high-resolution volumetric X-ray diffraction imaging system for biospecimen
Author(s): **Zachary W. Gude,** Duke Univ. Medical Physics Graduate Program (United States); **Joel A. Greenberg,** Quadridox, Inc. (United States), Duke Univ. (United States); **Anuj Kapadia**, **Ryan Moody**, **Colt Dudley**, **David Coccarelli,** Quadridox, Inc. (United States); **Shannon McCall,** Duke Univ. Medical Ctr. (United States)

12925-132 • 05:30 PM - 07:00 PM
Single-mask multi-contrast phase imaging micro-computed tomography with single-shot per projection angle
Author(s): **Jingcheng Yuan**, **Ian Harmon,** Univ. of Houston (United States); **Juan Luna,** Univ of Houston (United States); **Mini Das,** Univ. of Houston (United States)

POSTERS: X-RAY AND ANGIOGRAPHY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-133 • 05:30 PM - 07:00 PM
Assessment of machine-generated radiation dose in computed tomography examinations at the Komfo Anokye Teaching hospital, Kumasi, Ghana
Author(s): **Savanna Nyarko,** Univ. of Cape Coast (Ghana); **Messiah Anudjo,** Komfo Anokye Teaching Hospital (Ghana); **Emmanuel Ahenkorah,** Komfo Anokye Teaching hospital (Ghana); **Emmanuel Fiagbedzi**, **Abdul-Razak Wuni**, **Ishmael N. Ofori, Philip N. Gorleku,** Univ. of Cape Coast (Ghana)

12925-134 • 05:30 PM - 07:00 PM
Synthesizing high-resolution dual-energy radiographs from coronary artery calcium CT images
Author(s): **Kian Shaker**, **Linxi Shi,** Stanford Univ. School of Medicine (United States); **Scott S. Hsieh,** Mayo Clinic (United States); **Akyl Swaby**, **Shiva Abbaszadeh,** Univ. of California, Santa Cruz (United States); **Adam S. Wang,** Stanford Univ. School of Medicine (United States)

12925-135 • 05:30 PM - 07:00 PM
Comparison of model-based iterative vs non-iterative 3D device reconstruction for continuous-sweep limited angle fluoroscopy
Author(s): **Martin G. Wagner**, **Ayca Z. Kutlu**, **Brian Davis**, **Paul F. Laeseke**, **Amish N. Raval, Michael A. Speidel,** Univ. of Wisconsin-Madison (United States)

12925-136 • 05:30 PM - 07:00 PM
Enhancing texture detail recovery in low-dose X-ray fluoroscopic images with a multi-frame deep learning framework
Author(s): **Wonjin Kim**, **Sun-Young Jeon, Jang-Hwan Choi,** Ewha Womans Univ. (Korea, Republic of)

12925-137 • 05:30 PM - 07:00 PM
Monte Carlo-based imaging system modeling and photon transport simulation of addressable cold cathode flat-panel X-ray source
Author(s): **Ting He**, **Mengke Qi**, **Jing Kang,** Southern Medical Univ. (China); **Song Kang**, **Chengyun Wang,** Sun Yat-Sen Univ. (China); **Wangjiang Wu,** Southern Medical Univ. (China); **Jun Chen,** Sun Yat-Sen Univ. (China); **Linghong Zhou, Yuan Xu,** Southern Medical Univ. (China)

12925-138 • 05:30 PM - 07:00 PM
Noise Gate: A physics-driven control method for deep learning denoising in X-ray imaging
Author(s): **Magdalena Herbst**, **Marcel Beister**, **Stephan Dwars,** Siemens Healthineers (Germany); **Dominik Eckert,** Siemens Healthineers (Germany), Otto-von-Guericke-Univ. Magdeburg (Germany); **Ludwig Ritschl**, **Christopher Syben, Steffen Kappler,** Siemens Healthineers (Germany)

12925-139 • 05:30 PM - 07:00 PM
In-silico analysis of curve fitting in angiographic parametric imaging in intracranial aneurysms to reduce patient and interventionalist-induced errors
Author(s): **Parmita Mondal**, **Allison Shields**, **Mohammed Mahdi Shiraz Bhurwani**, **Kyle A. Williams, Ciprian Ionita,** Univ. at Buffalo (United States)

12925-140 • 05:30 PM - 07:00 PM
Fluoroscopic procedure-room scatter-dose reduction using a Region-of-Interest (ROI) attenuator
Author(s): **Martina P. Orji**, **Kyle A. Williams**, **Swetadri Vasan Setlur Nagesh**, **Stephen Rudin, Daniel R. Bednarek,** Canon Stroke and Vascular Research Ctr. (United States)

12925-141 • 05:30 PM - 07:00 PM
Dynamic X-ray flux modulation of inverse-geometry CT
Author(s): **Liuxing Shen**, **Haydon Windsor,** Tetraimaging LLC (United States); **Shuang Zhou,** Washington Univ. in St. Louis (United States); **Hao Jiang,** Tetraimaging LLC (United States); **Tiezhi Zhang,** Washington Univ. School of Medicine in St. Louis (United States), Tetraimaging LLC (United States)

12925-142 • 05:30 PM - 07:00 PM
Deep learning-based algorithm to segment pediatric and adult lungs from dynamic chest radiography images using virtual patient datasets
Author(s): **Futa Goshima**, **Rie Tanaka,** Kanazawa Univ. (Japan); **Isao Matsumoto**, **Noriyuki Ohkura**, **Takatoshi Abe,** Kanazawa Univ. Hospital (Japan); **William P. Segars**, **Ehsan Abadi, Ehsan Samei,** Carl E. Ravin Advanced Imaging Labs. (United States)

12925-143 • 05:30 PM - 07:00 PM
Innovative CNT X-ray source-based 3D hemispherical multi-beam tomosynthesis for medical imaging
Author(s): **Jinho Choi**, **Hanna Lee,** Kyung Hee Univ. (Korea, Republic of); **Won Jung Lee**, **Jaekyu Jang,** CAT Beam Tech Co., Ltd. (Korea, Republic of); **Amar Prasad Gupta,** Kyung Hee Univ. (Korea, Republic of); **Mrinal Bhusal Sharma**, **Jaeik Jung**, **Seung Jun Yeo,** CAT Beam Tech Co., Ltd. (Korea, Republic of); **Junho Yu,** Korea Testing Lab. (Korea, Republic of); **Seung Hoon Kim,** Asan Medical Ctr. (Korea, Republic of); **Moonkyoo Kong,** Kyung Hee Univ. Medical Ctr. (Korea, Republic of); **Jehwang Ryu,** Kyung Hee Univ. (Korea, Republic of)

12925-144 • 05:30 PM - 07:00 PM
Prospective cardiac gated stationary computed tomography enabled by carbon nanotube X-ray: a phantom study
Author(s): **Alex J. Billingsley**, **Christina R. Inscoe,** The Univ. of North Carolina at Chapel Hill (United States); **Yueh Z. Lee,** Univ. of North Carolina at Chapel Hill School of Medicine (United States)

12925-145 • 05:30 PM - 07:00 PM
Robustness of spectral digital subtraction angiography to patient motion
Author(s): **Suyu Liao**, **Xiaoxuan Zhang, Grace J. Gang,** Univ. of Pennsylvania (United States)

12925-146 • 05:30 PM - 07:00 PM
Reliability evaluation of a digital pulse-driven 160 kV carbon nanotube-based X-ray source for cell irradiation
Author(s): **Hanna Lee**, **Jinho Choi,** Kyung Hee Univ. (Korea, Republic of); **Won Jung Lee,** CAT Beam Tech Co., Ltd. (Korea, Republic of); **Amar Prasad Gupta,** Kyung Hee Univ. (Korea, Republic of), CAT Beam Tech Co., Ltd. (Korea, Republic of); **Mrinal Bhusal Sharma**, **Jaeik Jung**, **Jaekyu Jang,** CAT Beam Tech Co., Ltd. (Korea, Republic of); **Hae-June Lee,** Korea Institute of Radiological & Medical Sciences (Korea, Republic of); **Kyung-Sik Yoon, Jehwang Ryu,** Kyung Hee Univ. (Korea, Republic of)

POSTERS: MAMMOGRAPHY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-147 • 05:30 PM - 07:00 PM
Deep orthogonal multi-modality fusion for prediction of axillary lymph node status after neoadjuvant chemotherapy
Author(s): **Yiliang Li,** Sun Yat-Sen Univ. (China); **Jiaxin Huang**, **Xueyan Wang**, **Xiaoqing Pei,** Sun Yat-Sen Univ. Cancer Ctr. (China); **Yao Lu,** Sun Yat-Sen Univ. (China)

12925-148 • 05:30 PM - 07:00 PM
In-line spectroscopy for iodine concentration quantification in a breast perfusion phantom for dynamic contrast-enhanced dedicated breast CT imaging validation
Author(s): **Liselot Goris,** Univ. Twente (Netherlands); **Mikhail Mikerov,** Radboud Univ. Medical Ctr. (Netherlands); **Srirang Manohar,** Univ. Twente (Netherlands); **Ioannis Sechopoulos,** Univ. Twente (Netherlands), Radboud Univ. Medical Ctr. (Netherlands), Dutch Reference Ctr. for Screening (Netherlands)

12925-149 • 05:30 PM - 07:00 PM
Representation of complex mammary parenchyma texture in tomosynthesis using simplex noise simulations
Author(s): **Bruno Barufaldi**, **Chloe J. Choi,** Univ. of Pennsylvania (United States); **Joao P. V. Teixeira,** Univ. Federal da Paraíba (Brazil); **Magnus Dustler,** Lund Univ. (Sweden); **Raphael B. Englander,** Univ. of Pennsylvania (United States); **Thais G. do Rego**, **Yuri B. Malheiros,** Univ. Federal da Paraíba (Brazil); **Telmo M. Silva Filho,** Univ. of Bristol (United Kingdom); **Belayat Hossain**, **Juhun Lee,** Univ. of Pittsburgh (United States); **Andrew D. A. Maidment,** Univ. of Pennsylvania (United States)

POSTERS: NON-IONIZING IMAGING

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-150 • 05:30 PM - 07:00 PM
Nonlinear gradient field estimation in diffusion MRI tensor simulation
Author(s): **Praitayini Kanakaraj**, **Tianyuan Yao**, **Nancy R. Newlin,** Vanderbilt Univ. (United States); **Leon Y. Cai**, **Kurt G. Schilling**, **Baxter P. Rogers**, **Adam Anderson,** Vanderbilt Univ. Medical Ctr. (United States); **Daniel Moyer, Bennett A. Landman,** Vanderbilt Univ. (United States)

12925-151 • 05:30 PM - 07:00 PM
Bayesian Cramer-Rao bound optimization of the illumination pattern in quantitative photoacoustic computed tomography
Author(s): **Evan Scope Crafts,** The Univ. of Texas at Austin (United States); **Mark Anastasio,** Univ. of Illinois (United States); **Umberto Villa,** The Univ. of Texas at Austin (United States)

12925-152 • 05:30 PM - 07:00 PM
CT synthesis using CycleGAN with Swin transformer for magnetic resonance imaging guided radiotherapy
Author(s): **Youngeun Choi, Seungwan Lee,** Konyang Univ. (Korea, Republic of)

12925-153 • 05:30 PM - 07:00 PM
Effects of MRI parameters on the shifted apparent diffusion coefficient in an abdominal phantom
Author(s): **Wedyan Aldarrab,** The Univ. of Manchester (United Kingdom), King Saud Univ. (Saudi Arabia); **Susan Astley**, **Elaine Harkness**, **Richard Hodgson**, **William Lloyd,** The Univ. of Manchester (United Kingdom); **Lina Hammad**, **Ashwag Alruwaili,** King Saud Univ. (Saudi Arabia); **Abdullah Abujamea**, **Mohammed Almousa,** King Khalid Hospital (Saudi Arabia); **Faisal Fakhouri,** King Saud Univ. (Saudi Arabia); **Malak Aleliwah,** King Khalid Hospital (Saudi Arabia)

12925-154 • 05:30 PM - 07:00 PM
WAVE-UNET: Wavelength-based image reconstruction method using attention UNET for OCT images
Author(s): **Maryam Viqar,** Institute of Optical Materials and Technologies (Bulgaria); **Erdem Sahin,** Tampere Univ. (Finland); **Violeta Madjarova**, **Elena Stoykova,** Institute of Optical Materials and Technologies (Bulgaria); **Keehoon Hong,** Electronics and Telecommunications Research Institute (Korea, Republic of)

12925-155 • 05:30 PM - 07:00 PM
Fast and accurate MEG source localization using deep learning
Author(s): **Hanchen Wang**, **Shihang Feng,** Los Alamos National Lab. (United States); **Qian Zhang,** Washington Univ. in St. Louis (United States); **Young Jin Kim**, **Igor Mykhaylovych Savukov,** Los Alamos National Lab. (United States); **Lan Yang,** Washington Univ. in St. Louis (United States); **Youzuo Lin,** Los Alamos National Lab. (United States)

12925-156 • 05:30 PM - 07:00 PM
Breast compression-induced tumor hemodynamics imaging with NIR optical and X-ray imaging
Author(s): **Anthony Donaldson**, **Ian Harmon**, **Hanwen Zhang, Mini Das,** Univ. of Houston (United States)

POSTERS: NUCLEAR MEDICINE IMAGING

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-157 • 05:30 PM - 07:00 PM
Enhancing proton range verification through real-time prompt gamma imaging with Compton cameras: leveraging ML algorithms
Author(s): **Majid Kazemi Kozani,** Institute of Nuclear Physics PAN (Poland), Jagiellonian Univ. in Krakow (Poland)

12925-158 • 05:30 PM - 07:00 PM
Using xenon-doped liquid argon scintillation for full-body, time-of-flight positron emission tomography
Author(s): **Alejandro Ramirez,** Univ. of Houston (United States); **Azam Zabihi,** AstroCeNT (Poland); **Xinran Li,** Lawrence Berkeley National Lab. (United States); **Michela Lai,** Istituto Nazionale di Fisica Nucleare (Italy); **Iftikhar Ahmad**, **Masayuki Wada,** AstroCeNT (Poland); **Andrew Renshaw,** Univ. of Houston (United States)

12925-159 • 05:30 PM - 07:00 PM
Scatter and tail correction for SPECT scanners with CdZnTe detectors
Author(s): **Michael Wilk,** GE HealthCare (Israel)

12925-160 • 05:30 PM - 07:00 PM
Direct Reconstruction of PET Images via Tuned CNNs Demonstrates Shortcominings in Common Image Quality Metrics
Author(s): **Peter Lindstrom, Stephen Pistorius,** Univ. of Manitoba (Canada)

12925-161 • 05:30 PM - 07:00 PM
Harnessing quantum entanglement for enhanced accuracy in a prototype CZT PET system: a GATE simulation study
Author(s): **Gregory R. Romanchek,** Univ. of Illinois (United States); **Shiva Abbaszadeh,** Univ. of California, Santa Cruz (United States)

12925-162 • 05:30 PM - 07:00 PM
Enhanced performance characteristics of digital PET for small feature detection relative to non-digital PET
Author(s): **Nicholas Leybourne,** Univ. of Surrey (United Kingdom); **Rebecca Gregory**, **Oliver Berry,** The Royal Surrey County Hospital NHS Trust (United Kingdom); **Emma Birch,** The Christie NHS Foundation Trust (United Kingdom); **Vineet Prakash,** The Royal Surrey County Hospital NHS Trust (United Kingdom); **James Scuffham,** The Royal Surrey County Hospital NHS Trust (United Kingdom), Univ. of Surrey (United Kingdom); **Peter Strouhal**, **Angela Meadows,** Alliance Medical Ltd. (United Kingdom); **Mohammad Hussein**, **Andrew Fenwick,** National Physical Lab. (United Kingdom); **Philip Evans, Lucia Florescu,** Univ. of Surrey (United Kingdom)

12925-163 • 05:30 PM - 07:00 PM
Evaluation of post radioligand therapy imaging methods for time integrated activity estimation: a Monte Carlo simulation based approach
Author(s): **Zhihua Qi,** Henry Ford Health System (United States)

POSTERS: MACHINE LEARNING

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12925-164 • 05:30 PM - 07:00 PM
Bridging physics and deep learning: An autoencoder-based approach for non-invasive estimation of prostate tissue composition
Author(s): **Batuhan Gundogdu**, **Aritrick Chatterjee**, **Serene Bose**, **Gregory S. Karczmar, Aytekin Oto,** The Univ. of Chicago (United States)

12925-165 • 05:30 PM - 07:00 PM
MBURegNet: An unsupervised model-based deep unrolling registration network for deformable image registration in dual-energy CT
Author(s): **Rui Liao,** Washington Univ. in St. Louis (United States); **Peng Wang**, **Wenjing Cao**, **Yuan Bao,** United Imaging Healthcare Co., Ltd. (China); **Jian Xu,** United Imaging Healthcare Co., Ltd. (United States); **Guotao Quan,** United Imaging Healthcare Co., Ltd. (China); **Wenying Wang,** United Imaging Healthcare Co., Ltd. (United States)

12925-166 • 05:30 PM - 07:00 PM
Synthetic Iodine Map Generation Using Conditional-DDPM based on Non-contrast Single Energy CT
Author(s): **Yuan Gao,** The Winship Cancer Institute of Emory Univ. (United States); **Huiqiao Xie,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Chih-Wei Chang**, **Junbo Peng**, **Richard L. J. Qiu,** The Winship Cancer Institute of Emory Univ. (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Justin Roper**, **Beth Ghavidel**, **Jun Zhou, Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

12925-167 • 05:30 PM - 07:00 PM
Generation of virtual non-contrast images from single-kV contrast-enhanced CT: conventional U-Net vs. conditional diffusion model

Author(s): **Ran Zhang**, **Yijing Wu**, **John W. Garrett**, **Ke Li**, **Meghan G. Lubner, Guang-Hong Chen,** Univ. of Wisconsin School of Medicine and Public Health (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 10: CT CLINICAL APPLICATIONS

22 February 2024 • 10:30 AM - 12:30 PM | Town & Country A
Session Chair(s): **Shobhit Sharma**, Canon Medical Research USA, Inc. (United States); **Lifeng Yu**, Mayo Clinic (United States)

12925-47 • 10:30 AM - 10:50 AM
High-temporal-resolution dynamic imaging of airways in photon-counting-detector CT
Author(s): **Jelena Mihailovic**, **Michael Bruesewitz**, **Nathan Hull**, **Nadir Demirel**, **Cynthia H. McCollough, Lifeng Yu,** Mayo Clinic (United States)

12925-48 • 10:50 AM - 11:10 AM
Development and application of a virtual imaging trial framework for longitudinal quantification of emphysema in CT
Author(s): **Saman Sotoudeh-Paima**, **Fong Chi Ho,** Duke Univ. (United States); **Mobina Ghojogh Nejad**, **Amar Kavuri**, **Brian O'Sullivan-Murphy,** Duke Univ. School of Medicine (United States); **David Lynch,** National Jewish Health (United States); **Paul W. Segars**, **Ehsan Samei, Ehsan Abadi,** Duke Univ. School of Medicine (United States)

12925-49 • 11:10 AM - 11:30 AM
Uncertainty estimation and reduction in deep learning-based projection domain cardiac phase estimation
Author(s): **Pengwei Wu**, **Eri Haneda**, **Isabelle Heukensfeldt Jansen**, **Jed Pack,** GE HealthCare (United States); **Albert Hsiao**, **Elliot McVeigh,** Univ. of California, San Diego (United States); **Bruno De Man,** GE HealthCare (United States)

12925-50 • 11:30 AM - 11:50 AM
Personalized, scout-based dose estimation for prospective optimization of CT tube current modulation
Author(s): **Maria Jose Medrano Matamoros**, **Sen Wang,** Stanford Univ. (United States); **Grant Stevens,** GE HealthCare (United States); **Justin R. Tse, Adam S. Wang,** Stanford Univ. (United States)

12925-51 • 11:50 AM - 12:10 PM
Hybrid spectral CT system with clinical rapid kVp-switching X-ray tube and dual-layer detector for improved iodine quantification
Author(s): **Olivia F. Sandvold,** Univ. of Pennsylvania (United States); **Roland Proksa,** Univ. of Pennsylvania (United States), Philips Research (Germany); **Heiner Daerr,** Philips Research (Germany); **Amy E. Perkins**, **Kevin M. Brown,** Philips Healthcare (United States); **Nadav Shapira,** Univ. of Pennsylvania (United States); **Thomas Köhler,** Philips Research (Germany); **Joseph W. Stayman,** Johns Hopkins Univ. (United States); **Grace J. Gang,** Univ. of Pennsylvania (United States); **Ravindra M. Manjeshwar,** Philips Healthcare (United States); **Peter B. Noël,** Univ. of Pennsylvania (United States)

12925-52 • 12:10 PM - 12:30 PM
Denoising pediatric cardiac photon-counting CT data using volumetric vision transformers and unpaired training data
Author(s): **Darin P. Clark**, **Fides R. Schwartz**, **Joseph Y. Cao, Cristian T. Badea,** Duke Univ. Medical Ctr. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 11: PHYSICAL AND VIRTUAL PHANTOM DEVELOPMENT

22 February 2024 • 01:40 PM - 03:20 PM | Town & Country A
Session Chair(s): **Maria Drangova**, Robarts Research Institute (Canada); **Stephen J. Glick**, U.S. Food and Drug Administration (United States)

12925-53 • 01:40 PM - 02:00 PM
Printing anthropomorphic multi-energy CT phantoms for spectral imaging with office laser printers
Author(s): **Yirong Yang,** Stanford Univ. School of Medicine (United States); **Naryeong Kim,** Stanford Univ. (United States); **Robert Bennett, Adam S. Wang,** Stanford Univ. School of Medicine (United States)

12925-54 • 02:00 PM - 02:20 PM
Synthesizing heterogeneous lung lesions for virtual imaging trials
Author(s): **Cindy McCabe,** Ctr. for Virtual Imaging Trials (United States); **Justin Solomon,** Clinical Imaging Physics Group (United States); **Paul W. Segars**, **Ehsan Abadi, Ehsan Samei,** Ctr. for Virtual Imaging Trials (United States)

12925-55 • 02:20 PM - 02:40 PM
Lifelike PixelPrint phantoms for assessing clinical image quality and dose reduction capabilities of a deep learning CT reconstruction algorithm
Author(s): **Jessica Y. Im,** Univ. of Pennsylvania (United States); **Sandra S. Halliburton,** Philips Healthcare (United States); **Kai Mei,** Univ. of Pennsylvania (United States); **Amy E. Perkins**, **Eddy Wong,** Philips Healthcare (United States); **Leonid Roshkovan**, **Grace J. Gang, Peter B. Noël,** Univ. of Pennsylvania (United States)

12925-56 • 02:40 PM - 03:00 PM
Using simulated breast lesions based on Perlin noise for evaluation of lesion segmentation
Author(s): **Hanna Tomic,** Lund Univ. (Sweden); **Zhikai Yang,** KTH Royal Institute of Technology (Sweden); **Anders Tingberg**, **Sophia Zackrisson,** Lund Univ. (Sweden); **Rodrigo Moreno**, **Örjan Smedby,** KTH Royal Institute of Technology (Sweden); **Magnus Dustler, Predrag Bakic,** Lund Univ. (Sweden)

12925-57 • 03:00 PM - 03:20 PM
Random walk small intestine models for virtual patient populations
Author(s): **David Kim**, **Lavsen Dahal**, **Joseph Y. Lo**, **Paul W. Segars,** Duke Univ. (United States); **Yeon S. Yeom,** Yonsei Univ. (Korea, Republic of); **Chan H. Kim,** Hanyang Univ. (Korea, Republic of)

Coffee Break 03:20 PM - 03:50 PM

SESSION 12: JOINT SESSION WITH CONFERENCES 12925 AND 12928

22 February 2024 • 03:50 PM - 05:30 PM | Town & Country A
Session Chair(s): **Maryam E. Rettmann**, Mayo Clinic (United States); **Michael A. Speidel**, Univ. of Wisconsin School of Medicine and Public Health (United States)

12925-58 • 03:50 PM - 04:10 PM
Thermometry mapping during CT-guided thermal ablations: sensitivity and clinical feasibility using spectral CT
Author(s): **Kuan (Kevin) Zhang**, **Andrea Ferrero**, **MyungHo In, Christopher P. Favazza,** Mayo Clinic (United States)

12928-53 • 04:10 PM - 04:30 PM
Enhancing MR-guided laser interstitial thermal therapy planning using U-Net: a data-driven approach for predicting MR thermometry images
Author(s): **Saba Sadatamin,** Institute of Biomedical Engineering, Univ. of Toronto (Canada), Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada); **Sara Ketabi,** Univ. of Toronto (Canada), The Hospital for Sick Children (Canada); **Elise Donszelmann-Lund,** Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada); **Saba Abtahi**, **Yuri Chaban,** Institute of Biomedical Engineering, Univ. of Toronto (Canada); **Steven Robbins**, **Richard Tyc,** Monteris Medical, Inc. (Canada); **Farzad Khalvati,** The Hospital for Sick Children (Canada), Univ. of Toronto (Canada); **Adam C. Waspe,** Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada), Univ. of Toronto (Canada); **Lueder A. Kahrs,** Univ. of Toronto Mississauga (Canada), Institute of Biomedical Engineering, Univ. of Toronto (Canada); **James M. Drake,** Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada), Institute of Biomedical Engineering, Univ. of Toronto (Canada)

12925-59 • 04:30 PM - 04:50 PM
A study on the influence of radiation dose on the device tracking accuracy during continuous-sweep limited angle fluoroscopy
Author(s): **Martin G. Wagner**, **Paul F. Laeseke**, **Amish N. Raval, Michael A. Speidel,** Univ. of Wisconsin-Madison (United States)

12928-54 • 04:50 PM - 05:10 PM
Multi-view stationary imager and implicit neural representation of lung deformation for transbronchial biopsy guidance
Author(s): **Alexander Lu**, **Alejandro L. Montes,** Johns Hopkins Univ. (United States); **Lonny Yarmus,** The Johns Hopkins Univ. School of Medicine (United States); **Jeffrey Thiboutot**, **Ali Uneri,** Johns Hopkins Univ. (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Wojciech Zbijewski, Alejandro Sisniega,** Johns Hopkins Univ. (United States)

12925-60 • 05:10 PM - 05:30 PM
FEM deformable liver registration to facilitate CBCT guided histotripsy
Author(s): **Grace M. Minesinger**, **Paul F. Laeseke**, **Ayca Z. Kutlu**, **Michael A. Speidel, Martin G. Wagner,** Univ. of Wisconsin-Madison (United States)

DIGITAL POSTERS

On Demand

The posters listed below are available exclusively for online viewing during the week of SPIE Medical Imaging 2024.

12925-31 • -

Dynamic PET image reconstruction using deep physiology prior

Author(s): **MengRui Chen**, **Rui Hu, Huafeng Liu,** Zhejiang Univ. (China)

12925-34 • -

Deep dual-domain based framework for PET image reconstruction

Author(s): **Xinrui Gao,** Zhejiang Univ. (China); **Yunmei Chen,** Univ. of Florida (United States); **Rui Hu**, **MengRui Chen, Huafeng Liu,** Zhejiang Univ. (China)

CONFERENCE CO-SPONSORS

CONFERENCE 12926

Image Processing

19 - 22 February 2024 | Town & Country B

Conference Chair(s): **Olivier Colliot,** Ctr. National de la Recherche Scientifique (France); **Jhimli Mitra,** GE Healthcare (United States)

Program Committee: **Tanja Alderliesten,** Leiden Univ. Medical Ctr. (Netherlands); **Elsa D. Angelini,** Télécom Paris (France); **Meritxell Bach-Cuadra,** Univ. de Lausanne (Switzerland); **Ulas Bagci,** Northwestern Univ. (United States); **Niha G. Beig,** Genentech, Inc. (United States); **Katharina Breininger,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Esther E. Bron,** Erasmus MC (Netherlands); **Ninon Burgos,** Institut du Cerveau et de la Moelle Épinière (France); **Aaron Carass,** Johns Hopkins Univ. (United States); **Antong Chen,** Merck & Co., Inc. (United States); **Tolga Çukur,** Bilkent Univ. (Turkey); **Benoit M. Dawant,** Vanderbilt Univ. (United States); **Marleen de Bruijne,** Erasmus MC (Netherlands); **Damini Dey,** Cedars-Sinai Medical Ctr. (United States); **Lotta Maria Ellingsen,** Univ. of Iceland (Iceland); **Alexandre X. Falcão,** Univ. of Campinas (Brazil); **Aaron Fenster,** Robarts Research Institute (Canada); **James Fishbaugh,** Kitware, Inc. (United States); **Yu Gan,** Stevens Institute of Technology (United States); **Mona K. Garvin,** The Univ. of Iowa (United States); **James C. Gee,** Univ. of Pennsylvania (United States); **Miguel Angel González Ballester,** Univ. Pompeu Fabra (Spain); **Mara Graziani,** HES-SO Valais-Wallis (Switzerland); **Hayit Greenspan,** Tel Aviv Univ. (Israel); **Shuyue Guan,** U.S. Food and Drug Administration (United States); **David R. Haynor,** Univ. of Washington (United States); **Tobias Heimann,** Siemens Healthineers (Germany); **Bulat Ibragimov,** Univ. of Copenhagen (Denmark); **Ivana Išgum,** Amsterdam UMC (Netherlands); **Leigh Johnston,** The Univ. of Melbourne (Australia); **Jayashree Kalpathy-Cramer,** Athinoula A. Martinos Ctr. for Biomedical Imaging (United States); **Stefan Klein,** Erasmus MC (Netherlands); **Susana K. Lai-Yuen,** Univ. of South Florida (United States); **Bennett A. Landman,** Vanderbilt Univ. (United States); **Carole Lartizien,** CREATIS (France); **Baiying Lei,** Shenzhen Univ. (China); **Tianhu Lei,** Univ. of Pittsburgh (United States); **Tim Leiner,** Univ. Medical Ctr. Utrecht (Netherlands); **Karim Lekadir,** Univ. de Barcelona (Spain); **Boudewijn P. F. Lelieveldt,** Leiden Univ. Medical Ctr. (Netherlands); **Natasha Lepore,** Children's Hospital Los Angeles (United States); **Murray H. Loew,** The George Washington Univ. (United States); **Cristian Lorenz,** Philips Research (Germany); **Frederik Maes,** KU Leuven (Belgium); **Ana Maria Marques da Silva,** Universidade de São Paulo (Brazil); **Diana Mateus,** Ecole Centrale de Nantes (France); **Marc Modat,** King's College London (United Kingdom); **Albert Montillo,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Rakesh Mullick,** GE HealthCare (India); **Kensaku Mori,** Nagoya Univ. (Japan); **Mads Nielsen,** Univ. of Copenhagen (Denmark); **Ipek Oguz,** Vanderbilt Univ. (United States); **Tingying Peng,** Helmholtz Zentrum München GmbH (Germany); **Dzung L. Pham,** Henry M. Jackson Foundation (United States); **Juan Carlos Prieto,** The Univ. of North Carolina at Chapel Hill (United States); **Jerry L. Prince,** Johns Hopkins Univ. (United States); **Nishant Ravikumar,** Univ. of Leeds (United Kingdom); **Maryam E. Rettmann,** Mayo Clinic (United States); **Letícia Rittner,** Univ. of Campinas (Brazil); **Mirabela Rusu,** Stanford Univ. School of Medicine (United States); **Punam K. Saha,** The Univ. of Iowa (United States); **Rachel E. Sparks,** King's College London (United Kingdom); **Marius Staring,** Leiden Univ. Medical Ctr. (Netherlands); **Joshua Victor Stough,** Bucknell Univ. (United States); **Kenji Suzuki,** Tokyo Institute of Technology (Japan); **Tanveer F. Syeda-Mahmood,** IBM Research - Almaden (United States); **Yubing Tong**, **Jayaram K. Udupa,** Univ. of Pennsylvania (United States); **Koen Van Leemput,** Harvard Medical School (United States); **Tomaž Vrtovec,** Univ. of Ljubljana (Slovenia); **Wolfgang Wein,** ImFusion GmbH (Germany); **Guang Yang,** National Heart and Lung Institute (United Kingdom); **Jonghye Woo,** Massachusetts General Hospital (United States); **Maria A. Zuluaga,** EURECOM (France); **Can Zhao,** NVIDIA Corp. (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Coffee Break 10:45 AM - 11:10 AM

SESSION 1: FOUNDATION MODELS

19 February 2024 • 11:10 AM - 12:30 PM | Town & Country B
Session Chair(s): **Bennett A. Landman**, Vanderbilt Univ. (United States); **Tanja Alderliesten**, Leiden Univ. Medical Ctr. (Netherlands)

12926-1 • 11:10 AM - 11:30 AM
FNPC-SAM: uncertainty-guided false negative/positive control for SAM on noisy medical images

Author(s): **Xing Yao**, **Han Liu**, **Dewei Hu**, **Daiwei Lu**, **Ange Lou**, **Hao Li**, **Ruining Deng,** Vanderbilt Univ. (United States); **Gabriel Arenas**, **Baris Oguz**, **Nadav Schwartz,** Univ. of Pennsylvania (United States); **Brett C. Byram, Ipek Oguz,** Vanderbilt Univ. (United States)

12926-2 • 11:30 AM - 11:50 AM
From generalization to precision: exploring SAM for tool segmentation in surgical environments
Author(s): **Kanyifeechukwu J. Oguine**, **Roger D. Soberanis Mukul**, **Nathan Drenkow, Mathias Unberath,** Johns Hopkins Univ. (United States)

12926-3 • 11:50 AM - 12:10 PM
Towards TotalSegmentator for MRI data leveraging GIN data augmentation
Author(s): **Kai Geißler**, **Daniel Mensing**, **Markus Wenzel**, **Jochen Hirsch, Stefan Heldmann,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

12926-4 • 12:10 PM - 12:30 PM
Universal 3D CT lesion segmentation using SAM with RECIST annotation
Author(s): **Yiqiao Liu**, **Sarah Halek**, **Lin Li**, **Michal Tomaszewski**, **Shubing Wang**, **Richard Baumgartner**, **Jianda Yuan**, **Gregory Goldmacher, Antong Chen,** Merck & Co., Inc. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 2: IMAGE REPRESENTATION, RESTORATION AND ENHANCEMENT

19 February 2024 • 01:40 PM - 03:00 PM | Town & Country B
Session Chair(s): **Jayaram K. Udupa**, Univ. of Pennsylvania (United States); **Aaron Fenster**, Robarts Research Institute (Canada)

12926-5 • 01:40 PM - 02:00 PM
Pushing the limits of zero-shot self-supervised super-resolution of anisotropic MR images
Author(s): **Samuel W. Remedios**, **Shuwen Wei**, **Blake E. Dewey**, **Aaron Carass,** Johns Hopkins Univ. (United States); **Dzung L. Pham,** Uniformed Services Univ. of the Health Sciences (United States); **Jerry L. Prince,** Johns Hopkins Univ. (United States)

12926-6 • 02:00 PM - 02:20 PM
Learning-based free-water correction using single-shell diffusion MRI
Author(s): **Tianyuan Yao,** Vanderbilt Univ. (United States); **Derek B. Archer,** Vanderbilt Univ. Medical Ctr. (United States); **Praitayini Kanakaraj**, **Nancy R. Newlin**, **Shunxing Bao**, **Daniel C. Moyer,** Vanderbilt Univ. (United States); **Kurt G. Schilling,** Vanderbilt Univ. Medical Ctr. (United States); **Bennett A. Landman, Yuankai Huo,** Vanderbilt Univ. (United States)

12926-7 • 02:20 PM - 02:40 PM
Optimizing CycleGAN design for CBCT-to-CT translation: insights into 2D vs 3D modeling, patch size, and the need for tailored evaluation metrics
Author(s): **Ibrahim Hadzic**, **Suraj Pai**, **Vicki Trier Taasti**, **Dennis Bontempi,** Maastricht Univ. (Netherlands); **Ivan Zhovannik,** Maastricht Univ. (Netherlands), The Netherlands Cancer Institute (Netherlands); **Richard Canters,** Maastricht Univ. (Netherlands); **Jan Jakob Sonke,** The Netherlands Cancer Institute (Netherlands); **Andre Dekker,** Maastricht Univ. (Netherlands); **Jonas Teuwen,** The Netherlands Cancer Institute (Netherlands); **Alberto Traverso,** Maastricht Univ. (Netherlands)

12926-8 • 02:40 PM - 03:00 PM
CT Image Kernel Synthesis using Deep Regularization
Author(s): **Hemant Kumar Aggarwal**, **Rajesh Langoju**, **Bipul Das,** GE HealthCare (India); **Rakesh Mullick,** GE Healthcaree (India)

Coffee Break 03:00 PM - 03:30 PM

SESSION 3: CARDIOVASCULAR IMAGING

19 February 2024 • 03:30 PM - 05:30 PM | Town & Country B
Session Chair(s): **Murray H. Loew**, The George Washington Univ. (United States); **Yu Gan**, Stevens Institute of Technology (United States)

12926-9 • 03:30 PM - 03:50 PM
Is registering raw tagged-MR enough for strain estimation in the era of deep learning?
Author(s): **Zhangxing Bian,** Johns Hopkins Univ. (United States); **Ahmed Alshareef,** Univ. of South Carolina (United States); **Shuwen Wei**, **Junyu Chen**, **Yuli Wang,** Johns Hopkins Univ. (United States); **Jonghye Woo,** Massachusetts General Hospital (United States), Harvard Medical School (United States); **Dzung L. Pham,** Uniformed Services Univ. of the Health Sciences (United States); **Jiachen Zhuo,** Univ. of Maryland School of Medicine (United States); **Aaron Carass, Jerry L. Prince,** Johns Hopkins Univ. (United States)

12926-10 • 03:50 PM - 04:10 PM
On TotalSegmentator's performance on low-dose CT images
Author(s): **Artyom Tsanda,** Institute for Biomedical Imaging, Technische Univ. Hamburg-Harburg (Germany), Philips Research (Germany); **Hannes Nickisch**, **Tobias Wissel**, **Tobias Klinder,** Philips Research (Germany); **Tobias Knopp,** Institute for Biomedical Imaging, Technische Univ. Hamburg-Harburg (Germany), Section for Biomedical Imaging, Universitätsklinikum Hamburg-Eppendorf (Germany); **Michael Grass,** Philips Research (Germany)

12926-11 • 04:10 PM - 04:30 PM
Accelerated reconstruction of highly undersampled 3D cardiac MRI image navigators
Author(s): **Xinrui Guo,** Huazhong Univ. of Science and Technology (China); **Calder D. Sheagren**, **Jaykumar H. Patel,** Sunnybrook Research Institute, Univ. of Toronto (Canada); **Liwen Li,** Huazhong Univ. of Science and Technology (China); **Graham A. Wright,** Sunnybrook Research Institute, Univ. of Toronto (Canada); **Fumin Guo,** Huazhong Univ. of Science and Technology (China)

12926-12 • 04:30 PM - 04:50 PM
Deep learning-based prediction of fractional flow reserve after invasive coronary artery treatment
Author(s): **Nils Hampe**, **Sanne G. M. Van Velzen,** Amsterdam UMC (Netherlands), Univ. of Amsterdam (Netherlands); **Jean-Paul Aben,** Pie Medical Imaging BV (Netherlands); **Rudolf L. M. van Herten,** Amsterdam UMC (Netherlands), Univ. of Amsterdam (Netherlands); **Carlos Collet,** Onze-Lieve-Vrouwziekenhuis VZW (Belgium); **Ivana Išgum,** Amsterdam UMC (Netherlands), Univ. of Amsterdam (Netherlands)

12926-13 • 04:50 PM - 05:10 PM
Four-dimensional assessment of left ventricular torsion in mitral valve prolapse using CMR
Author(s): **Tanmay Mukherjee**, **Emilio Mendiola**, **Sunder Neelakantan,** Texas A&M Univ. (United States); **Dipen Shah,** Houston Methodist Academic Institute, Houston Methodist (United States); **Reza Avazmohammadi,** Texas A&M Univ. (United States)

12926-14 • 05:10 PM - 05:30 PM
Deep learning-based landmark localization in 3D CT images of the heart: method and dataset comparison
Author(s): **Luka Škrlj,** Univ. of Ljubljana (Slovenia); **Matija Jelenc,** Univ. Medical Ctr. Ljubljana (Slovenia); **Tomaž Vrtovec,** Univ. of Ljubljana (Slovenia)

POSTERS - MONDAY

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/monday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 7:30 AM– 5:00 PM Monday

- In order to be considered for a poster award, it is recommended to have your poster set up by 1:00 PM Monday. Judging may begin after this time. Posters must remain on display until the end of the Monday evening poster session, but may be left hanging until 1:00 PM Tuesday. After 1:00 PM on Tuesday, posters will be removed and discarded.

View poster presentation guidelines and set-up instructions at
https://spie.org/MI/Poster-Presentation-Guidelines

12926-46 • 05:30 PM - 07:00 PM
Sparse-view tomographic reconstruction using residual u-net with attention gates
Author(s): **Chang-Chieh Cheng,** National Yang Ming Chiao Tung Univ. (Taiwan)

12926-47 • 05:30 PM - 07:00 PM
Leveraging healthy population variability in deep learning unsupervised anomaly detection in brain FDG PET
Author(s): **Maëlys Solal,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France); **Ravi Hassanaly, Ninon Burgos,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris (France)

12926-48 • 05:30 PM - 07:00 PM
Simple consistency constraint is powerful for cross-modality medical image segmentation
Author(s): **Rong Xiao, Chunyan Yu,** Fuzhou Univ. (China)

12926-49 • 05:30 PM - 07:00 PM
The intriguing effect of frequency disentangled learning on medical image segmentation
Author(s): **Guanghui Fu**, **Gabriel Jimenez**, **Sophie Loizillon,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France); **Lydia Chougar,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France), Le Centre de NeuroImagerie de Recherche (France); **Didier Dormont,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France), DMU DIAMENT (France); **Romain Valabregue,** Le Centre de NeuroImagerie de Recherche (France), Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France); **Ninon Burgos,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France); **Stéphane Lehéricy,** Institut du Cerveau et de la Moelle Épinière, Le Centre de NeuroImagerie de Recherche (France), Assistance Publique Hôpitaux de Paris, Hôpital de la Pitié Salpêtrière, DMU DIAMENT (France), Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de la Santé et de la Recherche Médicale (France); **Daniel Racoceanu, Olivier Colliot,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris, Hôpital de la Piti (France)

12926-50 • 05:30 PM - 07:00 PM
A tournament of transformation models: B-Spline-based vs. mesh-based multi-objective deformable image registration
Author(s): **Georgios Andreadis,** Leiden Univ. Medical Ctr. (Netherlands); **Joas I. Mulder,** Technische Univ. Delft (Netherlands); **Anton Bouter,** Ctr. Wiskunde & Informatica (Netherlands); **Peter A. N. Bosman,** Ctr. Wiskunde & Informatica (Netherlands), Technische Univ. Delft (Netherlands); **Tanja Alderliesten,** Leiden Univ. Medical Ctr. (Netherlands)

12926-51 • 05:30 PM - 07:00 PM
Patient pose assessment in radiography using time-of-flight cameras
Author(s): **Manuel Laufer,** Univ. zu Lübeck (Germany), Universitätsklinikum Schleswig-Holstein (Germany); **Dominik Mairhöfer,** Univ. zu Lübeck (Germany); **Malte Sieren**, **Hauke Gerdes**, **Fabio Leal dos Reis,** Universitätsklinikum Schleswig-Holstein (Germany); **Arpad Bischof,** Universitätsklinikum Schleswig-Holstein (Germany), IMAGE Information Systems Europe GmbH (Germany); **Thomas Käster,** Pattern Recognition Co. GmbH (Germany); **Erhardt Barth,** Univ. zu Lübeck (Germany); **Jörg Barkhausen,** Universitätsklinikum Schleswig-Holstein (Germany); **Thomas Martinetz,** Univ. zu Lübeck (Germany)

12926-52 • 05:30 PM - 07:00 PM
Motion compensation in short-scan CBCT reconstructions for dental applications
Author(s): **Abdul Salam Rasmi Asraf Ali,** Univ. degli Studi di Udine (Italy), See Through S.r.l. (Italy); **Cristina Sarti,** See Through S.r.l (Italy); **Claudio Landi,** See Through s.r.l. (Italy); **Andrea Fusiello,** Univ. degli Studi di Udine (Italy)

12926-53 • 05:30 PM - 07:00 PM
Evaluating task-specific augmentations in self-supervised pre-training for 3D medical image analysis
Author(s): **Cris Claessens,** Technische Univ. Eindhoven (Netherlands); **Julie Hamm,** Erasmus MC (Netherlands); **Christiaan G. A. Viviers,** Technische Univ. Eindhoven (Netherlands); **Joost Nederend,** Catharina Hospital (Netherlands); **Dirk Grünhagen**, **Pieter Tanis,** Erasmus MC (Netherlands); **Peter H. N. de With, Fons van der Sommen,** Technische Univ. Eindhoven (Netherlands)

12926-54 • 05:30 PM - 07:00 PM
Segment any medical model extended
Author(s): **Yihao Liu**, **Jiaming Zhang,** Johns Hopkins Univ. (United States); **Andres Diaz-Pinto,** King's College London (United Kingdom); **Haowei Li,** Tsinghua Univ. (China); **Alejandro Martin-Gomez**, **Amir Kheradmand,** Johns Hopkins Univ. (United States); **Mehran Armand,** Johns Hopkins Univ. (United States)

12926-55 • 05:30 PM - 07:00 PM
Fully automatic mpMRI analysis using deep learning predicts peritumoral glioblastoma infiltration and subsequent recurrence
Author(s): **Sunwoo Kwak**, **Akbari Hamed**, **Jose A. Garcia**, **Suyash Mohan, Christos Davatzikos,** Univ. of Pennsylvania (United States)

12926-56 • 05:30 PM - 07:00 PM
Border irregularity loss for automated segmentation of primary brain lymphomas on post-contrast MRI
Author(s): **Rosana El Jurdi,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS, Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale (France), Assistance Publique Hôpitaux de Paris, Hôpital de la Pitié Salpêtrière (France); **Lucia Nichelli,** Sorbonne Univ. (France), Institut du Cerveau et de la Moelle Épinière, Le Centre de NeuroImagerie de Recherche (France), Assistance Publique Hôpitaux de Paris, Pitié-Salpêtrière Hospital, DMU DIAMENT (France); **Agusti Alentorn,** Sorbonne Univ. (France), Assistance Publique Hôpitaux de Paris, Hôpital de la Pitié Salpêtrière, DMU DIAMENT (France); **Ghislain Vaillant**, **Guanghui Fu,** Sorbonne Univ. (France); **Khe Hoang-Xuan,** Sorbonne Univ. (France), Assistance Publique Hôpitaux de Paris, Hôpital de la Pitié Salpêtrière (France); **Caroline Houillier,** Sorbonne Univ. (France), Assistance Publique Hôpitaux de Paris, Hôpital de la Pitié Salpêtrière, DMU DIAMENT (France); **Stéphane Lehéricy,** Sorbonne Univ. (France), Le Centre de NeuroImagerie de Recherche (France), Assistance Publique Hôpitaux de Paris (France); **Olivier Colliot,** Sorbonne Univ. (France)

12926-57 • 05:30 PM - 07:00 PM
CT-MRI liver registration for selective internal radiation therapy
Author(s): **Adam Fragkiadakis**, **Felix Quinton,** Institut de Chimie Moleculaire de l'Universite de Bourgogne (France); **Romain Popoff**, **Guillaume Nodari**, **Olivier Lopez**, **Julie Pellegrinelli,** Ctr. Georges François Leclerc (France); **Juan Andres Cisneros Jacome,** Institut de Chimie Moleculaire de l'Universite de Bourgogne (France); **Olivier Chevallier**, **Jean-Marc Vrigneaud**, **Jean-Louis Alberini,** Ctr. Georges François Leclerc (France); **Fabrice Meriaudeau**, **Sarah Leclerc, Benoit Presles,** Institut de Chimie Moleculaire de l'Universite de Bourgogne (France)

12926-58 • 05:30 PM - 07:00 PM
Feasibility of lung CBCT first order delta radiomics after each SBRT treatment fraction
Author(s): **Roland Teboh**, **Joseph C. Barbiere**, **Alois Ndlovu**, **Brett Lewis,** Hackensack Univ. Medical Ctr. (United States); **Joseph Hanley,** Hackensack Meridian Health, Inc. (United States)

12926-59 • 05:30 PM - 07:00 PM
Quantitative analysis of 3D thoracic aortic aneurysm on chest x-rays using conditional generative adversarial network
Author(s): **Samuel Cho,** Medical IP Co., Ltd. (Korea, Republic of); **Jong-Min Kim, Sang Joon Park,** Medical IP Co., Ltd. (Korea, Republic of), Seoul National Univ. (Korea, Republic of)

12926-60 • 05:30 PM - 07:00 PM
ASL MRI denoising via multi channel collaborative low-rank regularization
Author(s): **Hangfan Liu**, **Bo Li**, **Yiran Li**, **Rebecca Welsh, Ze Wang,** Univ. of Maryland School of Medicine (United States)

12926-61 • 05:30 PM - 07:00 PM
Characterizing fluid flows in breast tumor DCE-MRI studies using unbalanced regularized optimal mass transport methods
Author(s): **Xinan Chen,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Wei Huang,** Oregon Health & Science Univ. (United States); **Allen Tannenbaum,** Stony Brook Univ. (United States); **Joseph O. Deasy,** Memorial Sloan-Kettering Cancer Ctr. (United States)

12926-62 • 05:30 PM - 07:00 PM
UNETRIS: transformer-based nuclear instance segmentation for three-dimensional fluorescence microscopy images
Author(s): **Alain Chen**, **Liming Wu,** Purdue Univ. (United States); **Seth Winfree,** Univ. of Nebraska Medical Ctr. (United States); **Kenneth W. Dunn,** Indiana Univ. (United States); **Paul Salama,** Indiana Univ.-Purdue Univ. Indianapolis (United States); **Edward J. Delp,** Purdue Univ. (United States)

12926-63 • 05:30 PM - 07:00 PM
Preliminary exploration of data incremental learning method
Author(s): **Mengzhu Yu**, **Mingyue Ding,** College of Life Science & Technology, Huazhong Univ. of Science and Technology (China), Advanced Bio-Medical Imaging Facility, Huazhong Univ. of Science and Technology (China); **Zihan Xi, Tao Huang,** Union Hospital, Tongji Medical College, Huazhong Univ. of Science and Technology (China)

12926-64 • 05:30 PM - 07:00 PM
A deep learning based arterial plaque semi-auto segmentation
Author(s): **Min Zheng**, **Hai Yin**, **Xiaoqing Li**, **Di Wu, Sanming Hu,** Hubei Univ. of Science and Technology (China)

12926-65 • 05:30 PM - 07:00 PM
Evaluation of mean shift, ComBat, and CycleGAN for harmonizing brain connectivity matrices across sites
Author(s): **Hanliang Xu**, **Nancy R. Newlin**, **Michael E. Kim**, **Chenyu Gao**, **Praitayini Kanakaraj**, **Aravind R. Krishnan**, **Lucas W. Remedios**, **Nazirah Mohd Khairi,** Vanderbilt Univ. (United States); **Kimberly R. Pechman**, **Derek B. Archer**, **Timothy J. Hohman**, **Angela L. Jefferson,** Vanderbilt Univ. Medical Ctr. (United States); **Ivana Išgum,** Amsterdam UMC (Netherlands); **Yuankai Huo**, **Daniel C. Moyer,** Vanderbilt Univ. (United States); **Kurt G. Schilling,** Vanderbilt Univ. Medical Ctr. (United States); **Bennett A. Landman,** Vanderbilt Univ. (United States)

12926-66 • 05:30 PM - 07:00 PM
Ensemble processing and convexity measure for abnormally shaped nuclei segmentation
Author(s): **Yue Han,** Purdue Univ. (United States); **Yang Lei**, **Viktor Shkolnikov**, **Daisy Xin**, **Alicia Auduong**, **Steven J. Barcelo,** HP, Inc. (United States); **Jan P. Allebach, Edward J. Delp,** Purdue Univ. (United States)

12926-67 • 05:30 PM - 07:00 PM
Space-time-frequency decoding analysis of MEG using source reconstruction and brain atlas
Author(s): **Haotian Qian**, **Yu Zhang**, **Shengfeng Liu**, **Jing Zhang**, **Botao Zhao, Luqi Cheng,** Zhejiang Lab. (China)

12926-68 • 05:30 PM - 07:00 PM
High-resolution reference image assisted volumetric super-resolution of cardiac diffusion weighted imaging
Author(s): **Yinzhe Wu**, **Jiahao Huang**, **Fanwen Wang,** Imperial College London (United Kingdom), Royal Brompton Hospital (United Kingdom); **Pedro Ferreira**, **Andrew Scott,** Royal Brompton Hospital (United Kingdom), Imperial College London (United Kingdom); **Sonia Nielles-Vallespin, Guang Yang,** Imperial College London (United Kingdom), Royal Brompton Hospital (United Kingdom)

12926-69 • 05:30 PM - 07:00 PM
Recent advances in the open-source ClinicaDL software for reproducible neuroimaging with deep learning
Author(s): **Ravi Hassanaly**, **Camille Brianceau,** Institut du Cerveau et de la Moelle Épinière (France); **Mauricio Diaz,** Institut National de Recherche en Informatique et en Automatique (France); **Sophie Loizillon,** Institut du Cerveau et de la Moelle Épinière (France); **Elina Thibeau-Sutre,** Technical Medical Ctr., Univ. Twente (Netherlands); **Olivier Colliot, Ninon Burgos,** Institut du Cerveau et de la Moelle Épinière (France)

12926-70 • 05:30 PM - 07:00 PM
Predicting Animal Behavior from Neuronal Miniscope Data: A Deep Learning Approach
Author(s): **Subhrajit Das**, **Janaka Senarathna**, **Emma Ouyang**, **Amit Banerjee,** Johns Hopkins Univ. (United States); **Arvind P. Pathak,** Johns Hopkins Univ. (United States)

12926-71 • 05:30 PM - 07:00 PM
Evaluating clinical and radiomic features for predicting lung cancer recurrence pre- and post-tumor resection
Author(s): **Wai Lone Ho,** Morsani College of Medicine, Univ. of South Florida (United States); **Nikolai Fetisov**, **Lawrence O. Hall**, **Dmitry Goldgof,** Univ. of South Florida (United States); **Matthew B. Schabath,** Moffitt Cancer Ctr. (United States)

12926-72 • 05:30 PM - 07:00 PM
Feasibility study of using masked auto-encoder for a streak artifact reduction in sparse view CT
Author(s): **Gihun Kim, Jongduk Baek,** Yonsei Univ. (Korea, Republic of)

12926-73 • 05:30 PM - 07:00 PM
Novel deep learning-based metal extraction with no reference in dental CBCT for metal artifact reduction
Author(s): **Hyunwoo Lee**, **Sunjung Kim, Min Kook Cho,** OSSTEM IMPLANT Co., Ltd. (Korea, Republic of)

12926-74 • 05:30 PM - 07:00 PM
Age-dependent generalizability of lumbar spine detection and segmentation models: A comparative study in pediatric populations
Author(s): **Jemyoung Lee,** Seoul National Univ. (Korea, Republic of), ClariPi Inc. (Korea, Republic of); **Changmin Park,** Seoul National Univ. (Korea, Republic of), ClariPi Inc. (Korea, Republic of); **Minkyoung Cho**, **Young Hun Choi,** Seoul National Univ. Hospital (Korea, Republic of); **Jong Hyo Kim,** Seoul National Univ. (Korea, Republic of), ClariPi Inc. (Korea, Republic of), Seoul National Univ. College of Medicine (Korea, Republic of)

12926-75 • 05:30 PM - 07:00 PM
Segmentation of biopsy needle in 2D ultrasound images based on the vision transformer
Author(s): **Mingwei Wen,** Huazhong Univ. of Science and Technology (China)

12926-76 • 05:30 PM - 07:00 PM
Robustness evaluation of CAD systems for lung nodule segmentation using clinically relevant image perturbations
Author(s): **Fidan Mammadli,** Philips Electronics Nederland B.V. (Netherlands); **Terese A. E. Hellström**, **Christiaan G. A. Viviers,** Technische Univ. Eindhoven (Netherlands); **Igor Jacobs,** Philips Electronics Nederland B.V. (Netherlands); **Lotte J. S. Ewals,** Catharina Hospital (Netherlands); **Nick Tasios**, **Dimitrios Mavroeidis,** Philips Electronics Nederland B.V. (Netherlands); **Hendrika P. M. Verhees,** Catharina Hospital (Netherlands); **Peter H. N. de With,** Technische Univ. Eindhoven (Netherlands); **Joost Nederend,** Catharina Hospital (Netherlands); **Fons van der Sommen,** Technische Univ. Eindhoven (Netherlands)

12926-77 • 05:30 PM - 07:00 PM
Multistream fusion segmentation and classification of prostate lesions from magnetic resonance images
Author(s): **Rongfeng Wei**, **Wenxu Zhang**, **Weixuan Kou,** City Univ. of Hong Kong (Hong Kong, China); **Cristian Rey**, **Harry Marshall,** Western Univ. (Canada); **Bernard Chiu,** Wilfrid Laurier Univ. (Canada)

12926-78 • 05:30 PM - 07:00 PM
Open-source, deep-learning skin surface segmentation model for cost-effective neuronavigation accessible to low-resource settings
Author(s): **Lulu Bi**, **Steve Pieper**, **David-Dimitris Chlorogiannis**, **Alexandra J. Golby, Sarah Frisken,** Brigham and Women's Hospital (United States)

12926-79 • 05:30 PM - 07:00 PM
Tractography with T1-weighted MRI and associated anatomical constraints on clinical quality diffusion MRI
Author(s): **Tian Yu**, **Yunhe Li**, **Michael E. Kim**, **Chenyu Gao**, **Qi Yang**, **Leon Y. Cai,** Vanderbilt Univ. (United States); **Susan M. Resnick**, **Lori L. Beason-Held,** National Institute on Aging, National Institutes of Health (United States); **Daniel C. Moyer**, **Kurt G. Schilling, Bennett A. Landman,** Vanderbilt Univ. (United States)

12926-80 • 05:30 PM - 07:00 PM
Neonatal brain MRI image segmentation using U-Net with enhanced edge detection layers
Author(s): **Luella Marcos**, **Kandasamy Illanko,** Toronto Metropolitan Univ. (Canada); **Paul Babyn,** Univ. of Saskatchewan (Canada); **Javad Alirezaie,** Toronto Metropolitan Univ. (Canada)

12926-81 • 05:30 PM - 07:00 PM
Denoising of home OCT images using Noise2Noise trained on artificial eye data
Author(s): **Marc Rowedder,** Univ. zu Lübeck (Germany); **Timo Kepp,** Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); **Tobias Neumann**, **Helge Sudkamp,** visotec GmbH (Germany); **Gereon Hüttmann,** Univ. zu Lübeck (Germany); **Heinz Handels,** Univ. zu Lübeck (Germany), Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany)

12926-82 • 05:30 PM - 07:00 PM
VEU-net: automated segmentation of disrupted retinal layers on OCT images with various mutated genes linked retinal dystrophies
Author(s): **Kaiwen Geng**, **Xiaoyan Zhao**, **Anfisa Ayalon**, **Lauren Wasser**, **Zhiyi Shi**, **Oliver Beale**, **Boris Rosin, Jiantao Pu,** Univ. of Pittsburgh (United States)

12926-83 • 05:30 PM - 07:00 PM
A novel cylinder domain based method for colon registration
Author(s): **Chenyang Sun,** Dalian Univ. of Technology (China); **Ming Ma,** Winona State Univ. (United States); **Wei Chen,** Dalian Univ. of Technology (China); **Xianfeng Gu,** Stony Brook Medicine (United States); **Na Lei,** Dalian Univ. of Technology (China)

12926-85 • 05:30 PM - 07:00 PM
A study of relationship between social determinant of health and imaging based age estimation using head CT
Author(s): **Amara Tariq**, **Bhavik N. Patel, Imon Banerjee,** Mayo Clinic (United States)

12926-86 • 05:30 PM - 07:00 PM
Disentangled multimodal brain MR image translation via transformer-based modality infuser
Author(s): **Jihoon Cho,** KAIST (Korea, Republic of), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Xiaofeng Liu**, **Fangxu Xing**, **Jinsong Ouyang**, **Georges El Fakhri,** Massachusetts General Hospital (United States), Harvard Medical School (United States); **Jinah Park,** KAIST (Korea, Republic of); **Jonghye Woo,** Massachusetts General Hospital (United States), Harvard Medical School (United States)

12926-87 • 05:30 PM - 07:00 PM
Predicting age from white matter diffusivity with residual learning
Author(s): **Chenyu Gao**, **Michael E. Kim**, **Ho Hin Lee**, **Qi Yang**, **Nazirah Mohd Khairi**, **Praitayini Kanakaraj**, **Nancy R. Newlin,** Vanderbilt Univ. (United States); **Derek B. Archer**, **Angela L. Jefferson**, **Warren D. Taylor**, **Brian D. Boyd,** Vanderbilt Univ. Medical Ctr. (United States); **Lori L. Beason-Held**, **Susan M. Resnick,** National Institutes of Health (United States); **Yuankai Huo,** Vanderbilt Univ. (United States); **Katherine D. Van Schaik**, **Kurt G. Schilling,** Vanderbilt Univ. Medical Ctr. (United States); **Daniel C. Moyer,** Vanderbilt Univ. (United States); **Ivana Išgum,** Univ. of Amsterdam (Netherlands); **Bennett A. Landman,** Vanderbilt Univ. (United States)

12926-88 • 05:30 PM - 07:00 PM
A clinical guideline driven automated linear feature extraction for vestibular schwannoma
Author(s): **Navodini Wijethilake**, **Steve Connor,** King's College London (United Kingdom); **Anna Oviedova,** King's College Hospital (United Kingdom); **Aaron Kujawa,** King's College London (United Kingdom); **Rebecca Burger,** King's College Hospital (United Kingdom); **Tom Vercauteren,** King's College London (United Kingdom); **Jonathan Shapey,** King's College London (United Kingdom), King's College Hospital (United Kingdom)

12926-90 • 05:30 PM - 07:00 PM
Learning physics-inspired regularization for medical image registration with hypernetworks
Author(s): **Anna Reithmeir,** Technische Univ. München (Germany), Munich Ctr. for Machine Learning (Germany); **Julia Schnabel,** Technische Univ. München (Germany), Helmholtz AI, Helmholtz Zentrum München (Germany), King's College London (United Kingdom); **Veronika Zimmer,** Technische Univ. München (Germany), Helmholtz AI (Germany), Helmholtz Zentrum München GmbH (Germany)

12926-91 • 05:30 PM - 07:00 PM
MRI-based synthetic CT generation with 3D improved denoising diffusion probabilistic model
Author(s): **Shaoyan Pan**, **Elham Abouei**, **Jacob Wynne**, **Richard Qiu**, **Yuheng Li**, **Chih-Wei Chang,** Emory Univ. (United States); **Shihan Qiu,** University of California, Los Angeles (United States); **Junbo Peng**, **Justin Roper**, **Pretesh Patel**, **David S. Yu**, **Hui Mao, Xiaofeng Yang,** Emory Univ. (United States)

12926-92 • 05:30 PM - 07:00 PM
Automatic hemorrhage segmentation in brain CT scans using curriculum-based semi-supervised learning.
Author(s): **Solayman Hossain Emon**, **Tzu-Liang (Bill) Tseng**, **Michael Pokojovy,** The Univ. of Texas at El Paso (United States); **Peter McCaffrey**, **Scott Moen,** The Univ. of Texas Medical Branch (United States); **Md Fashiar Rahman,** The Univ. of Texas at El Paso (United States)

12926-93 • 05:30 PM - 07:00 PM
Vertebral segmentation without training using differentiable appearance modeling of a deformable spine template
Author(s): **Hyunsoo Kim, Jinah Park,** KAIST (Korea, Republic of)

12926-94 • 05:30 PM - 07:00 PM
Registration of longitudinal spine CTs for monitoring lesion growth
Author(s): **Malika Sanhinova,** Beth Israel Deaconess Medical Ctr. (United States); **Nazim Haouchine,** Brigham and Women's Hospital, Harvard Medical School (United States); **Steve Pieper,** Isomics, Inc. (United States); **William M. Wells,** Brigham and Women's Hospital, Harvard Medical School (United States); **Tracy A. Balboni**, **Alexander Spektor**, **Mai Anh Huynh,** Dana-Farber Cancer Institute (United States); **Jeffrey P. Guenette**, **Bryan Czajkowski,** Brigham and Women's Hospital, Harvard Medical School (United States); **Sarah Caplan**, **Patrick Doyle**, **Heejoo Kang,** Dana-Farber Cancer Institute (United States); **David B. Hackney, Ron N. Alkalay,** Beth Israel Deaconess Medical Ctr. (United States)

12926-95 • 05:30 PM - 07:00 PM
A deep learning network for breast mass detection using paired view mammogram
Author(s): **Jae Won Seo,** Gachon Univ. (Korea, Republic of); **Young Jae Kim,** Gachon Univ. Gil Medical Ctr. (Korea, Republic of); **Chang Min Park,** Seoul National University medical college (Korea, Republic of); **Kwang Nam Jin,** SMG-SNU Boramae Medical Center (Korea, Republic of); **Kwang Gi Kim,** Gachon Univ. (Korea, Republic of)

12926-96 • 05:30 PM - 07:00 PM
Fully automated quantitative assessment of hepatic steatosis through CT-based proton density fat fraction analysis on chest and abdominal CT
Author(s): **Han-Jae Chung**, **Jong-Min Kim**, **Seung-Min Ham,** Medical IP Co., Ltd. (Korea, Republic of); **Jeong Min Lee**, **Jeong Hee Yoon,** Seoul National Univ. Hospital (Korea, Republic of); **Sang Joon Park,** Seoul National Univ. College of Medicine (Korea, Republic of)

12926-97 • 05:30 PM - 07:00 PM
Patch-based noise-level-estimation for the blind denoising of low-dose PET images
Author(s): **Gaoyu Chen,** Univ. of Michigan-Shanghai Jiao Tong Univ. Joint Institute, Shanghai Jiao Tong Univ. (China); **Wenxiang Ding**, **Li Lyu**, **Hanzhong Wang,** Shanghai Jiao Tong Univ. (China); **Fenghua Weng**, **Sheng Liu,** Ruijia Medical Technology Co., Ltd. (China); **Qiu Huang,** Shanghai Jiao Tong Univ. (China), Ruijin Hospital, Shanghai Jiao Tong Univ. School of Medicine (China)

12926-98 • 05:30 PM - 07:00 PM
Deformable current-prior registration of DCE breast MR images on multi-site data
Author(s): **Kai Geißler,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Ani Ambroladze,** Univ. Bremen (Germany); **Nils Papenberg**, **Tom L. Koller,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Heba Amer**, **Eva M. Fallenberg,** Klinikum der Univ. München (Germany); **Seda Aladağ Kurt,** Istanbul University-Cerrahpasa (Turkey); **Michael Ingrisch,** University Hospital LMU Munich (Germany); **Horst K. Hahn,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

12926-99 • 05:30 PM - 07:00 PM
Deep transfer learning from limited source for abdominal CT and MR image segmentation
Author(s): **Chetana Krishnan**, **Emma Schmidt**, **Ezinwanne Onuoha**, **Michal Mrug**, **Carlos E. Cardenas, Harrison Kim,** The Univ. of Alabama at Birmingham (United States)

12926-100 • 05:30 PM - 07:00 PM
Analysis of disentangled representation learning for high-resolution dynamic MRI synthesis
Author(s): **Claire Scavinner-Dorval,** IMT Atlantique Bretagne-Pays de la Loire (France), Inserm U1101 LaTIM (France); **Rodolphe Bailly,** Fondation ILDYS (France), Inserm U1101 LaTIM (France); **Bhushan Borotikar,** Symbiosis International Univ. (India); **Sylvain Brochard,** Ctr. Hospitalier Regional Univ. Brest (France), Univ. de Bretagne Occidentale (France), Inserm U1101 LaTIM (France); **Douraied Ben Salem,** Univ. de Bretagne Occidentale (France), Ctr. Hospitalier Regional Univ. Brest (France), Inserm U1101 LaTIM (France); **François Rousseau,** IMT Atlantique Bretagne-Pays de la Loire (France), Inserm U1101 LaTIM (France)

12926-101 • 05:30 PM - 07:00 PM
Diffeomorphic image registration with bijective consistency
Author(s): **Jiong Wu**, **Hongming Li, Yong Fan,** Univ. of Pennsylvania (United States)

12926-102 • 05:30 PM - 07:00 PM
Speech motion anomaly detection via cross-modal translation of 4D motion fields from tagged MRI
Author(s): **Xiaofeng Liu**, **Fangxu Xing,** Gordon Ctr. for Medical Imaging (United States); **Jiachen Zhuo,** Univ. of Maryland School of Medicine (United States); **Maureen Stone,** Univ. of Maryland, Baltimore (United States); **Jerry L. Prince,** Johns Hopkins Univ. (United States); **Georges El Fakhri, Jonghye Woo,** Gordon Ctr. for Medical Imaging (United States)

12926-103 • 05:30 PM - 07:00 PM
Multi-method and multi-atlas segmentation fusion for delineation of thigh muscle groups in 3D water-fat separated MRI
Author(s): **Nagasoujanya Annasamudram**, **Azubuike Okorie,** Delaware State Univ. (United States); **Richard W. Spencer,** National Institutes of Health (United States); **Rita R. Kalyani,** The Johns Hopkins Univ. School of Medicine (United States); **Qi Yang**, **Bennett A. Landman,** Vanderbilt Univ. (United States); **Luigi Ferrucci,** National Institutes of Health (United States); **Sokratis Makrogiannis,** Delaware State Univ. (United States)

12926-104 • 05:30 PM - 07:00 PM
Edge-preserving, cnn based, denoising in low dose spect myocardial perfusion imaging
Author(s): **Mehdi Toumi**, **Yongyi Yang,** Illinois Institute of Technology (United States); **Hendrik Pretorius**, **Michael A. King,** Univ. of Massachusetts Chan Medical School (United States); **Jovan G. Brankov,** Illinois Institute of Technology (United States)

12926-105 • 05:30 PM - 07:00 PM
Detection of local emphysema progression using conditional CNN
Author(s): **Ariel Curiale,** Brigham and Women's Hospital, Harvard Medical School (United States), Consejo Nacional de Investigaciones Científicas y Técnicas (Argentina), Ctr. Atómico Bariloche (Argentina); **Raúl San José Estépar,** Brigham and Women's Hospital, Harvard Medical School (United States)

12926-106 • 05:30 PM - 07:00 PM
Self-supervised learning based on StyleGAN for medical image classification on small labeled dataset
Author(s): **Zong Fan**, **Zhimin Wang**, **Chaojie Zhang**, **Muzaffer Ozbey,** Univ. of Illinois (United States); **Umberto Villa,** The Univ. of Texas at Austin (United States); **Yao Hao**, **Zhongwei Zhang,** Washington Univ. in St. Louis (United States); **Xiaowei Wang,** Univ. of Illinois at Chicago (United States); **Hua Li,** Washington Univ. in St. Louis (United States)

12926-107 • 05:30 PM - 07:00 PM
Single image super resolution on dynamic X-ray radiography based on a vision transformer
Author(s): **Hyunjong Kim**, **Ilwoong Choi,** DRTECH Corp. (Korea, Republic of); **Dong Sik Kim,** Hankuk Univ. of Foreign Studies (Korea, Republic of); **Choul Woo Shin,** DRTECH Corp. (Korea, Republic of)

12926-108 • 05:30 PM - 07:00 PM
Detection of reticular pseudodrusen on optical coherence tomography images
Author(s): **Amr Elsawy,** U.S. National Library of Medicine, National Institutes of Health (United States); **Tiarnan Keenan**, **Elvira Agron,** National Eye Institute, National Institutes of Health (United States); **Qingyu Chen,** U.S. National Library of Medicine, National Institutes of Health (United States); **Emily Y. Chew,** National Eye Institute, National Institutes of Health (United States); **Zhiyong Lu,** U.S. National Library of Medicine, National Institutes of Health (United States)

12926-109 • 05:30 PM - 07:00 PM
Transformer-based classifier with feature aggregation for cancer subtype classification on histopathological images
Author(s): **Chaojie Zhang**, **Zong Fan**, **Zhimin Wang,** Univ. of Illinois (United States); **Lulu Sun**, **Yao Hao**, **Zhongwei Zhang**, **Wade Thorstad**, **Hiram Gay,** Washington Univ. in St. Louis (United States); **Xiaowei Wang,** Univ. of Illinois at Chicago (United States); **Mark A. Anastasio,** Univ. of Illinois (United States); **Hua Li,** Washington Univ. in St. Louis (United States)

12926-111 • 05:30 PM - 07:00 PM
A sequential geometry reconstruction based deep learning approach to improve accuracy and consistence of lumbar spine MRI image segmentation
Author(s): **Linchen Qian**, **Jiasong Chen**, **Linhai Ma**, **Timur Urakov, Liang Liang,** Univ. of Miami (United States)

12926-112 • 05:30 PM - 07:00 PM
Head re-orientation along desired plane using deep learning based landmark detection for CT images
Author(s): **Deepa Anand**, **Vanika Singhal,** GE HealthCare (India); **Maud Bonnard**, **Amy Deubig**, **Sandeep Dutta,** GE HealthCare (United States); **Uday Patil**, **Rakesh Mullick, Bipul Das,** GE HealthCare (India)

12926-113 • 05:30 PM - 07:00 PM
Deep convolutional neural networks for PET super-resolution
Author(s): **Kaan C. Ozaltan**, **Emir Turkolmez,** Bilkent Univ. (Turkey); **Izzie J. Namer,** Univ. de Strasbourg (France); **Ercument A. Cicek,** Bilkent Univ (Turkey); **Selim Aksoy,** Bilkent Univ. (Turkey)

12926-114 • 05:30 PM - 07:00 PM
Mid-sagittal cross-section identification for vertebra landmarking in MR spine images
Author(s): **Kamil Ibragimov**, **Gašper Podobnik,** Univ. of Ljubljana (Slovenia); **Teodor Trojner**, **Gregor Recnik,** Univ. Medical Ctr. Maribor (Slovenia); **Tomaž Vrtovec,** Univ. of Ljubljana (Slovenia)

12926-115 • 05:30 PM - 07:00 PM
Deep Implicit Statistical Shape Models for 3D Lumbar Vertebrae Image Delineation
Author(s): **Domen Ocepek**, **Gašper Podobnik,** Univ. of Ljubljana (Slovenia); **Bulat Ibragimov,** Univ. of Copenhagen (Denmark); **Tomaž Vrtovec,** Univ. of Ljubljana (Slovenia)

12926-253 • 05:30 PM - 07:00 PM
Deep Learning-Based Segmentation of Hydrocephalus Brain Ventricle from Ultrasound
Author(s): **Yuli Wang,** The Johns Hopkins Univ. School of Medicine (United States); **Yihao Liu**, **Shuwen Wei**, **Yuan Xue**, **Lianrui Zuo**, **Samuel W. Remedios**, **Zhangxing Bian,** Johns Hopkins Univ. (United States); **Michael Meggyesy**, **Jheesoo Ahn**, **Ryan P. Lee,** The Johns Hopkins Univ. School of Medicine (United States); **Jerry L. Prince,** Johns Hopkins Univ. (United States); **Mark G. Luciano,** The Johns Hopkins Univ. School of Medicine (United States); **Aaron Carass,** Johns Hopkins Univ. (United States)

12926-254 • 05:30 PM - 07:00 PM
Leveraging sinusoidal representation networks to predict fMRI signals from EEG
Author(s): **Yamin Li**, **Ange Lou**, **Ziyuan Xu**, **Shiyu Wang, Catie Chang,** Vanderbilt Univ. (United States)

12926-24 • 05:30 PM - 07:00 PM
Spatiotemporal disentanglement of arteriovenous malformations in digital subtraction angiography
Author(s): **Kathleen Baur**, **Xin Xiong**, **Erickson Torio**, **Rose Du**, **Parikshit Juvekar**, **Reuben Dorent**, **Alexandra J. Golby**, **Sarah Frisken, Nazim Haouchine,** Brigham and Women's Hospital, Harvard Medical School (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: DEEP LEARNING: TRANSFORMERS

20 February 2024 • 10:30 AM - 12:10 PM | Town & Country B
Session Chair(s): **Kenji Suzuki**, Tokyo Institute of Technology (Japan); **Susana K. Lai-Yuen**, Univ. of South Florida (United States)

12926-15 • 10:30 AM - 10:50 AM
Medical image classification using self-supervised learning-based masked autoencoder
Author(s): **Zong Fan**, **Zhimin Wang,** Univ. of Illinois (United States); **Ping Gong,** Mayo Clinic (United States); **Shanshan Tang,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Christine U. Lee,** Mayo Clinic (United States); **Xiaohui Zhang,** Univ. of Illinois (United States); **Zhongwei Zhang**, **Yao Hao,** Washington Univ. in St. Louis (United States); **Pengfei Song,** Univ. of Illinois (United States); **Shigao Chen,** Mayo Clinic (United States); **Hua Li,** Washington Univ. in St. Louis (United States)

12926-17 • 10:50 AM - 11:10 AM
CATS v2: Hybrid encoders for robust medical segmentation
Author(s): **Hao Li**, **Han Liu**, **Dewei Hu**, **Xing Yao**, **Jiacheng Wang, Ipek Oguz,** Vanderbilt Univ. (United States)

12926-18 • 11:10 AM - 11:30 AM
Transformer-Based Local Feature Matching for Multimodal Image Registration.
Author(s): **Rémi Delaunay**, **Ruisi Zhang,** Harvard Medical School (United States), Brigham and Women's Hospital (United States); **Filipe C. Pedrosa,** Harvard Medical School (United States), Brigham and Women's Hospital (United States), Western Univ. (Canada); **Navid Feizi,** Western Univ. (Canada); **Dianne Sacco,** Massachusetts General Hospital (United States); **Rajni V. Patel,** Western Univ. (Canada); **Jayender Jagadeesan,** Brigham and Women's Hospital (United States), Harvard Medical School (United States)

12926-19 • 11:30 AM - 11:50 AM
Radiomics-guided 3D CNN-Vision Transformer (Rad-CNNViT) ensemble to diagnose pulmonary sarcoidosis from CT
Author(s): **Jianwei Qiu,** GE Research (United States); **Jhimli Mitra,** GE Healthcare (United States); **Camille Dumas,** Albany Medical College (United States); **Brion Sarachan**, **Soumya Ghose,** GE Research (United States); **Marc Judson,** Albany Medical College (United States)

12926-20 • 11:50 AM - 12:10 PM
Continued pretraining for enhanced multi-organ segmentation from CT images
Author(s): **Yaqi Yang**, **Chen Shen,** Nagoya Univ. (Japan); **Yucheng Tang**, **Holger R. Roth,** NVIDIA Corp. (United States); **Masahiro Oda**, **Yuichiro Hayashi,** Nagoya Univ. (Japan); **Kazunari Misawa,** Aichi Cancer Ctr. Research Institute (Japan); **Kensaku Mori,** Nagoya Univ. (Japan)

Lunch Break 12:10 PM - 01:40 PM

SESSION 5: TRUSTWORTHY AI: VALIDATION, REPRODUCIBILITY, BIASES

20 February 2024 • 01:40 PM - 03:20 PM | Town & Country B
Session Chair(s): **Olivier Colliot**, Ctr. National de la Recherche Scientifique (France)

View Full Details: spie.org/trustworthy-ai

How to ensure that medical imaging AI is trustworthy? How to know if one can trust the results presented in research papers? These are fundamental questions that the field of medical imaging needs to address to lead to true advances in clinical care. At this workshop, three world-class experts will address key issues in trustworthy AI. The talks will be followed by a discussion of learnings involving speakers and Q&A.

12926-801 • 01:40 PM - 01:45 PM
Introduction

12926-21 • 01:45 PM - 02:10 PM
Metrics Reloaded
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12926-116 • 02:10 PM - 02:35 PM
Reproducibility in medical image processing
Author(s): **Ninon Burgos,** Institut du Cerveau et de la Moelle Épinière (France)

12926-117 • 02:35 PM - 03:00 PM
Bias in radiology artificial intelligence: causes, evaluation and mitigation
Author(s): **Imon Banerjee,** Mayo Clinic (United States)

12926-802 • 03:00 PM - 03:20 PM
Panel Discussion

Coffee Break 03:20 PM - 03:50 PM

SESSION 6: BRAIN IMAGING

20 February 2024 • 03:50 PM - 05:10 PM | Town & Country B
Session Chair(s): **Dzung L. Pham**, Uniformed Services Univ. of the Health Sciences (United States); **James C. Gee**, Univ. of Pennsylvania (United States)

12926-22 • 03:50 PM - 04:10 PM
Optimizing contrastive learning for cortical folding pattern detection
Author(s): **Aymeric Gaudin**, **Louise Guillon**, **Clara Fischer,** NeuroSpin, CEA-Paris-Saclay (France); **Arnaud Cachia,** LaPsyDé, Laboratoire A.Binet-Sorbonne (France); **Denis Rivière**, **Jean-François Mangin, Joël Chavas,** NeuroSpin, CEA-Paris-Saclay (France)

12926-23 • 04:10 PM - 04:30 PM
Spatiospectral image processing workflow considerations for advanced MR spectroscopy of the brain
Author(s): **Leon Y. Cai,** Vanderbilt Univ. (United States); **Stephanie N. Del Tufo,** Univ. of Delaware (United States); **Laura Barquero**, **Micah D'Archangel**, **Lanier Sachs,** Vanderbilt Univ. Medical Ctr. (United States); **Laurie E. Cutting,** Vanderbilt Univ. Medical Ctr. (United States), Vanderbilt Univ. (United States); **Nicole Glaser,** UC Davis Health System (United States); **Simona Ghetti,** Univ. of California, Davis (United States); **Sarah S. Jaser,** Vanderbilt Univ. Medical Ctr. (United States); **Adam W. Anderson,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States); **Lori C. Jordan,** Vanderbilt Univ. Medical Ctr. (United States); **Bennett A. Landman,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States)

12926-25 • 04:30 PM - 04:50 PM
Generating PET-derived maps of myelin content from clinical MRI using curricular discriminator training in generative adversarial networks
Author(s): **Théodore Soulier,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris (France); **Mariem Hamzaoui,** Sorbonne Univ. Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris (France); **Milena Sales Pitombeira**, **Daniele De Paula Faria,** Univ. de São Paulo (Brazil); **Arya Yazdan-Panah,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris (France); **Matteo Tonietto**, **Claire Leroy**, **Michel Bottlaender,** Service Hospitalier Frédéric Joliot, CEA (France); **Benedetta Bodini,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de la Santé et de la Recherche Médicale, Hôpital Saint-Antoine, Assistance Publique Hôpitaux de Paris (France); **Ninon Burgos,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris (France); **Nicholas Ayache,** Institut National de Recherche en Informatique et en Automatique (France); **Olivier Colliot,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale, Assistance Publique Hôpitaux de Paris (France); **Bruno Stankoff,** Sorbonne Univ., Institut du Cerveau et de la Moelle Épinière, CNRS (France), Institut National de Recherche en Informatique et en Automatique, Institut National de la Santé et de la Recherche Médicale (France), Hôpital Saint-Antoine, Assistance Publique Hôpitaux de Paris (France)

12926-26 • 04:50 PM - 05:10 PM
Identification of functional white matter networks in BOLD fMRI
Author(s): **Alexa L. Eby**, **Lucas W. Remedios**, **Michael E. Kim,** Vanderbilt Univ. (United States); **Muwei Li,** Vanderbilt Univ. Institute of Imaging Science (United States), Vanderbilt Univ. Medical Ctr. (United States); **Yurui Gao,** Vanderbilt Univ. Institute of Imaging Science (United States), Vanderbilt Univ. (United States); **John C. Gore,** Vanderbilt Univ. (United States), Vanderbilt Univ. Institute of Imaging Science (United States); **Kurt G. Schilling,** Vanderbilt Univ. Institute of Imaging Science (United States), Vanderbilt Univ. Medical Ctr. (United States); **Bennett A. Landman,** Vanderbilt Univ. (United States), Vanderbilt Univ. Institute of Imaging Science (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 7: SEGMENTATION

21 February 2024 • 10:30 AM - 12:30 PM | Town & Country B
Session Chair(s): **Rakesh Mullick**, GE HealthCare (India); **Lotta Maria Ellingsen**, Univ. of Iceland (Iceland)

12926-27 • 10:30 AM - 10:50 AM
Automated Estimation of Microcirculation Capillary Density using Relative Perfusion maps
Author(s): **Rohit K. Jena**, **Yifan Wu**, **Pratik Chaudhari**, **James Gee, John C. Greenwood,** Univ. of Pennsylvania (United States)

12926-28 • 10:50 AM - 11:10 AM
Unsupervised cell segmentation by invariant information clustering
Author(s): **Wessel L. van Nierop,** Technische Univ. Eindhoven (Netherlands); **Jan-Niklas Schneider,** Axion BioSystems (Netherlands); **Peter H. N. de With, Fons van der Sommen,** Technische Univ. Eindhoven (Netherlands)

12926-29 • 11:10 AM - 11:30 AM
Label refinement for noisy annotation in weakly supervised segmentation
Author(s): **Ziyi Huang,** Columbia Univ. (United States); **Hongshan Liu,** Stevens Institute of Technology (United States); **Haofeng Zhang,** Columbia Univ. (United States); **Fuyong Xing,** Univ. of Colorado Anschutz Medical Campus (United States); **Andrew Laine,** Columbia Univ. (United States); **Elsa Angelini,** Columbia Univ. (United States), Imperial College London (United Kingdom), Institut Polytechnique de Paris (France); **Christine Hendon,** Columbia Univ. (United States); **Yu Gan,** Stevens Institute of Technology (United States)

12926-30 • 11:30 AM - 11:50 AM
3D spatial and channel reconstruction for large image patch based segmentation of knee anatomical structures on MRI
Author(s): **Zeqiu Yu**, **Xiaoyan Zhao**, **Jatin Singh**, **Jing Wang**, **Tong Yu**, **Devansh Barot, Jiantao Pu,** Univ. of Pittsburgh (United States)

12926-31 • 11:50 AM - 12:10 PM
Pre- to post-contrast breast MRI synthesis for enhanced tumour segmentation
Author(s): **Richard O. Osuala**, **Smriti Joshi,** Univ. de Barcelona (Spain); **Apostolia Tsirikoglou,** Karolinska Institute (Sweden); **Lidia Garrucho Moras,** Univ. de Barcelona (Spain); **Walter H. Lopez Pinaya,** King's College London (United Kingdom); **Oliver Diaz, Karim Lekadir,** Univ. de Barcelona (Spain)

12926-32 • 12:10 PM - 12:30 PM
Intestine segmentation from CT volume based on bidirectional teaching
Author(s): **Qin An,** Nagoya Univ. (Japan); **Hirohisa Oda,** Univ. of Shizuoka (Japan); **Yuichiro Hayashi,** Nagoya Univ. (Japan); **Takayuki Kitasaka,** Aichi Institute of Technology (Japan); **Akinari Hinoki**, **Hiroo Uchida,** Nagoya Univ. Graduate School of Medicine (Japan); **Kojiro Suzuki,** Aichi Medical Univ. (Japan); **Aitaro Takimoto,** Nagoya Univ. School of Medicine (Japan); **Masahiro Oda,** Nagoya Univ. (Japan); **Kensaku Mori,** Nagoya Univ. (Japan), National Institute of Informatics (Japan)

Lunch Break 12:30 PM - 01:40 PM

SESSION 8: DEEP DIVE

21 February 2024 • 01:40 PM - 03:25 PM | Town & Country B
Session Chair(s): **Benoit M. Dawant**, Vanderbilt Univ. (United States); **Antong Chen**, Merck & Co., Inc. (United States)

12926-33 • 01:40 PM - 02:15 PM
Distilling vision transformers for no-reference perceptual CT image quality assessment
Author(s): **Maria G. Baldeon Calisto,** Univ. San Francisco de Quito (Ecuador); **Francisco Rivera-Velastegui,** Univ. Internacional del Ecuador (Ecuador); **Susana K. Lai-Yuen,** Univ. of South Florida (United States); **Daniel Riofrío**, **Noel Pérez**, **Diego Benítez, Ricardo Flores-Moyano,** Univ. San Francisco de Quito (Ecuador)

12926-34 • 02:15 PM - 02:50 PM
Design, training, and applications of foundation model for chest computed tomography volumes
Author(s): **Amara Tariq**, **Bhavik N. Patel, Imon Banerjee,** Mayo Clinic (United States)

12926-35 • 02:50 PM - 03:25 PM
Revisiting registration-based image synthesis: a focus on unsupervised MR image synthesis
Author(s): **Savannah P. Hays,** Johns Hopkins Univ. (United States); **Lianrui Zuo,** Johns Hopkins Univ. (United States), National Institute on Aging, National Institutes of Health (United States); **Yihao Liu**, **Anqi Feng,** Johns Hopkins Univ. (United States); **Jiachen Zhuo,** Univ. of Maryland, Baltimore (United States); **Jerry L. Prince, Aaron Carass,** Johns Hopkins Univ. (United States)

Coffee Break 03:25 PM - 03:50 PM

SESSION 9: EXPLAINABLE AND TRUSTWORTHY AI

21 February 2024 • 03:50 PM - 05:30 PM | Town & Country B
Session Chair(s): **Ninon Burgos**, Institut du Cerveau et de la Moelle Épinière (France); **Shuyue Guan**, U.S. Food and Drug Administration (United States)

12926-36 • 03:50 PM - 04:10 PM
A general approach to improve adversarial robustness of DNNs for medical image segmentation and detection
Author(s): **Linhai Ma**, **Jiasong Chen**, **Linchen Qian, Liang Liang,** Univ. of Miami (United States)

12926-37 • 04:10 PM - 04:30 PM
Evaluating the performance of hyperparameters for unbiased and fair machine learning
Author(s): **Vy Bui**, **Hang Yu**, **Karthik Kantipudi**, **Ziv Yaniv, Stefan Jaeger,** National Institutes of Health (United States)

12926-38 • 04:30 PM - 04:50 PM
Boundary-aware uncertainty for automatic caliper placement
Author(s): **Prasad Sudhakar**, **Rachana Sathish**, **Rahul Venkataramani**, **Chandan Aladahalli**, **K. S. Shriram,** GE HealthCare (India); **Masaki Ikuta,** GE HealthCare (United States)

12926-39 • 04:50 PM - 05:10 PM
Leveraging epistemic uncertainty to improve tumour segmentation in breast MRI: an exploratory analysis
Author(s): **Smriti Joshi**, **Richard O. Osuala**, **Lidia Garrucho,** Univ. de Barcelona (Spain); **Apostolia Tsirikoglou,** Karolinska Institute (Sweden); **Javier D. Riego,** Fundació Institut d'Investigació i Innovació Parc Taulí, Univ. Autònoma de Barcelona (Spain); **Katarzyna Gwozdziewicz,** Medical Univ. of Gdansk (Poland); **Kaisar Kushibar**, **Oliver Diaz, Karim Lekadir,** Univ. de Barcelona (Spain)

12926-40 • 05:10 PM - 05:30 PM
An interpretable deep learning approach for lesion detection and segmentation on whole-body [18F]FDG PET/CT
Author(s): **Ine Dirks,** Vrije Univ. Brussel (Belgium), imec (Belgium); **Marleen Keyaerts**, **Bart Neyns,** Vrije Univ. Brussel, Univ. Ziekenhuis Brussel (Belgium); **Jef Vandemeulebroucke,** Vrije Univ. Brussel (Belgium), imec (Belgium)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

Coffee Break 10:00 AM - 10:30 AM

POSTER AWARDS

22 February 2024 • 10:30 AM - 10:50 AM | Pacific A
Join us in congratulating this year's poster award winners for the Image Processing conference.

SESSION 10: QUALITY CONTROL AND HARMONIZATION

22 February 2024 • 10:50 AM - 12:30 PM | Town & Country B
Session Chair(s): **Can Zhao**, NVIDIA Corp. (United States); **Juan Carlos Prieto**, The Univ. of North Carolina at Chapel Hill (United States)

12926-41 • 10:50 AM - 11:10 AM
Automatic detection of exam contents from a 3D image series
Author(s): **Sandeep Dutta**, **Yunfeng Li**, **Maud Bonnard, Jiang Hsieh,** GE HealthCare (United States)

12926-42 • 11:10 AM - 11:30 AM
Leveraging noise and contrast simulation for the automatic quality control of routine clinical T1-weighted brain MRI
Author(s): **Sophie Loizillon**, **Stéphane Mabille**, **Simona Bottani,** Institut du Cerveau et de la Moelle Épinière, Sorbonne Univ., CNRS (France); **Yannick Jacob**, **Aurélien Maire,** Assistance Publique Hôpitaux de Paris (France); **Sebastian Ströer,** DMU DIAMENT, Hôpital Pitié-Salpêtrière, Assistance Publique Hôpitaux de Paris (France); **Didier Dormont,** Assistance Publique Hôpitaux de Paris (France); **Olivier Colliot, Ninon Burgos,** Institut du Cerveau et de la Moelle Épinière, Sorbonne Univ., CNRS (France)

12926-43 • 11:30 AM - 11:50 AM
Assessment of subject head motion in diffusion MRI
Author(s): **Ema Topolnjak**, **Chenyu Gao,** Vanderbilt Univ. (United States); **Lori L. Beason-Held**, **Susan M. Resnick,** National Institute on Aging, National Institutes of Health (United States); **Kurt G. Schilling, Bennett A. Landman,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States)

12926-44 • 11:50 AM - 12:10 PM
Automatic quality control of segmentation results using early epochs as data augmentation: application to choroid plexuses
Author(s): **Arya Yazdan-Panah**, **Bruno Stankoff, Olivier Colliot,** Institut du Cerveau et de la Moelle Épinière (France), Institut National de Recherche en Informatique et en Automatique (France)

12926-45 • 12:10 PM - 12:30 PM
Inter-vendor harmonization of CT reconstruction kernels using unpaired image translation
Author(s): **Aravind R. Krishnan**, **Kaiwen Xu**, **Thomas Z. Li**, **Chenyu Gao**, **Lucas W. Remedios**, **Praitayini Kanakaraj**, **Ho Hin Lee**, **Shunxing Bao,** Vanderbilt Univ. (United States); **Fabien Maldonado**, **Kim L. Sandler,** Vanderbilt Univ. Medical Ctr. (United States); **Ivana Išgum,** Amsterdam UMC (Netherlands); **Bennett A. Landman,** Vanderbilt Univ. (United States)

DIGITAL POSTERS

On Demand

The posters listed below are available exclusively for online viewing during the week of SPIE Medical Imaging 2024.

12926-84 • -

A comparison of U-Net series for teeth segmentation in CBCT images

Author(s): **Fan Zhang**, **Linya Zheng,** Xiamen Univ. (China); **Chen Lin**, **Liping Huang**, **Yuming Bai,** Xiamen Stomatological Hospital (China); **Yinran Chen, Xiongbiao Luo,** Xiamen Univ. (China)

12926-16 • -

Unsupervised learning with alternating matching features for 3D image registration

Author(s): **Lin Liu**, **Xinxin Fan**, **Xuan Liu**, **Wenfeng He, Xiaokun Liang,** Shenzhen Institute of Advanced Technology (China)

CONFERENCE 12927

Computer-Aided Diagnosis

19 - 22 February 2024 | Town & Country C

CONFERENCE CO-SPONSOR

SIEMENS Healthineers

Conference Chair(s): **Weijie Chen,** U.S. Food and Drug Administration (United States); **Susan M. Astley,** The Univ. of Manchester (United Kingdom)

Program Committee: **Sameer K. Antani,** U.S. National Library of Medicine (United States); **Samuel G. Armato,** The Univ. of Chicago (United States); **Ulas Bagci,** Northwestern Univ. (United States); **Matthew S. Brown,** UCLA Ctr. for Computer Vision & Imaging Biomarkers (United States); **Kenny H. Cha,** U.S. Food and Drug Administration (United States); **Heang-Ping Chan,** Univ. of Michigan (United States); **Thomas M. Deserno,** Technische Univ. Braunschweig (Germany); **Karen Drukker,** The Univ. of Chicago (United States); **Jan Ehrhardt,** Univ. zu Lübeck (Germany); **Catalin Fetita,** Télécom SudParis (France); **Aimilia Gastounioti,** Penn Medicine (United States); **Maryellen L. Giger,** The Univ. of Chicago (United States); **Hayit Greenspan,** Tel Aviv Univ. (Israel); **Lubomir M. Hadjiiski,** Univ. of Michigan (United States); **Horst K. Hahn,** Fraunhofer MEVIS (Germany); **Takeshi Hara,** Gifu Univ. School of Medicine (Japan); **Anja B. Hennemuth,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Helen Hong,** Seoul Women's Univ. (Korea, Republic of); **Khan M. Iftekharuddin,** Old Dominion Univ. (United States); **JongHyo Kim,** Seoul National Univ. Hospital (Korea, Republic of); **Despina Kontos,** Columbia Univ. Irving Medical Ctr. (United States); **Juhun Lee,** Univ. of Pittsburgh (United States); **Zhengrong Jerome Liang,** Stony Brook Univ. (United States); **Marius George Linguraru,** Children's National Medical Ctr. (United States); **Hongbing Lu,** PLA Air Force Military Medical Univ. (China); **Maciej A. Mazurowski,** Duke Univ. (United States); **Fabrice Meriaudeau,** Univ. de Bourgogne (France); **Kensaku Mori,** Nagoya Univ. (Japan); **Chisako Muramatsu,** Shiga Univ. (Japan); **Janne J. Näppi,** Massachusetts General Hospital (United States); **Carol L. Novak,** Siemens Healthineers (United States); **Nicholas A. Petrick,** U.S. Food and Drug Administration (United States); **Antonio R. Porras,** Children's National Health System (United States); **Prateek Prasanna,** Stony Brook Univ. (United States); **Letícia Rittner,** Univ. of Campinas (Brazil); **Ravi K. Samala,** U.S. Food and Drug Administration (United States); **Clarisa I. Sánchez-Gutiérrez,** Univ. of Amsterdam (Netherlands); **Amber L. Simpson,** Queen's Univ. (Canada); **Ronald M. Summers,** National Institutes of Health Clinical Ctr. (United States); **Kenji Suzuki,** Tokyo Institute of Technology (Japan); **Jonas Teuwen,** Netherlands Cancer Institute (Netherlands); **Pallavi Tiwari,** Univ. of Wisconsin-Madison (United States); **Heather M. Whitney,** The Univ. of Chicago (United States); **Matthias Wilms,** Univ. of Calgary (Canada); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States); **Shandong Wu,** Univ. of Pittsburgh (United States); **Xiaofeng Yang,** Emory Univ. School of Medicine (United States); **Hiroyuki Yoshida,** Massachusetts General Hospital (United States); **Chuan Zhou,** Michigan Medicine (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Coffee Break 10:45 AM - 11:10 AM

SESSION 1: SEGMENTATION I

19 February 2024 • 11:10 AM - 12:30 PM | Town & Country C
Session Chair(s): **Hiroyuki Yoshida**, Massachusetts General Hospital (United States); **Ravi K. Samala**, U.S. Food and Drug Administration (United States)

12927-1 • 11:10 AM - 11:30 AM
Self and mixed supervision to improve training labels for multi-class medical image segmentation
Author(s): **Jianfei Liu,** National Institutes of Health Clinical Ctr. (United States); **Christopher Parnell,** Walter Reed National Military Medical Ctr. (United States); **Ronald M. Summers,** National Institutes of Health Clinical Ctr. (United States)

12927-2 • 11:30 AM - 11:50 AM
Automatic segmentation of malignant and benign adnexal lesions on ultrasound scans
Author(s): **Heather M. Whitney**, **Roni Yoeli-Bik**, **Jacques Abramowicz**, **Li Lan**, **Hui Li**, **Ryan Longman**, **Ernst Lengyel, Maryellen L. Giger,** The Univ. of Chicago (United States)

12927-3 • 11:50 AM - 12:10 PM
Segmentation of endoscopy images of the anterior nasal cavity using deep learning
Author(s): **Nonpawith Phoommanee,** Univ. College London (United Kingdom); **Peter J. Andrews,** Royal National Throat, Nose and Ear Hospital (United Kingdom); **Terence S. Leung,** Univ. College London (United Kingdom)

12927-4 • 12:10 PM - 12:30 PM
Human-in-the-loop informed deep learning rectal tumor segmentation on pre-treatment MRI
Author(s): **Michael Kong**, **Thomas G. DeSilvio**, **Leo Bao**, **Brennan Flannery**, **Benjamin N. Parker**, **Stephen M. Tang**, **Murad Labbad,** Case Western Reserve Univ. (United States); **Gregory M. O'Connor**, **Amit Gupta**, **Emily Steinhagen,** Univ. Hospitals Cleveland Medical Ctr. (United States); **Andrei S. Purysko,** Cleveland Clinic (United States); **William Hall,** Medical College of Wisconsin (United States); **David Liska,** Cleveland Clinic (United States); **Eric L. Marderstein,** Louis Stokes Cleveland Dept. of Veterans Affairs Medical Ctr. (United States); **Aaron Carroll,** Providence Cancer Ctr. (United States); **Marka Crittenden,** Earle A. Chiles Research Institute, Providence Cancer Institute (United States), Radiation Oncology Division, The Oregon Clinic (United States); **Michael Gough,** Providence Cancer Ctr. (United States); **Kristina H Young,** Earle A. Chiles Research Institute, Providence Cancer Institute (United States), Radiation Oncology Division, The Oregon Clinic (United States); **Satish E. Viswanath,** Case Western Reserve Univ. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 2: LUNG

19 February 2024 • 01:40 PM - 03:00 PM | Town & Country C
Session Chair(s): **Samuel G. Armato**, The Univ. of Chicago (United States); **Kenny H. Cha**, Ctr. for Devices and Radiological Health (United States)

12927-5 • 01:40 PM - 02:00 PM
Vessel-based lung lobe partitioning in ultra-short time echo proton MRI for regional ventilation assessment
Author(s): **Rezkellah Noureddine Khiati,** Télécom SudParis (France), Keyrus (France); **Antoine Didier,** Télécom SudParis (France); **Nathalie Barrau,** Univ. Paris-Saclay, CEA, CNRS (France); **Aurelien Justet,** Ctr. Hospitalier Univ. de Caen Normandie (France); **Xavier Maître,** Univ. Paris-Saclay, CEA, CNRS (France); **Jean-François Bernaudin**, **Pierre-Yves Brillet,** Avicenne Hospital, Assistance Publique Hôpitaux de Paris (France), Univ. Paris 13 (France); **Ruxandra Tapu,** Télécom SudParis (France); **Radu Ispas,** Keyrus (France); **Catalin Fetita,** Télécom SudParis (France)

12927-6 • 02:00 PM - 02:20 PM
Semi-supervised learning for mRALE score prediction in COVID-19 chest radiographs
Author(s): **Christian Mattjie**, **Luis Vinicius de Moura**, **Rafaela C. Ravazio**, **Otavio Parraga**, **Lucas S. Kupssinskü**, **Adilson Medronha,** Pontifícia Univ. Católica do Rio Grande do Sul (Brazil); **Ana Maria Marques da Silva,** Univ. de São Paulo (Brazil); **Rodrigo C. Barros,** Pontifícia Univ. Católica do Rio Grande do Sul (Brazil)

12927-7 • 02:20 PM - 02:40 PM
Geometric features of pulmonary arteries are associated with early progression and progression-free survival in small-cell lung cancer patients treated with chemotherapy and immunotherapy
Author(s): **Margalit G. Mitzner,** Stony Brook Univ. (United States); **Moinak Bhattacharya,** Department of Biomedical Informatics, Stony Brook University (United States); **Radhika Gutta,** Henry Ford Hospital (United States); **Chao Chen,** Stony Brook Univ. (United States); **Shirish M. Gadgeel,** Henry Ford Cancer Institute, Henry Ford Health System (United States); **Prateek Prasanna,** Stony Brook Univ. (United States)

12927-8 • 02:40 PM - 03:00 PM
Quantitative accuracy of lung function measurement using parametric response mapping: A virtual imaging study
Author(s): **Amar Kavuri**, **Fong Chi Ho**, **Mobina Ghojogh-Nejad,** Duke Univ. (United States); **Saman Sotoudeh-Paima,** Duke Univ. (United States); **Ehsan Samei**, **William P. Segars,** Duke Univ. (United States); **Ehsan Abadi,** Duke Univ. (United States)

Coffee Break 03:00 PM - 03:30 PM

SESSION 3: BREAST

19 February 2024 • 03:30 PM - 05:30 PM | Town & Country C
Session Chair(s): **Chisako Muramatsu**, Shiga Univ. (Japan); **Aimilia Gastounioti**, Washington Univ. School of Medicine in St. Louis (United States)

12927-9 • 03:30 PM - 03:50 PM
Breast density assessment via deep learning: head-to-head model comparisons in full-field digital mammograms and synthetic mammograms
Author(s): **Krisha Anant**, **Juanita Hernández López**, **Sneha Das Gupta,** Washington Univ. in St. Louis (United States); **Debbie L. Bennett, Aimilia Gastounioti,** Washington Univ. in St. Louis (United States), Siteman Cancer Ctr. (United States)

12927-10 • 03:50 PM - 04:10 PM
AI-based density prediction for breast cancer prevention: can we measure mammographic density in just one breast?
Author(s): **Megan Perry**, **Stepan Romanov**, **Sacha J. Howell**, **Gareth D. Evans**, **Elaine F. Harkness, Susan M. Astley,** The Univ. of Manchester (United Kingdom)

12927-11 • 04:10 PM - 04:30 PM
Quantifying input data drift in medical machine learning models by detecting change-points in time-series data
Author(s): **Smriti Prathapan**, **Ravi K. Samala**, **Nathan Hadjiyski,** U.S. Food and Drug Administration (United States); **Pierre-François D'Haese,** Rockefeller Neuroscience Institute (United States); **Fabien Maldonado,** Vanderbilt Univ. Medical Ctr. (United States); **Phuong Nguyen**, **Yelena Yesha,** Univ. of Miami (United States); **Berkman Sahiner,** U.S. Food and Drug Administration (United States)

12927-12 • 04:30 PM - 04:50 PM
Enhancing downstream classification of breast abnormalities in contrast enhanced spectral mammography using a neighborhood representation loss
Author(s): **Adarsh Bhandary Panambur,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), Siemens Healthineers (Germany); **Prathmesh Madhu,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Siming Bayer,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), Siemens Healthineers (Germany); **Andreas Maier,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

12927-13 • 04:50 PM - 05:10 PM
Lesion localization in digital breast tomosynthesis with deformable transformers by using 2.5D information
Author(s): **Zhikai Yang**, **Tianyu Fan**, **Örjan Smedby, Rodrigo Moreno,** KTH Royal Institute of Technology (Sweden)

12927-14 • 05:10 PM - 05:30 PM
Seeing beyond cancer: multi-institutional validation of object localization and 3D semantic segmentation using deep learning for breast MRI
Author(s): **Arda Pekis**, **Vignesh Kannan**, **Evandros Kaklamanos**, **Anu Antony**, **Snehal Patel, Tyler Earnest,** SimBioSys, Inc. (United States)

POSTERS - MONDAY

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/monday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 7:30 AM– 5:00 PM Monday

- In order to be considered for a poster award, it is recommended to have your poster set up by 1:00 PM Monday. Judging may begin after this time. Posters must remain on display until the end of the Monday evening poster session, but may be left hanging until 1:00 PM Tuesday. After 1:00 PM on Tuesday, posters will be removed and discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

Poster groupings are listed below by topic.

POSTERS: ABDOMINAL AND CARDIOVASCULAR

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-60 • 05:30 PM - 07:00 PM
Detection of deep lesion in resected stomach by near-infrared hyperspectral imaging
Author(s): **Toshihiro Takamatsu**, **Ryodai Fukushima,** Tokyo Univ. of Science (Japan); **Hiroaki Ikematsu,** National Cancer Ctr. (Japan); **Hideo Yokota,** RIKEN (Japan); **Kohei Soga, Hiroshi Takemura,** Tokyo Univ. of Science (Japan)

12927-61 • 05:30 PM - 07:00 PM
Learning 3D aortic root assessment based on sparse annotations
Author(s): **Johanna Brosig,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany), Charité Universitätsmedizin Berlin (Germany), Institut für kardiovaskuläre Computer-assistierte Medizin, Deutsches Herzzentrum der Charité (Germany); **Nina Krüger,** Institut für kardiovaskuläre Computer-assistierte Medizin (Germany), Charité Universitätsmedizin Berlin (Germany), Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Isaac Wamala,** Institut für kardiovaskuläre Computer-assistierte Medizin, Deutsches Herzzentrum der Charité (Germany), Charité Universitätsmedizin Berlin (Germany); **Matthias Ivantsits,** Institut für kardiovaskuläre Computer-assistierte Medizin (Germany), Charité Universitätsmedizin Berlin (Germany), Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Simon Sündermann,** Charité Universitätsmedizin Berlin (Germany), Deutsches Zentrum für Herz-Kreislaufforschung e.V. (Germany), Deutsches Herzzentrum der Charité (Germany); **Jörg Kempfert,** Charité Universitätsmedizin Berlin (Germany), Deutsches Herzzentrum der Charité (Germany), Deutsches Zentrum für Herz-Kreislaufforschung e.V. (Germany); **Stefan Heldmann,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Anja Hennemuth,** Institut für kardiovaskuläre Computer-assistierte Medizin (Germany), Fraunhofer-Institut für Digitale Medizin MEVIS (Germany), Charité Universitätsmedizin Berlin (Germany)

12927-62 • 05:30 PM - 07:00 PM
MRI-based prostate cancer detection using cross-shaped windows transformer
Author(s): **Yuheng Li,** Emory Univ. (United States); **Jacob Wynne,** Emory Univ. (United States); **Jing Wang**, **Richard Qiu**, **Justin Roper**, **Shaoyan Pan**, **Ashesh Jani,** Emory Univ. (United States); **Tian Liu,** Icahn School of Medicine at Mount Sinai (United States); **Pretesh Patel**, **Hui Mao, Xiaofeng Yang,** Emory Univ. (United States)

12927-64 • 05:30 PM - 07:00 PM
ArtHiFy: artificial histopathology-style features for improving MRI-based prostate cancer detection
Author(s): **Indrani Bhattacharya,** Stanford Univ. (United States); **Wei Shao,** Univ. of Florida (United States); **Xinran Li**, **Simon J.C. Soerensen**, **Richard E. Fan**, **Pejman Ghanouni**, **James D. Brooks**, **Geoffrey A. Sonn, Mirabela Rusu,** Stanford Univ. (United States)

12927-65 • 05:30 PM - 07:00 PM
Large language model-assisted information extraction from clinical reports for survival prediction of bladder cancer patients
Author(s): **Di Sun**, **Lubomir Hadjiiski**, **John Gormley**, **Heang-Ping Chan**, **Elaine Caoili**, **Richard Cohan**, **Ajjai Alva**, **Rada Mihalcea**, **Chuan Zhou, Vikas Gulani,** Univ. of Michigan (United States)

POSTERS: BREAST

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-66 • 05:30 PM - 07:00 PM
Breast lesion detection scheme for low gadolinium dose DCE-MRI using radon cumulative distribution transform and domain transfer: preliminary results
Author(s): **Juhun Lee**, **Federico Pineda,** Univ. of Pittsburgh (United States); **Gregory S. Karczmar,** The Univ. of Chicago (United States); **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12927-67 • 05:30 PM - 07:00 PM
Maintaining high resolution information in AI-based breast cancer risk prediction
Author(s): **Stepan Romanov,** The Univ. of Manchester (United Kingdom); **Sacha Howell,** The Christie NHS Foundation Trust (United Kingdom); **Elaine Harkness**, **Gareth D. Evans,** The Univ. of Manchester (United Kingdom); **Steven Squires,** Univ. of Exeter (United Kingdom); **Martin Fergie, Sue Astley,** The Univ. of Manchester (United Kingdom)

12927-68 • 05:30 PM - 07:00 PM
Estimating deep learning model uncertainty of breast lesion classification to guide reading strategy in breast cancer screening
Author(s): **Sarah D. Verboom,** Radboud Univ. Medical Ctr. (Netherlands); **Jaap Kroes,** ScreenPoint Medical (Netherlands); **Mireille J. M. Broeders, Ioannis Sechopoulos,** Radboud Univ. Medical Ctr. (Netherlands)

12927-69 • 05:30 PM - 07:00 PM
A residual-attention multimodal fusion network (ResAMF-Net) for detection and classification of breast cancer
Author(s): **Xuan Liu**, **Yinhao Ren**, **Marc Ryser**, **Lars Grimm, Joseph Lo,** Duke Univ. (United States)

12927-70 • 05:30 PM - 07:00 PM
Using an AI-based density prediction method to explore the risk of breast cancer in different ethnic groups
Author(s): **Emma Wylie**, **Stepan Romanov**, **Gareth D. Evans**, **Elaine F. Harkness, Susan Astley,** The Univ. of Manchester (United Kingdom)

12927-71 • 05:30 PM - 07:00 PM
Understanding impact of textural changes for mammogram analysis using counterfactuals
Author(s): **Ridhi Arora, Juhun Lee,** Univ. of Pittsburgh (United States)

12927-72 • 05:30 PM - 07:00 PM
Beyond mammographic density: a computational imaging approach to identify effects of early adulthood adiposity on breast parenchymal tissue patterns in premenopausal women
Author(s): **Sneha Das Gupta**, **Kayla Getz**, **Juanita Hernández López**, **Debbie L. Bennett**, **Adetunji T. Toriola, Aimilia Gastounioti,** Washington Univ. in St. Louis (United States)

12927-73 • 05:30 PM - 07:00 PM
Intrinsic subtype classification of breast cancers on mammograms using local selective patches
Author(s): **Chisako Muramatsu,** Shiga Univ. (Japan); **Mikinao Oiwa,** Nagoya Medical Ctr. (Japan); **Tomonori Kawasaki,** Saitama Medical Univ. International Medical Ctr. (Japan); **Rieko Nishimura,** Nagoya Medical Ctr. (Japan); **Hiroshi Fujita,** Gifu University (Japan)

12927-74 • 05:30 PM - 07:00 PM
Incorporating longitudinal changes of mammograms for breast cancer diagnosis
Author(s): **Zhengbo Zhou**, **Dooman Arefan**, **Margarita L. Zuley**, **Jules H. Sumkin, Shandong Wu,** Univ. of Pittsburgh (United States)

12927-75 • 05:30 PM - 07:00 PM
Transfer learning from breast cancer detection models for image-based breast cancer risk prediction
Author(s): **Tobias Wagner,** Univ. Ziekenhuis Leuven (Belgium); **Zan Klanecek,** Univ. of Ljubljana (Slovenia); **Yao-Kuan Wang,** KU Leuven (Belgium); **Lesley Cockmartin,** Univ. Ziekenhuis Leuven (Belgium); **Nicholas Marshall,** KU Leuven (Belgium), Univ. Ziekenhuis Leuven (Belgium); **Andrej Studen,** Univ. of Ljubljana (Slovenia), Jožef Stefan Institute (Slovenia); **Robert Jeraj,** Univ. of Ljubljana (Slovenia), Univ. of Wisconsin-Madison (United States); **Hilde Bosmans,** KU Leuven (Belgium), Univ. Ziekenhuis Leuven (Belgium)

POSTERS: DEEP LEARNING

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-77 • 05:30 PM - 07:00 PM
Low does calcium scoring in cardiac computer tomography using deep learning
Author(s): **Vanika Singhal**, **Sidharth Abrol,** GE HealthCare (India); **Daphne Mulot,** GE HealthCare (France); **Amy Deubig**, **Sandeep Dutta,** GE HealthCare (United States); **Bipul Das,** GE HealthCare (India); **Masaki Ikuta,** GE HealthCare (United States)

12927-78 • 05:30 PM - 07:00 PM
Artificial intelligence in cystoscopic bladder cancer classification based on transfer learning with a pre-trained convolutional neural network without natural images
Author(s): **Ryuunosuke Kounosu,** National Institute of Advanced Industrial Science and Technology (Japan), Toho Univ. (Japan); **Wonjik Kim,** National Institute of Advanced Industrial Science and Technology (Japan); **Atsushi Ikeda,** Univ. of Tsukuba (Japan); **Hirokazu Nosato,** National Institute of Advanced Industrial Science and Technology (Japan); **Yuu Nakajima,** Toho Univ. (Japan)

12927-81 • 05:30 PM - 07:00 PM
Enhancing diagnosis through AI-driven analysis of reflectance confocal microscopy
Author(s): **Hong-Jun Yoon,** Oak Ridge National Lab. (United States); **Chris Keum,** Farragut High School (United States); **Alexander Witkowski**, **Joanna Ludzik**, **Tracy Petrie,** Oregon Health & Science Univ. (United States); **Heidi Hanson,** Oak Ridge National Lab. (United States); **Sancy Leachman,** Oregon Health & Science Univ. (United States)

12927-82 • 05:30 PM - 07:00 PM
Effect of semantic distribution shift on AI knowledge retention in a sequential training paradigm
Author(s): **Daniel Najarian**, **Alexis Burgon**, **Nicholas Petrick**, **Berkman Sahiner**, **Kenny Cha, Ravi K. Samala,** U.S. Food and Drug Administration (United States)

12927-83 • 05:30 PM - 07:00 PM
Quantifying the quality of GAN-synthesized images: a study on synthesizing post-contrast sequences from pre-contrast sequences in breast DCE-MRI
Author(s): **Zhengbo Zhou**, **Dooman Arefan**, **Margarita L. Zuley,** Univ. of Pittsburgh (United States); **Jules H. Sumkin,** Univ. of Pittsburg (United States); **Shandong Wu,** Univ. of Pittsburgh (United States)

12927-84 • 05:30 PM - 07:00 PM
Video and synthetic MRI pre-training of 3D vision architectures for neuroimage analysis
Author(s): **Nikhil J. Dhinagar**, **Amit Singh**, **Saket S. Ozarkar**, **Ketaki U. Buwa**, **Sophia Thomopoulos**, **Conor Owens-Walton**, **Emily Laltoo,** The Univ. of Southern California (United States); **Yao-Liang Chen,** Chang Gung Memorial Hospital (Taiwan); **Philip A. Cook**, **Corey McMillan,** Perelman School of Medicine, Univ. of Pennsylvania (United States); **Chih-Chien Tsai,** Healthy Aging Research Ctr., Chang Gung Univ. (Taiwan); **J-J Wang,** Chang Gung Univ. (Taiwan); **Yih-Ru Wu,** Chang Gung Memorial Hospital (Taiwan); **Paul M. Thompson,** Univ. of California, Los Angeles (United States)

12927-85 • 05:30 PM - 07:00 PM
Performance improvement for medical image classification model by using gradient-based analytical feature selection
Author(s): **Ryo Toda**, **Hayato Itoh**, **Masahiro Oda**, **Yuichiro Hayashi,** Nagoya Univ. (Japan); **Yoshito Otake,** Nara Institute of Science and Technology (Japan); **Masahiro Hashimoto,** Keio Univ. School of Medicine (Japan); **Toshiaki Akashi**, **Shigeki Aoki,** Juntendo Univ. (Japan); **Kensaku Mori,** Nagoya Univ. (Japan)

12927-86 • 05:30 PM - 07:00 PM
Automated classification of celiac disease in histopathological images: a multi-scale approach
Author(s): **Simon Püttmann,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland), Fachhochschule Dortmund (Germany); **Lluis Borras Ferris**, **Niccolò Marini,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland); **Witali Aswolinsky,** Radboud Univ. Medical Ctr. (Netherlands); **Simona Vatrano**, **Filippo Fragetta,** Azienda Ospedaliera Gravina (Italy); **Iris Nagtegaal**, **Chella van der Post**, **Francesco Ciompi,** Radboud Univ. Medical Ctr. (Netherlands); **Manfredo Atzori,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland); **Christoph Friedrich,** Fachhochschule Dortmund (Germany); **Henning Müller,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland)

12927-87 • 05:30 PM - 07:00 PM
Spatial attention wavelon network (SpAWN) for survival-based risk stratification in kidney cancers via CT
Author(s): **Brennan Flannery**, **Thomas DeSilvio**, **Amir R. Sadri**, **Mohsen Hariri,** Case Western Reserve Univ. (United States); **Erick M. Remer**, **Jane Nguyen,** Cleveland Clinic (United States); **Satish E. Viswanath,** Case Western Reserve Univ. (United States)

POSTERS: HEAD, NECK, AND EYE

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-88 • 05:30 PM - 07:00 PM
Focused unsupervised image registration for structure-specific population analysis
Author(s): **Jan Ehrhardt,** Univ. zu Lübeck (Germany); **Hristina Uzunova,** Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); **Paul Kaftan,** Univ. zu Lübeck (Germany); **Julia Krüger**, **Roland Opfer,** jung diagnostics GmbH (Germany); **Heinz Handels,** Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany)

12927-89 • 05:30 PM - 07:00 PM
Predicting cerebral small vessel disease through retinal scans and demographic data with Bayesian feature selection
Author(s): **Changkai Ji,** ShanghaiTech Univ. (China); **Jing Li,** Beijing Friendship Hospital, Capital Medical Univ. (China); **Changde Du,** Institute of Automation (China); **Bin Lv,** Ping An Healthcare Technology (China); **Ning Wu,** Yanjing Medical College, Capital Medical Univ. (China); **Hongyang Li,** Beijing Friendship Hospital (China); **Rui Li,** Beijing Friendship Hospital, Capital Medical Univ. (China); **Ying Hui,** Kailuan General Hospital (China); **Guotong Xie,** Ping An Healthcare Technology (China); **Shoulin Wu,** Kailuan General Hospital (China); **Zhenchang Wang,** Beijing Friendship Hospital, Capital Medical Univ. (China); **Huiguang He,** Institute of Automation (China); **Dinggang Shen,** Shanghai United Imaging Intelligence Co., Ltd. (China)

12927-90 • 05:30 PM - 07:00 PM
Quantification, model characterization, and challenges in automatic perivascular space candidate discrimination
Author(s): **Jordan D. Fuhrman,** The Univ. of Chicago (United States); **Madison Luther,** Oregon Health & Science Univ. (United States); **Ali Mansour,** The Univ. of Chicago (United States); **Laura Dennis,** Oregon Health & Science Univ. (United States); **Fernando D. Goldenberg**, **Maryellen L. Giger,** The Univ. of Chicago (United States); **Juan Piantino,** Oregon Health & Science Univ. (United States)

12927-91 • 05:30 PM - 07:00 PM
Treatment-wise glioblastoma survival Inference with multi-parametric preoperative MRI
Author(s): **Xiaofeng Liu,** Gordon Ctr. for Medical Imaging (United States); **Nadya Shusharina**, **Helen A. Shih,** Harvard Medical School (United States); **C.-C. Jay Kuo,** The Univ. of Southern California (United States); **Georges El Fakhri, Jonghye Woo,** Gordon Ctr. for Medical Imaging (United States)

12927-92 • 05:30 PM - 07:00 PM
Deep shape based intracranial aneurysm rupture prediction
Author(s): **June H. Choi,** Asan Medical Ctr. (Korea, Republic of); **Žiga Bizjak,** Univ. of Ljubljana (Slovenia); **Wonhyoung Park,** Asan Medical Ctr. (Korea, Republic of); **Jannik Sobisch, Žiga Špiclin,** Univ. of Ljubljana (Slovenia)

12927-93 • 05:30 PM - 07:00 PM
Self-supervised learning for seizure classification using ECoG spectrograms
Author(s): **Van K. Lam**, **Chima Oliugbo**, **Abhijeet Parida**, **Marius G. Linguraru, Syed M. Anwar,** Children's National Hospital (United States)

POSTERS: LUNG

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-94 • 05:30 PM - 07:00 PM
Enhancing lung tumor segmentation: a comparative study of CNN-based network with multi-scale strategies and attention mechanisms and hybrid transformer-CNN network
Author(s): **Hye Ryun Kim**, **Jumin Lee**, **Helen Hong,** Seoul Women's Univ. (Korea, Republic of); **Bong-Seog Kim,** Boryung Ltd. (Korea, Republic of)

12927-95 • 05:30 PM - 07:00 PM
A deep learning algorithm for segmentation of lung cancer lesions in MR images of mouse models
Author(s): **Katie M. Merriman**, **Chenran Zhang**, **Nathan Lay**, **Mason Belue**, **Peter L. Choyke**, **Curtis C. Harris**, **Baris Turkbey,** National Cancer Institute (United States); **Stephanie A. Harmon,** Leidos Biomedical Research, Inc. (United States)

12927-96 • 05:30 PM - 07:00 PM
Enhancing sensitivity in lung nodule malignancy classification: incorporating cost values into deep learning-based CAD systems
Author(s): **Yiyang Wang,** DePaul Univ. (United States), Milwaukee School of Engineering (United States); **Charmi Patel**, **Thiruvarangan Ramaraj**, **Roselyne Tchoua**, **Jacob D. Furst, Daniela Stan Raicu,** DePaul Univ. (United States)

12927-97 • 05:30 PM - 07:00 PM
Deep learning methods for multi-class pneumoconioses grading of chest radiographs
Author(s): **Meiqi Liu**, **Ian Loveless**, **Zenas Huang**, **Kenneth Rosenman**, **Ling Wang, Adam Alessio,** Michigan State Univ. (United States)

12927-98 • 05:30 PM - 07:00 PM
COVID-19 score severity prediction using 3D-based deep learning models on lung ultrasound video: could the system stand the test of time and of disease's evolution?
Author(s): **Francesco Faita**, **Laura De Rosa,** Istituto di Fisiologia Clinica, Consiglio Nazionale delle Ricerche (Italy); **Greta Barbieri**, **Ruggiero Santo**, **Maris Basha**, **Gabriele Barreca**, **Lorenzo Ghiadoni, Davide Bacciu,** Univ. di Pisa (Italy)

12927-99 • 05:30 PM - 07:00 PM
Quantitative evaluation of activation maps for weakly-supervised lung nodule segmentation
Author(s): **Finn Behrendt**, **Suyash Sonawane**, **Debayan Bhattacharya**, **Lennart Maack,** Technische Univ. Hamburg-Harburg (Germany); **Julia Krüger**, **Roland Opfer,** jung diagnostics GmbH (Germany); **Alexander Schlaefer,** Technische Univ. Hamburg-Harburg (Germany)

12927-101 • 05:30 PM - 07:00 PM
Anatomical landmark detection in chest x-ray images using transformer-based networks
Author(s): **Akhil Kasturi**, **Ali Vosoughi**, **Nathan Hadjiyski,** Univ. of Rochester (United States); **Larry Stockmaster,** Univ. of Rochester Medical Ctr. (United States); **William J. Sehnert,** Carestream Health, Inc. (United States); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States)

12927-102 • 05:30 PM - 07:00 PM
Radiomic phenotypes of the background lung parenchyma from [18]F-FDG PET/CT images can augment tumor radiomics and clinical factors in predicting response after surgical resection of tumors in patients with non-small cell lung cancer
Author(s): **Andrew W. Chen**, **Ohm Patel**, **Eric Cohen**, **Leonid Roshkovan, Despina Kontos,** Univ. of Pennsylvania (United States)

12927-103 • 05:30 PM - 07:00 PM
Training CADe algorithms with synthetic datasets: augmenting clinical data for improved lung nodule detection
Author(s): **Mohammad Mehdi Farhangi,** U.S. Food and Drug Administration (United States); **Michael Maynord,** Univ. of Maryland, College Park (United States); **Berkman Sahiner, Nicholas Petrick,** U.S. Food and Drug Administration (United States)

12927-104 • 05:30 PM - 07:00 PM
Lung age estimation from low-dose chest CT images using deep learning
Author(s): **Haruto Kikuno**, **Rie Tanaka**, **Satoshi Kobayashi,** Kanazawa Univ. (Japan); **Tetsuo Matsunaga,** Ishikawa Health Service Association (Japan); **Tetsuya Minami,** Kanazawa Medical Univ. (Japan); **Junji Shiraishi,** Kumamoto Univ. (Japan)

12927-105 • 05:30 PM - 07:00 PM
Explainable AI for lung nodule detection and classification in CT images
Author(s): **Chih-Wei Chang,** The Winship Cancer Institute of Emory Univ. (United States); **Qilong Zhao**, **Liang Zhao,** Emory Univ. (United States); **Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

POSTERS: MUSCULOSKELETAL

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-106 • 05:30 PM - 07:00 PM
Interpretable rotator cuff tear diagnosis using MRI slides with CAMscore and SHAP
Author(s): **Ho-min Park**, **Ilho Yun**, **Mijung Kim**, **Khoa T. Nguyen,** Ctr. for Biosystems and Biotech Data Science, Ghent Univ. Global Campus (Korea, Republic of); **Arnout Van Messem,** Liège Univ. (Belgium); **Wesley De Neve,** Ctr. for Biosystems and Biotech Data Science, Ghent Univ. Global Campus (Korea, Republic of)

12927-107 • 05:30 PM - 07:00 PM
Algorithmic shortcutting in medical image analysis
Author(s): **Frances Koback,** Geisel School of Medicine, Dartmouth College (United States); **Brandon Hill,** Dartmouth-Hitchcock Medical Ctr. (United States); **Travis Barnum,** Geisel School of Medicine, Dartmouth College (United States); **Peter Schilling,** Dartmouth-Hitchcock Medical Ctr. (United States)

12927-108 • 05:30 PM - 07:00 PM
Automated labeling of spondylolisthesis cases through spinal MRI radiology report interpretation using ChatGPT
Author(s): **Golnaz Moallem**, **Aneysis De Las Mercedes Gonzalez**, **Atman Desai, Mirabela Rusu,** Stanford Univ. School of Medicine (United States)

POSTERS: RADIOMICS

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-109 • 05:30 PM - 07:00 PM
Radiomics and quantitative multi-parametric MRI for predicting uterine fibroid growth
Author(s): **Karen Drukker**, **Milica Medved**, **Carla Harmath**, **Maryellen L. Giger, Obianuju Madueke-Laveaux,** The Univ. of Chicago (United States)

12927-110 • 05:30 PM - 07:00 PM
Assessing radiomic feature robustness using agreement over image perturbation
Author(s): **Abbas Shaikh,** Rice Univ. (United States); **Ilana Deutsch,** Northwestern Univ. (United States); **Mena Shenouda**, **Owen Mitchell**, **Hedy L. Kindler, Samuel G. Armato,** The Univ. of Chicago (United States)

12927-111 • 05:30 PM - 07:00 PM
Radiomics feature based benign vs. malignant characterization of solid renal masses on MRI
Author(s): **Rohini Gaikar,** Univ. of Guelph (Canada); **Nicola Schieda,** Univ. of Ottawa (Canada); **Eranga Ukwatta,** Univ. of Guelph (Canada)

12927-112 • 05:30 PM - 07:00 PM
Temporal assessment of magnetic resonance imaging radiomic features to predict renal function decline in patients with autosomal dominant polycystic kidney disease
Author(s): **Linnea E. Kremer**, **Maddie Orlins**, **John Trevino**, **Jordan D. Fuhrman**, **Arlene B. Chapman, Sam G. Armato,** The Univ. of Chicago (United States)

12927-113 • 05:30 PM - 07:00 PM
The use of radiomics on computed tomography scans for differentiation of somatic BAP1 mutation status for patients with pleural mesothelioma
Author(s): **Mena Shenouda,** The Univ. of Chicago (United States); **Abbas Shaikh,** Rice Univ. (United States); **Ilana Deutsch,** Northwestern Univ. (United States); **Owen Mitchell**, **Hedy L. Kindler, Samuel G. Armato,** The Univ. of Chicago (United States)

12927-114 • 05:30 PM - 07:00 PM
Exploring the prognostic power and biological significance of a robust radiomic biomarker of overall survival in advanced non-small cell lung cancer patients treated with first-line immunotherapy
Author(s): **Apurva Singh**, **Hannah Horng**, **Leonid Roshkovan**, **Charu Aggarwal**, **Erica L. Carpenter**, **Andrew Chen,** Univ. of Pennsylvania (United States); **Sharyn I. Katz, Despina Kontos,** Penn Medicine (United States)

POSTERS: SEGMENTATION

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A
View poster session description and guidelines above.

12927-115 • 05:30 PM - 07:00 PM
Refining boundaries of the segment anything model in medical images using an active contour model
Author(s): **Noor Nakhaei**, **Tengyue Zhang**, **Demetri Terzopoulos, William Hsu,** Univ. of California, Los Angeles (United States)

12927-117 • 05:30 PM - 07:00 PM
Polyp-SAM: transfer SAM for polyp segmentation
Author(s): **Yuheng Li**, **Mingzhe Hu, Xiaofeng Yang,** Emory Univ. (United States)

12927-118 • 05:30 PM - 07:00 PM
Tympanic membrane segmentation of video frames to create composite images using SAM
Author(s): **Seda Camalan**, **Muhammad Khalid Khan Niazi,** Wake Forest Univ. School of Medicine (United States); **Charles Elmaraghy,** The Ohio State Univ. (United States); **Aaron C. Moberly,** Vanderbilt Univ. Medical Ctr. (United States); **Metin N. Gurcan,** Wake Forest Univ. School of Medicine (United States)

12927-119 • 05:30 PM - 07:00 PM
A robust multi-environment tongue image segmentation method for computer-aided tongue diagnosis
Author(s): **Yu Fan**, **Xiaoying Tang,** Beijing Institute of Technology (China); **Xiaoli Wu,** Beijing Univ. of Posts and Telecommunications (China); **Ancong Wang,** Beijing Institute of Technology (China)

12927-120 • 05:30 PM - 07:00 PM
Self-supervised learning without annotations to improve lung chest x-ray segmentation
Author(s): **Jin Kim**, **Matthew Brown, Dan Ruan,** Univ. of California, Los Angeles (United States)

12927-121 • 05:30 PM - 07:00 PM
Weakly supervised learning for subcutaneous edema segmentation of abdominal CT using pseudo-labels and multi-stage nnU-Nets
Author(s): **Sayantan Bhadra**, **Jianfei Liu, Ronald M. Summers,** National Institutes of Health Clinical Ctr. (United States)

12927-122 • 05:30 PM - 07:00 PM
Automating tumor segmentation and tumor enhancement quantification of I-SPY2 data
Author(s): **Arden Frantzen**, **Heather M. Whitney**, **Hui Li**, **Karen Drukker**, **Alexandra Edwards**, **John Papaioannou, Maryellen L. Giger,** The Univ. of Chicago (United States)

12927-123 • 05:30 PM - 07:00 PM
Comparative analysis of multiphase CT volumetric kidney segmentation: fine-tuning to domain adaptation
Author(s): **Ramon Correa,** Arizona State Univ. (United States); **Sam Fathizadeh**, **Fatima Al Khafaji**, **Haidar Muhsin**, **Bhavik Patel, Imon Banerjee,** Mayo Clinic (United States)

12927-124 • 05:30 PM - 07:00 PM
Geometric domain adaptation for CBCT segmentation
Author(s): **Anne Querfurth**, **Maximilian Rohleder,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), Siemens Healthineers (Germany); **Andreas Maier,** Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); **Wolfgang Hohenforst-Schmidt,** Sozialstiftung Bamberg (Germany); **Holger Kunze,** Siemens Healthineers (Germany)

12927-125 • 05:30 PM - 07:00 PM
Auto-segmentation of hemi-diaphragms in free-breathing pediatric dynamic MRI
Author(s): **Yusuf Akhtar**, **Jayaram K. Udupa**, **Yubing Tong**, **Caiyun Wu,** Univ. of Pennsylvania (United States); **Tiange Liu,** Yanshan Univ. (China); **Leihui Tong**, **Mahdie Hosseini**, **Mostafa Al-Noury,** Univ. of Pennsylvania (United States); **Joseph M. Mcdonough**, **Oscar H. Mayer**, **David M. Biko**, **Jason B. Anari**, **Patrick Cahill,** The Children's Hospital of Philadelphia (United States); **Drew A. Torigian,** Univ. of Pennsylvania (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: CLASSIFICATION AND PREDICTION

20 February 2024 • 10:30 AM - 12:30 PM | Town & Country C
Session Chair(s): **Maryellen L. Giger**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Univ. of Michigan (United States)

12927-15 • 10:30 AM - 10:50 AM
Enhancing robustness in prostate cancer aggressiveness prediction: a study of test-time augmentation-based ensemble methods
Author(s): **Julip Jung**, **Yoon Jo Kim**, **Helen Hong,** Seoul Women's Univ. (Korea, Republic of); **Sung Il Hwang,** Seoul National Univ. Bundang Hospital (Korea, Republic of)

12927-16 • 10:50 AM - 11:10 AM
Federated learning for cross-institution brain network analysis
Author(s): **Han Xie**, **Yi Yang**, **Hejie Cui, Carl Yang,** Emory Univ. (United States)

12927-17 • 11:10 AM - 11:30 AM
Automated classification of body MRI sequence type using convolutional neural networks
Author(s): **Kimberly A. Helm**, **Tejas Sudharshan Mathai**, **Boah Kim**, **Pritam Mukherjee**, **Jianfei Liu, Ronald M. Summers,** National Institutes of Health (United States)

12927-18 • 11:30 AM - 11:50 AM
Combining frontal and profile view facial images to predict difficult-to-intubate patients using AI
Author(s): **Ziyu Su,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Thomas E. Tavolara,** Mayo Clinic (United States); **Usama Sajjad**, **Metin N. Gurcan,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Scott Segal,** Wake Forest Univ. School of Medicine (United States); **Muhammad Khalid Khan Niazi,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States)

12927-19 • 11:50 AM - 12:10 PM
Predicting endobronchial valve treatment response in emphysema patients using the lung fissure integrity score extracted from chest CT scans
Author(s): **Dallas K. Tada**, **Grace H. J. Kim**, **Pangyu Teng**, **Kalyani Vyapari**, **Ashley Banola**, **Fereidoun Abtin**, **Jonathan G. Goldin**, **Michael F. McNitt-Gray, Matthew S. Brown,** Univ. of California, Los Angeles (United States)

12927-20 • 12:10 PM - 12:30 PM
MRI sequence impact on deep learning extraction of prognostic features for glioblastoma survival prediction
Author(s): **Maryamalsadat Mahootiha,** Oslo Univ. Hospital (Norway), Univ. of Oslo (Norway); **Hemin Ali Qadir,** Oslo Univ. Hospital (Norway); **Ilangko Balasingham,** Oslo Univ. Hospital (Norway), Norwegian Univ. of Science and Technology (Norway)

Lunch Break 12:30 PM - 01:40 PM

SESSION 5: SEGMENTATION II

20 February 2024 • 01:40 PM - 03:20 PM | Town & Country C
Session Chair(s): **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany); **Khan M. Iftekharuddin**, Old Dominion Univ. (United States)

12927-21 • 01:40 PM - 02:00 PM
Boosting substantia nigra segmentation from T2 weighted MRI via test-time normalization and distance-reweighted loss
Author(s): **Tao Hu**, **Hayato Itoh**, **Masahiro Oda,** Nagoya Univ. (Japan); **Shinji Saiki,** Univ. of Tsukuba (Japan); **Nobutaka Hattori**, **Koji Kamagata**, **Wataru Sako**, **Kei-ichi Ishikawa**, **Shigeki Aoki,** Juntendo Univ. Graduate School of Medicine (Japan); **Kensaku Mori,** Nagoya Univ. (Japan)

12927-22 • 02:00 PM - 02:20 PM
Enhancing calcium score quantification in cardiac images through robust mediastinum segmentation
Author(s): **Catharine V. Graves**, **Roberto N. Dantas**, **Carla F. G. Da Silva**, **Antonildes N. Assunção,** Instituto do Coração do Hospital das Clínicas (Brazil); **Adriano C. O. Bordignom**, **Angela S. Marin,** Canon Medical System do Brasil Ltda. (Brazil); **Renata M. do Val**, **Cesar H. Nomura, Marco A. Gutierrez,** Instituto do Coração do Hospital das Clínicas (Brazil)

12927-23 • 02:20 PM - 02:40 PM
Weakly-supervised detection of bone lesions in CT
Author(s): **Tao Sheng**, **Tejas Sudharshan Mathai,** National Institutes of Health (United States); **Alexander Shieh,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Ronald M. Summers,** National Institutes of Health (United States)

12927-24 • 02:40 PM - 03:00 PM
Towards automation in non-invasive measurement of knee implant displacement
Author(s): **Caroline Magg**, **Maaike A. ter Wee**, **George S. Buijs**, **Arthur J. Kievit,** Amsterdam UMC (Netherlands); **Dennis A. Krap,** AtMoves BV (Netherlands); **Johannes G. G. Dobbe**, **Geert J. Streekstra**, **Leendert Blankevoort,** Amsterdam UMC (Netherlands); **Clara I. Sánchez,** Univ. of Amsterdam (Netherlands)

12927-25 • 03:00 PM - 03:20 PM
Weakly supervised detection of pheochromocytomas and paragangliomas in CT
Author(s): **David C. Oluigbo**, **Bikash Santra**, **Tejas Sudharshan Mathai**, **Pritam Mukherjee**, **Jianfei Liu**, **Abhishek Jha**, **Mayank Patel**, **Karel Pacak, Ronald M. Summers,** National Institutes of Health (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 6: DEEP LEARNING I

20 February 2024 • 03:50 PM - 05:30 PM | Town & Country C
Session Chair(s): **Ronald M. Summers**, National Institutes of Health Clinical Ctr. (United States); **Kenji Suzuki**, Tokyo Institute of Technology (Japan)

12927-26 • 03:50 PM - 04:10 PM
Decentralized gossip mutual learning (GML) for automatic head and neck tumor segmentation
Author(s): **Jingyun Chen, Yading Yuan,** Columbia Univ. Irving Medical Ctr. (United States)

12927-27 • 04:10 PM - 04:30 PM
Unsupervised multi-parametric MRI registration using neural optimal transport
Author(s): **Boah Kim**, **Tejas Sudharshan Mathai, Ronald M. Summers,** National Institutes of Health (United States)

12927-28 • 04:30 PM - 04:50 PM
W-MAFormer: W-shaped multi-attention assisted transformer for polyp segmentation
Author(s): **Murong Yi,** Johns Hopkins Univ. (United States); **Yanzhou Su,** Univ. of Electronic Science and Technology of China (China); **Yiqing Shen,** Johns Hopkins Univ. (United States); **Wen Wang,** Zhejiang Lab. (China)

12927-29 • 04:50 PM - 05:10 PM
Annotation-free deep-learning framework for microcalcifications detection on mammograms
Author(s): **Paul Terrassin,** Hera-MI (France), Lab. des Sciences du Numérique de Nantes (France); **Mickael Tardy**, **Nathan Lauzeral,** Hera-MI (France); **Nicolas Normand,** Lab. des Sciences du Numérique de Nantes (France)

12927-30 • 05:10 PM - 05:30 PM
David vs. Goliath: large foundation models are not outperforming small models in multi-view mammogram breast cancer prediction

Author(s): **Xuxin Chen,** The Univ. of Oklahoma (United States); **Mingzhe Hu,** Radiation Oncology and Winship Cancer Institute, Emory School of Medicine (United States); **Ke Zhang**, **Neman Abdoli**, **Youkabed Sadri**, **Patrik Gilley**, **Omkar S. V. Chekuri,** The Univ. of Oklahoma (United States); **Farid H. Omoumi,** Texas A&M Univ. (United States); **Yuchen Qiu**, **Bin Zheng,** The Univ. of Oklahoma (United States); **Xiaofeng Yang,** Radiation Oncology and Winship Cancer Institute, Emory School of Medicine (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 7: JOINT SESSION WITH CONFERENCES 12927 AND 12929

21 February 2024 • 10:30 AM - 12:30 PM | Town & Country C
Session Chair(s): **Susan M. Astley**, The Univ. of Manchester (United Kingdom); **Claudia R. Mello-Thoms**, Univ. Iowa Carver College of Medicine (United States)

12927-31 • 10:30 AM - 10:50 AM
Using artificial intelligence for chest radiograph interpretation: a retrospective multi-reader-multi-case (MRMC) study of the automatic detection of multiple abnormalities and generation of diagnostic report system
Author(s): **Lin Guo,** Shenzhen Zhiying Medical Imaging (China); **Guanxun Cheng,** Peking Univ. Shenzhen Hospital (China); **Lifei Wang,** Shenzhen 3rd People's Hospital, The 2nd Hospital Affilated to Southern Univ. of Science and Technology (China); **Bin Zheng,** The Univ. of Oklahoma (United States); **Stefan Jaeger,** U.S. National Library of Medicine, National Institutes of Health (United States); **Maryellen L. Giger**, **Jordan Fuhrman,** The Univ. of Chicago (United States); **Hui Li,** University of Chicago (United States); **Ajay Divekar,** Caddie Technology, Inc. (United States); **Qian Xiao**, **Lingjun Qian**, **Li Xia,** Shenzhen Zhiying Medical Imaging (China); **Hongjun Li,** Beijing Youan Hospital, Capital Medical Univ. (China); **Yuanming Fleming F. Lure,** MS Technologies Corp. (United States)

12929-17 • 10:50 AM - 11:10 AM
Sequestration of imaging studies in MIDRC: using load factor to minimize algorithm performance overestimation and image reuse
Author(s): **Dylan Tang**, **Heather M. Whitney,** The Univ. of Chicago (United States); **Kyle J. Myers,** Puente Solutions, LLC (United States); **Maryellen Giger,** The Univ. of Chicago (United States)

12927-32 • 11:10 AM - 11:30 AM
Using NURBS for virtual resections in liver surgery planning: a comparative usability study
Author(s): **Gabriella d'Albenzio,** Oslo Univ. Hospital (Norway), Univ. of Oslo (Norway); **Rebecca Hisey**, **Dilakshan Srikanthan**, **Tamas Ungi**, **Andras Lasso,** Queen's Univ. (Canada); **Davit Aghayan,** Oslo Univ. Hospital (Norway), Yerevan State Medical Univ. (Armenia), Institute of Clinical Medicine, Univ. of Oslo (Norway); **Gabor Fichtinger,** Queen's Univ. (Canada); **Rafael Palomar,** Oslo Univ. Hospital (Norway), Norwegian Univ. of Science and Technology (Norway)

12929-18 • 11:30 AM - 11:50 AM
Ambient-Pix2PixGAN for translating medical images from noisy data
Author(s): **Wentao Chen**, **Xichen Xu**, **Jie Luo, Weimin Zhou,** Shanghai Jiao Tong Univ. (China)

12927-33 • 11:50 AM - 12:10 PM
Automated plaque detection and Agatston score estimation on non-contrast CT scans: a multicenter study
Author(s): **Andrew Nguyen,** National Institutes of Health (United States); **Jianfei Liu**, **Tejas Sudharshan Mathai,** National Institutes of Health Clinical Ctr. (United States); **Peter C. Grayson,** National Institutes of Health (United States); **Ronald M. Summers,** National Institutes of Health Clinical Ctr. (United States)

12929-19 • 12:10 PM - 12:30 PM
Evaluating the capacity of a diffusion generative model to reproduce spatial context relevant to diagnostic imaging
Author(s): **Rucha Deshpande,** Washington Univ. in St. Louis (United States); **Muzaffer Ozbey**, **Hua Li**, **Mark A. Anastasio, Frank J. Brooks,** Univ. of Illinois (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 8: NEUROLOGY

21 February 2024 • 01:40 PM - 03:20 PM | Town & Country C
Session Chair(s): **Amber L. Simpson**, Queen's Univ. (Canada); **Axel Wismüller**, Univ. of Rochester Medical Ctr. (United States)

12927-34 • 01:40 PM - 02:00 PM
Assessing variability in non-contrast CT for the evaluation of stroke: the effect of CT image reconstruction conditions on AI-based CAD measurements of ASPECTS value and hypodense volume
Author(s): **Spencer Welland**, **Grace H. J. Kim,** UCLA Ctr. for Computer Vision & Imaging Biomarkers (United States); **Anil Yadav,** Univ. of California, Los Angeles (United States); **John M. Hoffman,** UCLA Ctr. for Computer Vision & Imaging Biomarkers (United States); **Will Hsu,** Univ. of California, Los Angeles (United States); **Matthew S Brown,** UCLA Ctr. for Computer Vision & Imaging Biomarkers (United States); **Elham Tavakkol**, **Kambiz Nael,** Univ. of California, Los Angeles (United States); **Michael F. McNitt-Gray,** UCLA Ctr. for Computer Vision & Imaging Biomarkers (United States)

12927-35 • 02:00 PM - 02:20 PM
Spatial interactions via graph-based learning (SIGL) to distinguish glioblastoma recurrence from pseudo-progression on clinical MRI

Author(s): **Dheerendranath Battalapalli**, **Apoorva Safai**, **Marwa Ismail,** Univ. of Wisconsin-Madison (United States); **Virginia Hill**, **Volodymyr Statsevych,** Imaging Institute, Cleveland Clinic (United States); **Raymond Huang,** Brigham and Women's Hospital (United States), Harvard Medical School (United States); **Pallavi Tiwari,** Univ. of Wisconsin-Madison (United States)

12927-36 • 02:20 PM - 02:40 PM
CNN and Riemannian geometry for Alzheimer's disease progression classification
Author(s): **Antoine de Mori, Clovis Tauber,** L'Unité Imagerie et Cerveau (iBrain, Unité Inserm 1253), Univ. de Tours, Institut National de la Santé et de la Recherche Médicale (France)

12927-37 • 02:40 PM - 03:00 PM **(CANCELLED)**
EXPEDITION: an explainable deep learning method to quantitatively predict intracranial hemorrhagic stroke progression
Author(s): **Cheng Wang,** Shenzhen Institute of Advanced Technology (China); **Siqi Chen**, **Zixiao Li**, **Donghua Mi,** Beijing Tiantan Hospital, Capital Medical Univ. (China); **Yinsheng Li,** Shenzhen Institute of Advanced Technology (China)

12927-38 • 03:00 PM - 03:20 PM
Predicting brain age and associated structural networks in mouse models with humanized APOE alleles using integrative and interpretable graph neural networks
Author(s): **Hae Sol Moon**, **Ali Mahzarnia**, **Jacques Stout**, **Robert J. Anderson**, **Zay Yar Han**, **Cristian T. Badea, Alexandra Badea,** Duke Univ. (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 9: HEAD, NECK AND EYE

21 February 2024 • 03:50 PM - 05:30 PM | Town & Country C
Session Chair(s): **Nicholas A. Petrick**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

12927-39 • 03:50 PM - 04:10 PM
Evaluation of few-shot detection of head and neck anatomy in CT
Author(s): **Kyungeun Lee,** Daegu Gyeongbuk Institute of Science & Technology (Korea, Republic of), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Jihoon Cho,** KAIST (Korea, Republic of), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Jiye Lee,** Daegu Gyeongbuk Institute of Science & Technology (Korea, Republic of), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Fangxu Xing**, **Xiaofeng Liu,** Massachusetts General Hospital (United States), Harvard Medical School (United States); **Hyungjoon Bae,** Daegu Gyeongbuk Institute of Science & Technology (Korea, Republic of), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Kyungsu Lee,** Daegu Gyeongbuk Institute of Science & Technology (Korea, Republic of), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Jae Youn Hwang,** Daegu Gyeongbuk Institute of Science & Technology (Korea, Republic of); **Jinah Park,** KAIST (Korea, Republic of); **Georges El Fakhri**, **Kyung-Wook Jee, Jonghye Woo,** Massachusetts General Hospital (United States), Harvard Medical School (United States)

12927-40 • 04:10 PM - 04:30 PM
Convolutional transformer network for paranasal anomaly classification in the maxillary sinus
Author(s): **Debayan Bhattacharya**, **Finn Behrendt**, **Lennart Maack,** Technische Univ. Hamburg-Harburg (Germany); **Benjamin Tobias Becker**, **Dirk Beyersdorff**, **Elina Petersen**, **Marvin Petersen**, **Bastian Cheng**, **Dennis Eggert**, **Christian Betz**, **Anna Sophie Hoffmann,** Universitätsklinikum Hamburg-Eppendorf (Germany); **Alexander Schlaefer,** Technische Univ. Hamburg-Harburg (Germany)

12927-41 • 04:30 PM - 04:50 PM
Deep learning prediction of radiation-induced xerostomia with supervised contrastive pre-training and cluster-guided loss
Author(s): **Bohua Wan**, **Todd McNutt**, **Rachel Ger**, **Harry Quon, Junghoon Lee,** Johns Hopkins Univ. (United States)

12927-42 • 04:50 PM - 05:10 PM
Reducing the impact of domain shift in deep learning for OCT segmentation using image manipulations
Author(s): **Marc Steffen Seibel,** Univ. zu Lübeck (Germany); **Joshua Niemeijer,** Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); **Marc Rowedder,** Univ. zu Lübeck (Germany); **Helge Sudkamp,** visotec GmbH (Germany); **Timo Kepp,** Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); **Gereon Hüttmann, Heinz Handels,** Univ. zu Lübeck (Germany)

12927-43 • 05:10 PM - 05:30 PM
Fovea segmentation in fundus autofluorescence images using ground truth annotations from three-dimensional optical coherence tomography images
Author(s): **Souvick Mukherjee**, **Cameron Duic**, **Tom Murickan**, **Tharindu De Silva**, **Tiarnan Keenan**, **Emily Chew, Catherine Cukras,** National Eye Institute (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 10: RADIOMICS

22 February 2024 • 10:30 AM - 12:30 PM | Town & Country C
Session Chair(s): **Despina Kontos**, Columbia Univ. Irving Medical Ctr. (United States); **Shandong Wu**, Univ. of Pittsburgh (United States)

12927-44 • 10:30 AM - 10:50 AM
Harmonizing quantitative imaging feature values in CT using image quality metrics as a basis
Author(s): **Morgan Daly**, **John M. Hoffman,** Univ. of California, Los Angeles (United States); **Andrew M. Hernandez,** Univ. of California, Davis (United States); **Ali Uneri,** The Johns Hopkins Univ. School of Medicine (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Paul E. Kinahan,** Univ. of Washington (United States); **Nicholas B. Bevins,** Henry Ford Health System (United States); **Kalpana M. Kanal**, **David A. Zamora,** Univ. of Washington (United States); **Benjamin W. Maloney,** Henry Ford Health System (United States); **J. Anthony Seibert,** Univ. of California, Davis (United States); **Mark P. Supanich,** Rush Univ. Medical Ctr. (United States); **M. Mahesh,** Johns Hopkins Univ. (United States); **John M. Boone,** Univ. of California, Davis (United States); **Michael F. McNitt-Gray,** Univ. of California, Los Angeles (United States)

12927-45 • 10:50 AM - 11:10 AM
End-to-end deep learning restoration of GLCM features from blurred and noisy images
Author(s): **Yijie Yuan**, **Joseph W. Stayman,** Johns Hopkins Univ. (United States); **Grace J. Gang,** Univ. of Pennsylvania (United States)

12927-46 • 11:10 AM - 11:30 AM
Radiomic deformation features to predict associations between affected brain regions and verbal fluency scores in acute stroke patients: preliminary finding
Author(s): **Juhi Desai**, **Marwa Ismail**, **Chinenye Ibekwe**, **Justin A. Sattin**, **Edward Bradbury,** Univ. of Wisconsin-Madison (United States); **Nagesh Adluru,** Univ. of Wisconsin-Madison (United States), Waisman Lab. for Brain Imaging and Behavior, Univ. of Wisconsin-Madison (United States); **Veena A. Nair**, **Vivek Prabhakaran, Pallavi Tiwari,** Univ. of Wisconsin-Madison (United States)

12927-47 • 11:30 AM - 11:50 AM
The pancreas is all you need: Fusion models for opportunistic screening of diabetes using pancreatic CT volumes
Author(s): **Abhinav Suri**, **Pritam Mukherjee, Ronald M. Summers,** National Institutes of Health (United States)

12927-48 • 11:50 AM - 12:10 PM
Investigating causal genetic effects on overall survival of glioblastoma patients using normalizing flow and structural causal model
Author(s): **Fanyang Yu**, **Rongguang Wang**, **Pratik Chaudhari, Christos Davatzikos,** Univ. of Pennsylvania (United States)

12927-49 • 12:10 PM - 12:30 PM
Utilizing domain knowledge to improve intravenous contrast phase classification of CT scans
Author(s): **Liangchen Liu**, **Jianfei Liu**, **Pritam Mukherjee**, **Akshaya anand,** National Institutes of Health Clinical Ctr. (United States); **Yingying Zhu,** The Univ. of Texas at Arlington (United States); **Bikash Santra, Ronald M. Summers,** National Institutes of Health Clinical Ctr. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 11: LUNG AI

22 February 2024 • 01:40 PM - 03:20 PM | Town & Country C
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Juhun Lee**, Univ. of Pittsburgh (United States)

12927-50 • 01:40 PM - 02:00 PM
A tool for the assessment of AI generalizability via decision space composition
Author(s): **Alexis Burgon**, **Nicholas Petrick**, **Berkman Sahiner**, **Gene Pennello**, **Kenny Cha, Ravi K. Samala,** U.S. Food and Drug Administration (United States)

12927-51 • 02:00 PM - 02:20 PM
CAFES: chest x-ray analysis using federated self-supervised learning for pediatric Covid-19 detection
Author(s): **Abhijeet Parida,** Children's National Hospital (United States); **Syed Muhammad Anwar,** Children's National Hospital (United States), The George Washington Univ. (United States); **Malhar P. Patel**, **Mathias Blom**, **Tal Tiano Einat**, **Alex Tonetti**, **Yuval Baror**, **Ittai Dayan,** Rhino Health (United States); **Marius G. Linguraru,** Children's National Hospital (United States), The George Washington Univ. (United States)

12927-52 • 02:20 PM - 02:40 PM
Manipulation of sources of bias in AI device development
Author(s): **Alexis Burgon**, **Yuhang Zhang**, **Berkman Sahiner**, **Nicholas Petrick**, **Kenny Cha, Ravi K. Samala,** U.S. Food and Drug Administration (United States)

12927-53 • 02:40 PM - 03:00 PM
Comparison of anatomical priors for learning-based neural network guidance for mediastinal lymph node segmentation
Author(s): **Sofija Engelson,** Univ. zu Lübeck (Germany); **Jan Ehrhardt,** Univ. zu Lübeck (Germany), Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); **Timo Kepp,** Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany); **Joshua Niemeijer,** Deutsches Zentrum für Luft- und Raumfahrt e.V. (Germany); **Stefanie Schierholz**, **Lennart Berkel**, **Stefanie Schierholz**, **Lennart Berkel**, **Yannic Elser**, **Malte Maria Sieren,** Universitätsklinikum Schleswig-Holstein (Germany); **Heinz Handels,** Univ. zu Lübeck (Germany), Deutsches Forschungszentrum für Künstliche Intelligenz GmbH (Germany)

12927-54 • 03:00 PM - 03:20 PM
An investigation on the individual performance of feature extraction and classification modules in machine learning for diagnosis of low-dose computed tomography screening-detected lesions
Author(s): **Daniel D. Liang,** Ward Melville High School (United States); **David D. Liang,** The Univ. of Chicago (United States); **Marc J. Pomeroy,** Stony Brook Univ. (United States); **Yongfeng Gao,** The State Univ. of New York (United States); **Lihong C. Li,** College of Staten Island, The City Univ. of New York (United States); **Licheng R. Kuo,** The State Univ. of New York (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 12: DEEP LEARNING II

22 February 2024 • 03:50 PM - 05:30 PM | Town & Country C
Session Chair(s): **Thomas Martin Deserno**, Peter L. Reichertz Institut für Medizinische Informatik (Germany)

12927-55 • 03:50 PM - 04:10 PM
Domain adaptive federated learning for multi-institution molecular mutation prediction and bias identification
Author(s): **Walia Farzana**, **Megan A. Witherow**, **Isaac Longoria**, **Shibly Sadique**, **Ahmed Temtam, Khan Iftekharuddin,** Old Dominion Univ. (United States)

12927-57 • 04:10 PM - 04:30 PM
Investigating melanoma classification in dermatoscopic images with convolutional neural networks using melanin and erythema indices
Author(s): **Alexey Kotlik**, **Nhan Do**, **Gil Alterovitz, Rafael Fricks,** U.S. Dept. of Veterans Affairs (United States)

12927-58 • 04:30 PM - 04:50 PM
Developing an image-domain transformation technique for adapting deep learning algorithms: preliminary work using simulated tomosynthesis of breast patches
Author(s): **Md Belayat Hossain,** Univ. of Pittsburgh (United States); **Bruno Barufaldi**, **Andrew D. A. Maidment,** Univ. of Pennsylvania (United States); **Robert M. Nishikawa, Juhun Lee,** Univ. of Pittsburgh (United States)

12927-59 • 04:50 PM - 05:10 PM
Learning carotid vessel wall segmentation in black blood MRI using sparsely sampled cross-sections from 3D data
Author(s): **Hinrich Rahlfs,** Charité Universitätsmedizin Berlin (Germany); **Markus Hüllebrand,** Charité Universitätsmedizin Berlin (Germany), Fraunhofer-Institut für Digitale Medizin MEVIS (Germany), Deutsches Zentrum für Herz-Kreislaufforschung e.V. (Germany); **Sebastian Schmitter,** Physikalisch-Technische Bundesanstalt (Germany); **Christoph Strecker**, **Andreas Harloff,** Universitätsklinikum Freiburg (Germany); **Anja Hennemuth,** Charité Universitätsmedizin Berlin (Germany), Fraunhofer-Institut für Digitale Medizin MEVIS (Germany), Deutsches Zentrum für Herz-Kreislaufforschung e.V. (Germany)

12927-76 • 05:10 PM - 05:30 PM
Federated learning for prostate cancer detection in biparametric MRI: optimization of rounds, epochs, and aggregation strategy
Author(s): **Ashkan Moradi**, **Fadila Zerka,** Norwegian Univ. of Science and Technology (Norway); **Joeran Sander Bosma,** Radboud Univ. Medical Ctr. (Netherlands); **Derya Yakar,** Medical Imaging Ctr., Univ. Medical Ctr. Groningen (Netherlands), The Netherlands Cancer Institute (Netherlands); **Jeroen Geerdink,** Hospital Group Twente (Netherlands); **Henkjan Huisman,** Radboud Univ. Medical Ctr. (Netherlands), Norwegian Univ. of Science and Technology (Norway); **Tone Frost Bathen, Mattijs Elschot,** Norwegian Univ. of Science and Technology (Norway), St. Olavs Hospital, Univ. Hospital of Trondheim (Norway)

DIGITAL POSTERS

On Demand

The posters listed below are available exclusively for online viewing during the week of SPIE Medical Imaging 2024.

12927-79 • -

Deep learning-based diagnosis of thyroid tumors using histopathology images from thyroid nodule capsule

Author(s): **Nitya A. Shah**, **Jinal Suthar**, **Tejaswee A.,** Indian Institute of Technology Jodhpur (India); **Adrian Enache**, **Lucian G. Eftimie,** Central Univ. Emergency Military Hospital (Romania); **Radu Hristu,** Univ. Politehnica din Bucuresti (Romania); **Angshuman Paul,** Indian Institute of Technology Jodhpur (India)

12927-116 • -

Deeply learned bronchial structures driven automatic bronchopulmonary segments segmentation

Author(s): **Haichao Peng**, **Chao Min,** Xiamen Univ. (China); **Sunkui Ke,** Zhongshan Hospital Affiliated to Xiamen Univ. (China); **Chengwei Zhou,** The Affiliated Hospital of Medical School of Ningbo University (China); **Xiongbiao Luo,** Xiamen Univ. (China)

CONFERENCE CO-SPONSORS

CONFERENCE 12928

Image-Guided Procedures, Robotic Interventions, and Modeling

19 - 22 February 2024 | Pacific C

Conference Chair(s): **Jeffrey H. Siewerdsen,** The Univ. of Texas MD Anderson Cancer Ctr. (United States); **Maryam E. Rettmann,** Mayo Clinic (United States)

Program Committee: **Purang Abolmaesumi,** The Univ. of British Columbia (Canada); **John S. H. Baxter,** Univ. de Rennes 1 (France); **Kristy K. Brock,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Matthieu Chabanas,** Univ. Grenoble Alpes (France); **Elvis C. S. Chen,** Robarts Research Institute (Canada); **Sandy Engelhardt,** Ruprecht-Karls-Univ. Heidelberg (Germany); **Rebecca Fahrig,** Siemens Healthineers (Germany); **Baowei Fei,** The Univ. of Texas at Dallas (United States); **Gabor Fichtinger,** Queen's Univ. (Canada); **Ryan J. Halter,** Thayer School of Engineering at Dartmouth (United States); **David R. Haynor,** Univ. of Washington (United States); **William E. Higgins,** The Pennsylvania State Univ. (United States); **David R. Holmes,** Mayo Clinic (United States); **Pierre Jannin,** Univ. de Rennes 1 (France); **David M. Kwartowitz,** Grand Canyon Univ. (United States); **Shuo Li,** Case Western Reserve Univ. (United States); **Cristian A. Linte,** Rochester Institute of Technology (United States); **Michael I. Miga,** Vanderbilt Univ. (United States); **Kensaku Mori,** Nagoya Univ. (Japan); **Parvin Mousavi,** Queen's Univ. (Canada); **Jack H. Noble,** Vanderbilt Univ. (United States); **Eric J. Seibel,** Univ. of Washington (United States); **Stefanie Speidel,** National Ctr. for Tumor Diseases Dresden (Germany); **Tamas Ungi,** Queen's Univ. (Canada); **Satish E. Viswanath,** Case Western Reserve Univ. (United States); **Robert J. Webster,** Vanderbilt Univ. (United States); **Ivo Wolf,** Hochschule Mannheim (Germany); **Ziv R. Yaniv,** National Institute of Allergy and Infectious Diseases (United States); **Terry S. Yoo,** The Univ. of Maine (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Coffee Break 10:45 AM - 11:10 AM

SESSION 1: ROBOTIC ASSISTANCE

19 February 2024 • 11:10 AM - 12:30 PM | Pacific C
Session Chair(s): **Kristy K. Brock**, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **David M. Kwartowitz**, Grand Canyon Univ. (United States)

12928-1 • 11:10 AM - 11:30 AM
Probe positioning for robot-assisted intraoperative ultrasound imaging using deep reinforcement learning
Author(s): **Yicheng Hu**, **Yixuan Huang**, **Anthony Song**, **Craig K. Jones**, **Wojciech Zbijewski,** Johns Hopkins Univ. (United States); **Jeffrey H. Siewerdsen,** Johns Hopkins Univ. (United States), The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Burcu Basar**, **Patrick A. Helm,** Medtronic, Inc. (United States); **Ali Uneri,** Johns Hopkins Univ. (United States)

12928-2 • 11:30 AM - 11:50 AM
A surgical navigation framework for image-guided transoral robotic surgery
Author(s): **Yuan Shi**, **Michael A. Kokko,** Thayer School of Engineering at Dartmouth (United States); **Joseph A. Paydarfar,** Dartmouth-Hitchcock Medical Ctr. (United States); **Ryan J. Halter,** Thayer School of Engineering at Dartmouth (United States)

12928-3 • 11:50 AM - 12:10 PM
MRI-compatible robot for intracerebral hemorrhage evacuation: sheep brain phantom study
Author(s): **Sarah C. Nanziri,** The George Washington Univ. (United States); **Van Khanh Lam**, **Pavel Yarmolenko,** Children's National Hospital (United States); **Lucas Hintz,** The George Washington Univ. (United States); **Gang Li,** Children's National Hospital (United States); **Hadi Fooladi Talari,** Children's National Health System (United States); **Kevin Cleary,** Children's National Hospital (United States); **Anthony L. Gunderman**, **Yue Chen,** Georgia Institute of Technology (United States); **Dimitri Sigounas,** The George Washington Univ. (United States)

12928-4 • 12:10 PM - 12:30 PM
SAMSNeRF: segment anything model (SAM) guided dynamic surgical scene reconstruction by neural radiance field (NeRF)
Author(s): **Ange Lou**, **Yamin Li**, **Xing Yao**, **Yike Zhang, Jack H. Noble,** Vanderbilt Univ. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 2: MOVING TARGETS

19 February 2024 • 01:40 PM - 03:20 PM | Pacific C
Session Chair(s): **Elvis C.S. Chen**, Robarts Research Institute (Canada); **David R. Holmes**, Mayo Clinic (United States)

12928-5 • 01:40 PM - 02:00 PM
Physical replication and validation of mathematical mitral valve models
Author(s): **Patrick K. Carnahan**, **Charles C. X. Yuan**, **John Moore,** Western Univ. (Canada); **Gianluigi Bisleri,** Univ. of Toronto (Canada); **Daniel Bainbridge,** London Health Sciences Ctr. (Canada); **Terry M. Peters, Elvis C. S. Chen,** Western Univ. (Canada)

12928-6 • 02:00 PM - 02:20 PM
Design of coronary artery phantom using polyvinyl alcohol cryogel for optical coherence tomography imaging in Kawasaki Disease
Author(s): **Matilde Pazzaglia**, **Atefeh Abdolmanafi**, **Gerardo Tibamoso Pedraza,** Ecole de Technologie Supérieure (Canada); **Nagib Dahdah,** Div. of Pediatric Cardiology, CHU Sainte-Justine (Canada), Ctr. de Recherche du CHU Sainte-Justine (Canada); **Luc Duong,** Ecole de Technologie Supérieure (Canada)

12928-7 • 02:20 PM - 02:40 PM
Motion-compensated OCT imaging of laryngeal tissue
Author(s): **Sarah Latus**, **Marica Kulas**, **Johanna Sprenger,** Technische Univ. Hamburg-Harburg (Germany); **Debayan Bhattacharya,** Technische Univ. Hamburg-Harburg (Germany), Universitätsklinikum Hamburg-Eppendorf (Germany); **Philippe Christophe Breda**, **Lukas Wittig,** Universitätsklinikum Hamburg-Eppendorf (Germany); **Tim Eixmann**, **Gereon Hüttmann,** Medizinisches Laserzentrum Lübeck GmbH (Germany); **Lennart Maack,** Technische Univ. Hamburg-Harburg (Germany); **Dennis Eggert**, **Christian Betz,** Universitätsklinikum Hamburg-Eppendorf (Germany); **Alexander Schlaefer,** Technische Univ. Hamburg-Harburg (Germany)

12928-8 • 02:40 PM - 03:00 PM
Motion artifact classification for quality assessment of cochlear implant postoperative CT images
Author(s): **Yubo Fan**, **Han Liu**, **Jack H. Noble, Benoit M. Dawant,** Vanderbilt Univ. (United States)

12928-9 • 03:00 PM - 03:20 PM
Self-supervised monocular depth and ego-motion estimation for CT-bronchoscopy fusion
Author(s): **Qi Chang, William E. Higgins,** The Pennsylvania State Univ. (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 3: TRACKING AND LOCALIZATION

19 February 2024 • 03:50 PM - 05:30 PM | Pacific C
Session Chair(s): **Ziv R. Yaniv**, National Institute of Allergy and Infectious Diseases (United States); **Eric J. Seibel**, Univ. of Washington (United States)

12928-10 • 03:50 PM - 04:10 PM
Image guidance system for breast conserving surgery with integrated stereo camera monitoring and deformable correction
Author(s): **Morgan J. Ringel**, **Winona L. Richey,** Vanderbilt Univ. (United States); **Jon S. Heiselman,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Alexander W. Stabile,** Vanderbilt Univ. (United States); **Ingrid M. Meszoely,** Vanderbilt Univ. Medical Ctr. (United States); **Michael I. Miga,** Vanderbilt Univ. (United States)

12928-11 • 04:10 PM - 04:30 PM
Guiding endovascular catheters using electromagnetic tracking and path-based registration for brain aneurysm treatment
Author(s): **Fangjie Li**, **Huilin Xu**, **Shanelle D. Cao**, **Jinchi Wei**, **Dante Rhodes,** Johns Hopkins Univ. (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States), Johns Hopkins Univ. (United States); **Luis F. Gonzalez,** The Johns Hopkins Univ. School of Medicine (United States); **Ali Uneri,** Johns Hopkins Univ. (United States)

12928-12 • 04:30 PM - 04:50 PM
An augmented reality and high-speed optical tracking system for laparoscopic surgery
Author(s): **Nati Nawawithan**, **Jeff Young**, **Patric Bettati**, **Armand P. Rathgeb**, **Kelden T. Pruitt**, **Jordan Frimpter**, **Henry Kim**, **Jonathan Yu**, **Davis Driver**, **Amanuel Shiferaw**, **Aditi Chaudhari,** The Univ. of Texas at Dallas (United States); **Brett A. Johnson**, **Jeffrey Gahan,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **James Yu,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States), The Univ. of Texas at Dallas (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States), The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12928-13 • 04:50 PM - 05:10 PM
Preliminary assessment of a convolutional neural network for localization of a radioactive source with a hand-held gamma detector
Author(s): **Sydney Wilson,** Western Univ. (Canada), Robarts Research Institute (Canada); **David W. Holdsworth,** Robarts Research Institute (Canada), Western Univ. (Canada)

12928-14 • 05:10 PM - 05:30 PM
Towards optimal camera positioning for navigated surgery applications based on RGBD data
Author(s): **Philipp Gehrmann**, **Tom L. Koller, Jan Klein,** Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

POSTERS - MONDAY

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/monday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 7:30 AM– 5:00 PM Monday

- In order to be considered for a poster award, it is recommended to have your poster set up by 1:00 PM Monday. Judging may begin after this time. Posters must remain on display until the end of the Monday evening poster session, but may be left hanging until 1:00 PM Tuesday. After 1:00 PM on Tuesday, posters will be removed and discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

12928-55 • 05:30 PM - 07:00 PM
Surgical site-specific ensemble model for surgical procedure segmentation
Author(s): **Kai Chen**, **Sreeram Kamabattula, Kiran Bhattacharyya,** Intuitive Surgical, Inc. (United States)

12928-56 • 05:30 PM - 07:00 PM
Enabling rapid and high-quality 3D scene reconstruction in cystoscopy through neural radiance fields
Author(s): **Pengcheng Chen**, **Nicole M Gunderson**, **Andrew Lewis**, **Jason R Speich**, **Michael P. Porter, Eric J. Seibel,** Univ. of Washington (United States)

12928-57 • 05:30 PM - 07:00 PM
Using attention-based convolutional auto-encoders for catheter path reconstruction in ultrasound images
Author(s): **Shreyasi Mandal,** Indian Institute of Technology Kanpur (India); **Srinjoy Bhuiya,** Univ. of Alberta (Canada); **Elodie Lugez,** Toronto Metropolitan Univ. (Canada)

12928-58 • 05:30 PM - 07:00 PM
TensorRT-based surgical instrument detection assessment for deep learning on edge computing
Author(s): **Abdelkrim Belhaoua, Tom R. L. Kimpe,** Barco N.V. (Belgium)

12928-59 • 05:30 PM - 07:00 PM
Automatic procedure planning for radial-probe endobronchial ultrasound
Author(s): **Austin Kao, William E. Higgins,** The Pennsylvania State Univ. (United States)

12928-60 • 05:30 PM - 07:00 PM
Toward requirement-based performance in data-driven image analysis algorithms for robotic applications
Author(s): **Yuri F. Hudak**, **Timo J. C. Oude Vrielink, Fons van der Sommen,** Technische Univ. Eindhoven (Netherlands)

12928-61 • 05:30 PM - 07:00 PM
An assistive photo capture system for pre- and post-operative analysis of facial reconstructive surgeries
Author(s): **Wenzhangzhi Guo**, **Yanlin Huang**, **Joel C. Davies,** Univ. of Toronto (Canada); **Vito Forte,** The Hospital for Sick Children (Canada); **Eitan Grinspun,** Univ. of Toronto (Canada); **Lueder A. Kahrs,** Univ. of Toronto Mississauga (Canada)

12928-62 • 05:30 PM - 07:00 PM
Source-detector trajectory optimization for customized CBCT FOV extension using simulated annealing algorithm
Author(s): **Hannah Jungreuthmayer,** Medizinische Univ. Wien (Austria), Univ. Wien (Austria), ACMIT GmbH (Austria); **S. M. Ragib Shahriar Islam,** ACMIT GmbH (Austria); **Ander Biguri,** Univ. of Cambridge (United Kingdom); **Gernot Kronreif,** ACMIT GmbH (Austria); **Wolfgang Birkfellner,** Medizinische Univ. Wien (Austria); **Sepideh Hatamikia,** Danube Private Univ. GmbH (Austria), ACMIT GmbH (Austria)

12928-63 • 05:30 PM - 07:00 PM
Simulation study of minimally invasive surgical scenes and their effect on hand-held stereovision driven level-wise registration techniques
Author(s): **Ryan B. Duke**, **Xiaoyao Fan**, **William R. Warner,** Thayer School of Engineering at Dartmouth (United States); **Linton T. Evans,** Dartmouth-Hitchcock Medical Ctr. (United States), Geisel School of Medicine, Dartmouth College (United States); **Songbai Ji,** Thayer School of Engineering at Dartmouth (United States), Worchester Polytechnic Institute (United States); **Sohail K. Mirza, Keith D. Paulsen,** Thayer School of Engineering at Dartmouth (United States), Dartmouth-Hitchcock Medical Ctr. (United States), Geisel School of Medicine, Dartmouth College (United States)

12928-64 • 05:30 PM - 07:00 PM
Towards an augmented reality system supporting nail implantation for tibial fractures
Author(s): **Nora Dimitrova**, **Armin Teubert,** Reutlingen Univ. (Germany); **Tim Klopfer**, **Anna Manawapat-Klopfer,** Orthopädisch Chirurgie Bayreuth (Germany); **Thomas Notheisen**, **Heiko Baumgartner**, **Christoph Emanuel Gonser,** BG Klinik Tübingen (Germany); **Ramy Zeineldin, Oliver Burgert,** Reutlingen Univ. (Germany)

12928-66 • 05:30 PM - 07:00 PM
Evaluating unsupervised optical flow for keypoint tracking in laparoscopic videos
Author(s): **Bruno Silva,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal); **Sandro Queirós**, **Marcos Fernández-Rodríguez,** Life and Health Sciences Research Institute (Portugal), ICVS/3B's - PT Government Associate Laboratory (Portugal); **Bruno Oliveira,** 2Ai –School of Technology, IPCA (Portugal), LASI – Associate Laboratory of Intelligent Systems (Portugal), Algoritmi Center, School of Engineering, University of Minho (Portugal); **Helena R. Torres**, **Pedro Morais,** 2Ai –School of Technology (Portugal), LASI – Associate Laboratory of Intelligent Systems (Portugal); **Lukas R. Buschle,** KARL STORZ SE & Co. KG (Germany); **Jorge Correia-Pinto**, **Estevão Lima,** Life and Health Sciences Research Institute (Portugal), ICVS/3B's - PT Government Associate Laboratory (Portugal); **João L. Vilaça,** 2Ai –School of Technology (Portugal), LASI – Associate Laboratory of Intelligent Systems (Portugal)

12928-67 • 05:30 PM - 07:00 PM
Segmentation of spinal computed tomography to produce biomechanically accurate patient-specific surgical models
Author(s): **Kaelyn Button**, **David C. Zaretksy,** Univ. at Buffalo (United States), Canon Stroke and Vascular Research Ctr. (United States); **Kasey Pfleging**, **Megan Malueg**, **Marissa Kruk**, **Jeffrey Mullin,** Univ. at Buffalo (United States); **Ciprian N. Ionita,** Univ. at Buffalo (United States), Canon Stroke and Vascular Research Ctr. (United States)

12928-68 • 05:30 PM - 07:00 PM
Non-invasive imaging of exposed nerves in vivo with near-infrared hyperspectral laparoscopic devices
Author(s): **Ryodai Fukushima,** Tokyo Univ. of Science (Japan); **Toshihiro Takamatsu,** National Cancer Ctr. (Japan); **Konosuke Sato**, **Kyohei Okubo**, **Masakazu Umezawa,** Tokyo Univ. of Science (Japan); **Nobuhiro Takeshita**, **Hiro Hasegawa,** National Cancer Ctr. (Japan); **Hideo Yokota,** RIKEN Ctr. for Advanced Photonics (Japan); **Kohei Soga, Hiroshi Takemura,** Tokyo Univ. of Science (Japan)

12928-69 • 05:30 PM - 07:00 PM
Eye tracking for tele-robotic surgery: a comparative evaluation of head-worn solutions
Author(s): **Regine Büter**, **Roger D. Soberanis-Mukul**, **Paola Ruiz Puentes,** Johns Hopkins Univ. (United States); **Ahmed Ghazi,** The Johns Hopkins Medical Institutions (United States); **Jie Ying Wu,** Vanderbilt Univ. (United States); **Mathias Unberath,** Johns Hopkins Univ. (United States)

12928-70 • 05:30 PM - 07:00 PM
Large MRI specimen submersion phantom design
Author(s): **Haley E. Stoner**, **Keith D. Paulsen**, **Sohail K. Mirza**, **Xiaoyao Fan**, **Ryan B. Duke, William R. Warner,** Thayer School of Engineering at Dartmouth (United States)

12928-71 • 05:30 PM - 07:00 PM
Quantification of changes in regional diaphragmatic motion and shape due to surgery via free-breathing dynamic MRI in pediatric patients with thoracic insufficiency syndrome
Author(s): **Mahdie Hosseini**, **Shiva Shaghaghi**, **You K. Hao**, **Yubing Tong**, **Yusuf Akhtar**, **Mostafa Al-Noury**, **Caiyun Wu,** Univ. of Pennsylvania (United States); **Oscar H. Mayer**, **Joseph M. McDonough**, **Patrick J. Cahill**, **Jason B. Anari,** The Children's Hospital of Philadelphia (United States); **Drew A. Torigian, Jayaram K. Udupa,** Univ. of Pennsylvania (United States)

12928-72 • 05:30 PM - 07:00 PM
Providing automatic formative feedback along surgical skill assessment
Author(s): **Gaspard Tonetti,** Grenoble INP, Univ. Grenoble Alpes (France), VetAgro Sup (France), CNRS (France); **Cecilie Våpenstad,** SINTEF (Norway), Norwegian Univ. of Science and Technology (Norway); **Nabil Zemiti,** Univ. de Montpellier (France), Lab. d'Informatique de Robotique et de Microelectronique de Montpellier (France); **Sandrine Voros,** INSERM (France)

12928-73 • 05:30 PM - 07:00 PM
Surface-based volumetric image reconstruction for image-guided procedures using a data-driven framework
Author(s): **Chih-Wei Chang**, **Shaoyan Pan,** The Winship Cancer Institute of Emory Univ. (United States); **Zhen Tian,** The Univ. of Chicago (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Marian Axente**, **Joseph Shelton,** The Winship Cancer Institute of Emory Univ. (United States); **Tian Liu,** Mount Sinai Medical Ctr. (United States); **Justin Roper, Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

12928-74 • 05:30 PM - 07:00 PM
Multimodality image fusion for intraoperative guidance in transcatheter structural heart disease procedures
Author(s): **Sihong He**, **Siu-Chun M. Ho,** McGovern Medical School, The Univ. of Texas Health Science Ctr. at Houston (United States); **Andrew Kuhls-Gilcrist**, **Todd Erpelding,** Canon Medical Systems USA, Inc. (United States); **Richard Smalling,** Memorial Hermann Heart and Vascular Institute (United States), McGovern Medical School, The Univ. of Texas Health Science Ctr. at Houston (United States)

12928-75 • 05:30 PM - 07:00 PM
Risk prediction of stereotactic-body-radiotherapy-induced vertebral compression fracture using multi-modal deep learning network

Author(s): **Seoyoung Lee**, **Hyoyi Kim,** KAIST (Korea, Republic of); **Haeyoung Kim,** SAMSUNG Medical Ctr. (Korea, Republic of); **Seungryong Cho,** KAIST (Korea, Republic of)

12928-76 • 05:30 PM - 07:00 PM
Smart line detection and histogram-based approach to robust freehand ultrasound calibration
Author(s): **William R. Warner**, **Xiaoyao Fan**, **Ryan B. Duke**, **Kristen L. Chen**, **Chengpei Li**, **Haley E. Stoner,** Thayer School of Engineering at Dartmouth (United States); **Kirthi S. Bellamkonda**, **Linton T. Evans**, **Richard J. Powell,** Dartmouth-Hitchcock Medical Ctr. (United States); **Sohail K. Mirza, Keith D. Paulsen,** Thayer School of Engineering at Dartmouth (United States)

12928-77 • 05:30 PM - 07:00 PM
Adaptive octree cube refinement depending on grasping position for deformable organ models
Author(s): **Rintaro Miyazaki**, **Yuichiro Hayashi**, **Masahiro Oda, Kensaku Mori,** Nagoya Univ. (Japan)

12928-78 • 05:30 PM - 07:00 PM
Exploring optical flow inclusion into nnU-Net framework for surgical instrument segmentation
Author(s): **Marcos Fernández-Rodríguez,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal), School of Medicine, Univ. do Minho (Portugal); **Bruno Silva**, **Sandro Queirós,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal); **Helena R. Torres,** Applied Artificial Intelligence Laboratory (Portugal); **Bruno Oliveira,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal); **Pedro Morais,** Applied Artificial Intelligence Laboratory, Instituto Politécnico do Cávado e do Ave (Portugal); **Lukas R. Buschle,** KARL STORZ SE & Co. KG (Germany); **Jorge Correia-Pinto,** Life and Health Sciences Research Institute (Portugal), School of Medicine (Portugal); **Estevão Lima,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal); **João L. Vilaça,** Applied Artificial Intelligence Laboratory, Instituto Politécnico do Cávado e do Ave (Portugal)

12928-79 • 05:30 PM - 07:00 PM
Novel method to improve feature extraction in MR for model-based image updating in image-guided neurosurgery
Author(s): **Kristen L. Chen**, **Chengpei Li**, **Xiaoyao Fan**, **Scott Davis,** Thayer School of Engineering at Dartmouth (United States); **Linton T. Evans,** Dartmouth-Hitchcock Medical Ctr. (United States); **Keith D. Paulsen,** Thayer School of Engineering at Dartmouth (United States), Dartmouth-Hitchcock Medical Ctr. (United States), Norris Cotton Cancer Ctr. (United States)

12928-80 • 05:30 PM - 07:00 PM
In-silico CT lung phantom generated from finite-element mesh
Author(s): **Sunder Neelakantan**, **Tanmay Mukherjee,** Texas A&M Univ. (United States); **Bradford J. Smith,** Univ. of Colorado (United States); **Kyle Myers,** Texas A&M Univ. (United States); **Rahim R. Rizi,** Univ. of Pennsylvania (United States); **Reza Avazmohammadi,** Texas A&M Univ. (United States)

12928-81 • 05:30 PM - 07:00 PM
Comprehensive examination of personalized microwave ablation: exploring the effects of blood perfusion rate and metabolic heat on treatment responses
Author(s): **Amirreza Heshmat**, **Caleb S. O'Connor**, **Jun Hong**, **Jessica Albuquerque Marques Silva**, **Iwan Paolucci**, **Aaron K. Jones**, **Bruno C. Odisio, Kristy K. Brock,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

12928-82 • 05:30 PM - 07:00 PM
Comparative analysis of non-rigid registration techniques for liver surface registration
Author(s): **Bipasha Kundu**, **Zixin Yang**, **Richard Simon, Cristian A. Linte,** Rochester Institute of Technology (United States)

12928-83 • 05:30 PM - 07:00 PM
Auditory nerve fiber localization using a weakly supervised non-rigid registration U-Net
Author(s): **Hannah G. Mason**, **Ziteng Liu, Jack H. Noble,** Vanderbilt Univ. (United States)

12928-85 • 05:30 PM - 07:00 PM
A comparison of onboard and offboard user interfaces for handheld robots
Author(s): **Ethan Wilke**, **Jesse F. d'Almeida**, **Jason Shrand**, **Tayfun Ertop**, **Nicholas L. Kavoussi**, **Amy Reed**, **Duke Herrell, Robert J. Webster,** Vanderbilt Univ. (United States)

12928-86 • 05:30 PM - 07:00 PM
3D U-Net with region of interest segmentation of kidneys and masses in computed tomography scans
Author(s): **Connor Mitchell,** Robarts Research Institute (Canada); **Shuwei Xing,** Robarts Research Institute (Canada), Western Univ. (Canada); **Derek W. Cool,** London Health Sciences Ctr. (Canada), Robarts Research Institute (Canada); **David Tessier,** Robarts Research Institute (Canada); **Aaron Fenster,** Robarts Research Institute (Canada), Western Univ. (Canada)

12928-87 • 05:30 PM - 07:00 PM
Automating creation of high-fidelity holographic hand animations for surgical skills training using mixed reality headsets
Author(s): **Regina W. K. Leung**, **Ge Shi,** Western Univ. (Canada); **Christina A. Lim, Matthew Van Oirschot,** Schulich School of Medicine & Dentistry, Western Univ. (Canada)

12928-88 • 05:30 PM - 07:00 PM
A robust system for capture and archival of high-definition stereoendoscopic video
Author(s): **Michael A. Kokko, Ryan J. Halter,** Thayer School of Engineering at Dartmouth (United States)

12928-89 • 05:30 PM - 07:00 PM
3D conditional GAN with transfer learning for pediatric MR to CT image synthesis combining adult and pediatric patient data
Author(s): **Soyoung Park**, **Sahaja Acharya**, **Matthew Ladra,** The Johns Hopkins Univ. School of Medicine (United States); **Junghoon Lee,** Johns Hopkins Univ. (United States)

12928-90 • 05:30 PM - 07:00 PM
Monocular microscope to CT registration using pose estimation of the incus for augmented reality cochlear implant surgery
Author(s): **Yike Zhang**, **Eduardo Davalos Anaya**, **Ange Lou**, **Dingjie Su, Jack H. Noble,** Vanderbilt Univ. (United States)

12928-91 • 05:30 PM - 07:00 PM
Initial implementation of robot-integrated specimen imaging in transoral robotic surgery
Author(s): **Michael A. Kokko,** Thayer School of Engineering at Dartmouth (United States); **Andrew Y. Lee,** Geisel School of Medicine, Dartmouth College (United States); **Joseph A. Paydarfar,** Dartmouth-Hitchcock Medical Ctr. (United States); **Ryan J. Halter,** Thayer School of Engineering at Dartmouth (United States)

12928-92 • 05:30 PM - 07:00 PM
Using artificial intelligence to classify point-of-care ultrasound images
Author(s): **Owen Anderson,** Biomedical Imaging Resource Core, Mayo Clinic (United States); **Garrett Regan**, **Songnan Wen**, **Deepa Mandale**, **Tasneem Naqvi, David R. Holmes,** Mayo Clinic (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: SURGICAL DATA SCIENCE/VIDEO ANALYSIS

20 February 2024 • 10:30 AM - 12:30 PM | Pacific C
Session Chair(s): **Cristian A. Linte**, Rochester Institute of Technology (United States); **William E. Higgins**, The Pennsylvania State Univ. (United States)

12928-15 • 10:30 AM - 11:10 AM
Democratizing surgical skills via surgical data science *(Invited Paper)*
Author(s): **Stefanie Speidel,** Nationales Centrum für Tumorerkrankungen Dresden (Germany)

12928-16 • 11:10 AM - 11:30 AM
Dual-camera laparoscopic imaging with super-resolution reconstruction for intraoperative hyperspectral image guidance
Author(s): **Ling Ma**, **Kelden T. Pruitt, Baowei Fei,** The Univ. of Texas at Dallas (United States)

12928-17 • 11:30 AM - 11:50 AM
Dense surface reconstruction using a learning-based vSLAM model for laparoscopic surgery
Author(s): **James Yu,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States), The Univ. of Texas at Dallas (United States); **Kelden T. Pruitt**, **Nati Nawawithan,** The Univ. of Texas at Dallas (United States); **Brett A. Johnson**, **Jeffrey Gahan,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States), The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12928-18 • 11:50 AM - 12:10 PM
AVA: automated viewability analysis for ureteroscopic intrarenal surgery
Author(s): **Daiwei Lu**, **Yifan Wu**, **Xing Yao,** Vanderbilt Univ. (United States); **Nicholas L. Kavoussi,** Vanderbilt Univ. Medical Ctr. (United States); **Ipek Oguz,** Vanderbilt Univ. (United States)

12928-19 • 12:10 PM - 12:30 PM
WS-SfMLearner: self-supervised monocular depth and ego-motion estimation on surgical videos with unknown camera parameters
Author(s): **Ange Lou, Jack H. Noble,** Vanderbilt Univ. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 5: NEUROSURGERY/NEUROTOLOGY

20 February 2024 • 01:40 PM - 03:20 PM | Pacific C
Session Chair(s): **Pierre Jannin**, Lab. Traitement du Signal et de l'Image (France); **Junghoon Lee**, Johns Hopkins Univ. (United States)

12928-20 • 01:40 PM - 02:00 PM
End-to-End 3D neuroendoscopic video reconstruction for robot-assisted ventriculostomy
Author(s): **Prasad Vagdargi**, **Ali Uneri**, **Stephen Z. Liu**, **Craig K. Jones**, **Alejandro Sisniega,** Johns Hopkins Univ. (United States); **Junghoon Lee,** The Johns Hopkins Univ. School of Medicine (United States); **Patrick A. Helm,** Medtronic, Inc. (United States); **William S. Anderson**, **Mark Luciano,** The Johns Hopkins Univ. School of Medicine (United States); **Gregory D. Hager,** Johns Hopkins Univ. (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

12928-21 • 02:00 PM - 02:20 PM
Intraoperative stereovision cortical surface segmentation using fast segment anything model
Author(s): **Chengpei Li,** Dartmouth College (United States); **Xiaoyao Fan**, **Kristen L. Chen**, **Ryan B. Duke,** Thayer School of Engineering at Dartmouth (United States); **Linton T. Evans,** Dartmouth-Hitchcock Medical Ctr. (United States); **Keith D. Paulsen,** Thayer School of Engineering at Dartmouth (United States)

12928-22 • 02:20 PM - 02:40 PM
Joint MR to CT synthesis and segmentation for MR-only pediatric brain radiation therapy planning
Author(s): **Lina Mekki**, **Sahaja Acharya**, **Matthew Ladra, Junghoon Lee,** Johns Hopkins Univ. (United States)

12928-23 • 02:40 PM - 03:00 PM
Effect of the prior distribution on a Bayesian model or errors of type for transcranial magnetic stimulation
Author(s): **John S. H. Baxter, Pierre Jannin,** Univ. de Rennes 1 (France)

12928-24 • 03:00 PM - 03:20 PM
An adaptable model for estimating patient-specific electrical properties of the implanted cochlea
Author(s): **Erin L. Bratu,** Vanderbilt Univ. (United States); **Katelyn A. Berg**, **Andrea J DeFreese**, **Rene H. Gifford,** Vanderbilt Univ. Medical Ctr. (United States); **Jack H. Noble,** Vanderbilt Univ. (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 6: JOINT SESSION WITH CONFERENCES 12928 AND 12932

20 February 2024 • 03:50 PM - 05:30 PM | Pacific C
Session Chair(s): **Purang Abolmaesumi**, The Univ. of British Columbia (Canada); **Josquin Foiret**, Stanford Univ. School of Medicine (United States)

12928-25 • 03:50 PM - 04:10 PM
Real-time vasculature segmentation during laparoscopic liver resection using attention-enriched U-Net model in intraoperative ultrasound videos
Author(s): **Muhammad Awais**, **Mais Altaie**, **Caleb S. O'Connor**, **Austin H. Castelo**, **Hop S. Tran Cao, Kristy K. Brock,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

12932-32 • 04:10 PM - 04:30 PM
An automated system for registration and fusion of 3D ultrasound images during cervical brachytherapy procedures
Author(s): **Tiana Trumpour,** Robarts Research Institute (Canada); **Jamiel Nasser,** Univ. of Waterloo (Canada); **Jessica R. Rodgers,** Univ. of Manitoba (Canada); **Jeffrey Bax**, **Lori Gardi,** Robarts Research Institute (Canada); **Lucas C. Mendez**, **Kathleen Surry,** London Regional Cancer Program (Canada); **Aaron Fenster,** Robarts Research Institute (Canada)

12928-26 • 04:30 PM - 04:50 PM
Percutaneous nephrostomy needle guidance using real-time 3D anatomical visualization with live ultrasound segmentation
Author(s): **Andrew S. Kim**, **Chris Yeung,** Queen's Univ. (Canada); **Robert Szabo,** Óbuda Univ. (Hungary); **Kyle Sunderland**, **Rebecca Hisey**, **David Morton,** Queen's Univ. (Canada); **Ron Kikinis,** Brigham and Women's Hospital (United States); **Babacar Diao,** Univ. Cheikh Anta Diop (Senegal); **Parvin Mousavi**, **Tamas Ungi, Gabor Fichtinger,** Queen's Univ. (Canada)

12932-33 • 04:50 PM - 05:10 PM
Mirror-based ultrasound system for exploring hand gesture classification through convolutional neural network and vision transformer
Author(s): **Keshav Bimbraw, Haichong K. Zhang,** Worcester Polytechnic Institute (United States)

12928-27 • 05:10 PM - 05:30 PM
Design and evaluation of an educational system for ultrasound-guided interventional procedures
Author(s): **Purnima Rajan**, **Martin Hossbach**, **Pezhman Foroughi**, **Alican Demir**, **Christopher Schlichter,** Clear Guide Medical (United States); **Karina Gattamorta, Shayne Hauglum,** School of Nursing and Health Studies, Univ. of Miami (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 7: IMAGE SEGMENTATION/REGISTRATION

21 February 2024 • 10:30 AM - 12:30 PM | Pacific C
Session Chair(s): **John S. H. Baxter**, Univ. de Rennes 1 (France); **Satish E. Viswanath**, Case Western Reserve Univ. (United States)

12928-28 • 10:30 AM - 11:10 AM
Advances in model-guided interventions *(Invited Paper)*
Author(s): **Michael I. Miga,** Vanderbilt Univ. (United States)

12928-29 • 11:10 AM - 11:30 AM
Optimal hyperparameter selection in deformable image registration using information criterion and band-limited modal reconstruction
Author(s): **Jon S. Heiselman,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Morgan J. Ringel,** Vanderbilt Univ. (United States); **Jayasree Chakraborty**, **William R. Jarnagin,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Michael I. Miga,** Vanderbilt Univ. (United States)

12928-30 • 11:30 AM - 11:50 AM
GhostMorph: a computationally efficient model for deformable inter-subject registration
Author(s): **Mingzhe Hu, Shaoyan Pan,** Emory Univ. (United States); **Shaoyan Pan, Xiaofeng Yang,** Emory Univ. (United States); **Xiaofeng Yang, Shaoyan Pan,** Emory Univ. (United States); **Shaoyan Pan, Xiaofeng Yang,** Emory Univ. (United States)

12928-31 • 11:50 AM - 12:10 PM
Joint synthesis and registration of MRI and cone-beam CT Images using deep evidential uncertainty estimation of deformation fields
Author(s): **Murong Yi**, **Ruxiao Duan**, **Zhikai Li**, **Jeffrey H. Siewerdsen**, **Ali Uneri**, **Junghoon Lee, Craig K. Jones,** Johns Hopkins Univ. (United States)

12928-32 • 12:10 PM - 12:30 PM
Automatic auditory nerve fiber localization using geodesic paths.
Author(s): **Ziteng Liu**, **Erin L. Bratu, Jack H. Noble,** Vanderbilt Univ. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 8: SPINE / ORTHOPAEDIC SURGERY

21 February 2024 • 01:40 PM - 03:20 PM | Pacific C
Session Chair(s): **Jeffrey H. Siewerdsen**, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Stefanie Speidel**, Nationales Centrum für Tumorerkrankungen Dresden (Germany)

12928-33 • 01:40 PM - 02:00 PM
Augmented reality guidance for rib fracture surgery: a feasibility study
Author(s): **Abdullah Thabit**, **Maartje Eijssen**, **Mohamed Benmahdjoub**, **Bart Cornelissen**, **Mark G. van Vledder, Theo van Walsum,** Erasmus MC (Netherlands)

12928-34 • 02:00 PM - 02:20 PM
Intraoperative tracked ultrasound imaging for resolving deformations during spine surgery
Author(s): **Jinchi Wei**, **Debarghya China**, **Kai Ding,** Johns Hopkins Univ. (United States); **Neil Crawford**, **Norbert Johnson,** Globus Medical Inc. (United States); **Nicholas Theodore,** The Johns Hopkins Univ. School of Medicine (United States); **Ali Uneri,** Johns Hopkins Univ. (United States)

12928-35 • 02:20 PM - 02:40 PM
3D volume reconstruction for pediatric scoliosis evaluation using motion-tracked ultrasound
Author(s): **Lucas Hintz**, **Sarah C. Nanziri,** The School of Medicine & Health Sciences, The George Washington Univ. (United States); **Sarah Dance**, **Kochai Jawed**, **Matthew Oetgen,** Children's National Medical Ctr. (United States); **Tamas Ungi**, **Gabor Fichtinger,** Queen's Univ. (Canada); **Christopher Schlenger,** Verdure Imaging Inc. (United States); **Kevin Cleary,** Children's National Medical Ctr. (United States)

12928-36 • 02:40 PM - 03:00 PM
Adaptive loss engine for x-ray segmentation (ALEXS) for scoliosis intervention: assess digital segmentation and angle approximation
Author(s): **Yunbo Shao,** Skyline High School (United States); **Shuo Li,** Case Western Reserve Univ. (United States)

12928-37 • 03:00 PM - 03:20 PM
Surgical process modeling of image-guided spine surgery
Author(s): **Anshuj Deva**, **Tatiana A. Rypinski**, **Bhavin Soni**, **Parvathy Pillai**, **Laurence D. Rhines**, **Claudio E. Tatsui**, **Christopher Alvarez-Breckenridge**, **Robert Y. North**, **Justin E. Bird, Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 9: DEEP IMAGE ANALYSIS FOR IMAGE-GUIDED INTERVENTIONS

21 February 2024 • 03:50 PM - 05:30 PM | Pacific C
Session Chair(s): **Shuo Li**, Case Western Reserve Univ. (United States); **Matthieu Chabanas**, Univ. Grenoble Alpes (France)

12928-38 • 03:50 PM - 04:10 PM
Optimal strategies for modeling anatomy in a hybrid intelligence framework for auto-segmentation of organs
Author(s): **You K. Hao**, **Jayaram K. Udupa**, **Yubing Tong,** Univ. of Pennsylvania (United States); **Tiange Liu,** Yanshan Univ. (China); **Caiyun Wu**, **Dewey Odhner, Drew A. Torigian,** Univ. of Pennsylvania (United States)

12928-39 • 04:10 PM - 04:30 PM
Benchmarking image transformers for prostate cancer detection from ultrasound data
Author(s): **Mohamed Harmanani**, **Paul F. R. Wilson,** Queen's Univ. (Canada); **Fahimeh Fooladgar,** The Univ. of British Columbia (Canada); **Amoon Jamzad**, **Mahdi Gilany,** Queen's Univ. (Canada); **Minh Nguyen Nhat To,** The Univ. of British Columbia (Canada); **Brian Wodlinger,** Exact Imaging Inc. (Canada); **Purang Abolmaesumi,** The Univ. of British Columbia (Canada); **Parvin Mousavi,** Queen's Univ. (Canada)

12928-40 • 04:30 PM - 04:50 PM
Self-supervised monocular pose and depth estimation for wireless capsule endoscopy using transformers
Author(s): **Nahid Nazifi,** Institut National des Sciences Appliquées Centre Val de Loire (France), Institute de Sistemas e Robotica (Portugal); **Helder Araujo,** Univ. de Coimbra (Portugal); **Gopi Krishna Erabati,** Institute de Sistemas e Robotica (Portugal); **Omar Tahri,** VIBOT-ImViA, Univ. de Bourgogne (France)

12928-41 • 04:50 PM - 05:10 PM
Intraoperative MRI-guided cervical cancer brachytherapy with automatic tissue segmentation using dual convolution-transformer network and real-time needle tracking
Author(s): **Gayoung Kim,** Johns Hopkins Univ. (United States); **Majd Antaki,** Elekta (United States); **Ehud J. Schmidt**, **Michael Roumeliotis**, **Akila N. Viswanathan, Junghoon Lee,** Johns Hopkins Univ. (United States)

12928-42 • 05:10 PM - 05:30 PM
Segmentation of the facial nerve using a weakly supervised GAN
Author(s): **Minh Q. Vu, Jack H. Noble,** Vanderbilt Univ. (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 10: NOVEL IMAGING AND VISUALIZATION

22 February 2024 • 10:30 AM - 12:30 PM | Pacific C
Session Chair(s): **Jack H. Noble**, Vanderbilt Univ. (United States); **Terry Yoo**, The Univ. of Maine (United States)

12928-43 • 10:30 AM - 11:10 AM
Advanced imaging and enhanced visualization for image-guided procedures *(Invited Paper)*
Author(s): **Baowei Fei,** The Univ. of Texas at Dallas (United States)

12928-44 • 11:10 AM - 11:30 AM
Photoacoustic image guidance for laser tonsil ablation: approach and initial results
Author(s): **Nicholas E. Pacheco**, **Shang Gao,** Worcester Polytechnic Institute (United States); **Kevin Cleary**, **Rahul Shah,** Children's National Hospital (United States); **Haichong K. Zhang, Loris Fichera,** Worcester Polytechnic Institute (United States)

12928-45 • 11:30 AM - 11:50 AM
Synchronization and analysis of multimodal bronchoscopic airway exams for early lung cancer detection
Author(s): **Qi Chang**, **Vahid Daneshpajooh**, **Patrick D. Byrnes,** The Pennsylvania State Univ. (United States); **Danish Ahmad**, **Jennifer Toth**, **Rebecca Bascom,** Penn State College of Medicine (United States); **William E. Higgins,** The Pennsylvania State Univ. (United States)

12928-46 • 11:50 AM - 12:10 PM
Analysis of the dynamic architecture of the thorax and abdomen in pediatric patients with thoracic insufficiency syndrome (TIS) via dynamic MRI
Author(s): **Yubing Tong**, **Jayaram K. Udupa,** Univ. of Pennsylvania (United States); **Joseph M. McDonough,** The Children's Hospital of Philadelphia (United States); **Caiyun Wu**, **Lipeng Xie**, **Mostafa Alnoury**, **Mahdie Hosseini**, **Shiva Shaghaghi**, **Leihui Tong,** Univ. of Pennsylvania (United States); **Samantha Gogel**, **David M. Biko**, **Oscar H. Mayer**, **Jason B. Anari,** The Children's Hospital of Philadelphia (United States); **Drew A. Torigian,** Univ. of Pennsylvania (United States); **Patrick J. Cahill,** The Children's Hospital of Philadelphia (United States)

12928-47 • 12:10 PM - 12:30 PM
A fast and interactive augmented reality system for PET/CT-guided intervention of neuroblastoma
Author(s): **Rowan Fraser**, **Patric Bettati**, **Jeff Young**, **Armand P. Rathgeb**, **Shashank R. Sirsi, Baowei Fei,** The Univ. of Texas at Dallas (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 11: INTERVENTIONAL RADIOLOGY

22 February 2024 • 01:40 PM - 03:20 PM | Pacific C
Session Chair(s): **Michael I. Miga**, Vanderbilt Univ. (United States); **Baowei Fei**, The Univ. of Texas at Dallas (United States)

12928-48 • 01:40 PM - 02:00 PM
Modular 3D-printed liver tumour phantom for modelling embolization procedures
Author(s): **David Ng**, **Hristo N. Nikolov,** Robarts Research Institute (Canada), Western Univ. (Canada); **Elizabeth Tai,** Western Univ. (Canada); **Daniel Gelman**, **David W. Holdsworth, Maria Drangova,** Robarts Research Institute (Canada), Western Univ. (Canada)

12928-49 • 02:00 PM - 02:20 PM
Image reconstruction and tissue separation modeling with XFEM for surgical visualization and guidance
Author(s): **Kyvia Pereira**, **Morgan J. Ringel, Michael I. Miga,** Vanderbilt Univ. (United States)

12928-50 • 02:20 PM - 02:40 PM
An augmented reality-guided biopsy system using a high-speed motion tracking and real-time registration platform
Author(s): **Patric Bettati**, **Jeff Young**, **Armand P. Rathgeb,** The Univ. of Texas at Dallas (United States); **Jeffrey Gahan**, **Brett A. Johnson,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Ryan Aspenleiter**, **Fintan Browne**, **Aditi Chaudhari**, **Aditya Guin**, **Varin Sikand**, **Grant Webb**, **Nati Nawawithan**, **Jeremy Sherey**, **Alsadiq Shammet,** The Univ. of Texas at Dallas (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States), The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12928-51 • 02:40 PM - 03:00 PM
Prediction model for local tumor progression following microwave ablation treatment of early-stage lung cncer
Author(s): **Pinyo Taeprasartsit,** phenoMapper, LLC (United States); **Robert F. Short,** Dayton VA Medical Ctr. (United States); **Punit Prakash**, **Jan Sebek,** Kansas State Univ. (United States); **Henky Wibowo,** phenoMapper, LLC (United States)

12928-52 • 03:00 PM - 03:20 PM
Metal artifact reduction for CT-guided interventional oncology procedures (MARIO): demonstration of a deep learning-based approach for metal artifact reduction for cryoablation procedures
Author(s): **Wenchao Cao**, **Andrew Missert**, **Ahmad Parvinian**, **Daniel Adamo**, **Brian Welch**, **Matthew Callstrom, Christopher Favazza,** Mayo Clinic (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 12: JOINT SESSION WITH CONFERENCES 12925 AND 12928

22 February 2024 • 03:50 PM - 05:30 PM | Town & Country A
Session Chair(s): **Maryam E. Rettmann**, Mayo Clinic (United States); **Michael A. Speidel**, Univ. of Wisconsin School of Medicine and Public Health (United States)

12925-58 • 03:50 PM - 04:10 PM
Thermometry mapping during CT-guided thermal ablations: sensitivity and clinical feasibility using spectral CT
Author(s): **Kuan (Kevin) Zhang**, **Andrea Ferrero**, **MyungHo In, Christopher P. Favazza,** Mayo Clinic (United States)

12928-53 • 04:10 PM - 04:30 PM
Enhancing MR-guided laser interstitial thermal therapy planning using U-Net: a data-driven approach for predicting MR thermometry images
Author(s): **Saba Sadatamin,** Institute of Biomedical Engineering, Univ. of Toronto (Canada), Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada); **Sara Ketabi,** Univ. of Toronto (Canada), The Hospital for Sick Children (Canada); **Elise Donszelmann-Lund,** Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada); **Saba Abtahi**, **Yuri Chaban,** Institute of Biomedical Engineering, Univ. of Toronto (Canada); **Steven Robbins**, **Richard Tyc,** Monteris Medical, Inc. (Canada); **Farzad Khalvati,** The Hospital for Sick Children (Canada), Univ. of Toronto (Canada); **Adam C. Waspe,** Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada), Univ. of Toronto (Canada); **Lueder A. Kahrs,** Univ. of Toronto Mississauga (Canada), Institute of Biomedical Engineering, Univ. of Toronto (Canada); **James M. Drake,** Posluns Ctr. for Image Guided Innovation & Therapeutic Intervention, The Hospital for Sick Children (Canada), Institute of Biomedical Engineering, Univ. of Toronto (Canada)

12925-59 • 04:30 PM - 04:50 PM
A study on the influence of radiation dose on the device tracking accuracy during continuous-sweep limited angle fluoroscopy
Author(s): **Martin G. Wagner**, **Paul F. Laeseke**, **Amish N. Raval, Michael A. Speidel,** Univ. of Wisconsin-Madison (United States)

12928-54 • 04:50 PM - 05:10 PM
Multi-view stationary imager and implicit neural representation of lung deformation for transbronchial biopsy guidance
Author(s): **Alexander Lu**, **Alejandro L. Montes,** Johns Hopkins Univ. (United States); **Lonny Yarmus,** The Johns Hopkins Univ. School of Medicine (United States); **Jeffrey Thiboutot**, **Ali Uneri,** Johns Hopkins Univ. (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Wojciech Zbijewski, Alejandro Sisniega,** Johns Hopkins Univ. (United States)

12925-60 • 05:10 PM - 05:30 PM
FEM deformable liver registration to facilitate CBCT guided histotripsy
Author(s): **Grace M. Minesinger**, **Paul F. Laeseke**, **Ayca Z. Kutlu**, **Michael A. Speidel, Martin G. Wagner,** Univ. of Wisconsin-Madison (United States)

DIGITAL POSTERS

On Demand
The posters listed below are available exclusively for online viewing during the week of SPIE Medical Imaging 2024.

12928-65 • -
Asymmetric edge-aware transformers for monocular endoscopic depth estimation
Author(s): **Ming Wu**, **Hao Qi**, **Wenkang Fan,** Xiamen Univ. (China); **Sunkui Ke**, **Hui-Qing Zeng,** Zhongshan Hospital Affiliated to Xiamen Univ. (China); **Yinran Chen, Xiongbiao Luo,** Xiamen Univ. (China)

CONFERENCE 12929

Image Perception, Observer Performance, and Technology Assessment

20 - 22 February 2024 | Palm 4

Conference Chair(s): **Claudia R. Mello-Thoms,** Univ. Iowa Carver College of Medicine (United States); **Yan Chen,** The Univ. of Nottingham (United Kingdom)

Program Committee: **Craig K. Abbey,** Univ. of California, Santa Barbara (United States); **Stephen Adamo,** Univ. of Central Florida (United States); **Mark A. Anastasio,** Washington Univ. in St. Louis (United States); **Susan M. Astley,** The Univ. of Manchester (United Kingdom); **Jongduk Baek,** Yonsei Univ. (Korea, Republic of); **François O. Bochud,** Ctr. Hospitalier Univ. Vaudois (Switzerland); **Jovan G. Brankov,** Illinois Institute of Technology (United States); **Brandon D. Gallas,** U.S. Food and Drug Administration (United States); **Howard C. Gifford,** Univ. of Houston (United States); **Stephen L. Hillis,** The Univ. of Iowa (United States); **Elizabeth A. Krupinski,** Emory Univ. School of Medicine (United States); **Matthew A. Kupinski,** College of Optical Sciences, The Univ. of Arizona (United States); **Miguel A. Lago,** U.S. Food and Drug Administration (United States); **Sarah J. Lewis,** The Univ. of Sydney (Australia); **Mark F. McEntee,** Univ. College Cork (Ireland); **Robert M. Nishikawa,** Univ. of Pittsburgh (United States); **Ljiljana Platiša,** Univ. Gent (Belgium); **Ingrid S. Reiser,** The Univ. of Chicago (United States); **Frank W. Samuelson,** U.S. Food and Drug Administration (United States); **Sian Taylor-Phillips,** The Univ. of Warwick (United Kingdom); **Pontus A. Timberg,** Scanias Univ. Hospital (Sweden); **Weimin Zhou,** Shanghai Jiao Tong Univ. (China)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:40 AM

SESSION 1: BREAST I

20 February 2024 • 10:40 AM - 12:00 PM | Palm 4
Session Chair(s): **Claudia R. Mello-Thoms**, Univ. Iowa Carver College of Medicine (United States); **Elizabeth A. Krupinski**, Emory Univ. School of Medicine (United States)

12929-2 • 10:40 AM - 11:00 AM
Artificial intelligence can improve cancer detection in a double reading screening mammography scenario
Author(s): **Zhengqiang Jiang**, **Ziba Gandomkar**, **Phuong D. Trieu**, **Seyedamir Tavakoli Taba**, **Melissa L. Barron, Sarah J. Lewis,** The Univ. of Sydney (Australia)

12929-3 • 11:00 AM - 11:20 AM
CNN-based transfer learning with 10-fold cross-validation: a novel approach for customized education of mammography training
Author(s): **Xuetong Tao**, **Ziba Gandomkar**, **Tong Li**, **Jessica Yi**, **Patrick C. Brennan, Warren M. Reed,** The Univ. of Sydney (Australia)

12929-4 • 11:20 AM - 11:40 AM
Deep learning analysis of breast arterial calcifications: a study on predicting cardiovascular disease in women
Author(s): **Mu'ath Ibrahim**, **Ziba Gandomkar**, **Mo'ayyad E. Suleiman**, **Jessica Yi**, **Seyedamir Tavakoli Taba, Patrick C. Brennan,** The Univ. of Sydney (Australia)

12929-6 • 11:40 AM - 12:00 PM
Ordering mammograms for improved mammography screening performance
Author(s): **Jessie Gommers**, **Sarah Verboom,** Radboud Univ. Medical Ctr. (Netherlands); **Michael Webster,** University of Nevada (United States); **Craig Abbey,** University of California (United States); **Mireille Broeders,** Radboud Univ. Medical Ctr. (Netherlands), Dutch Expert Centre for Screening (LRCB) (Netherlands); **Ioannis Sechopoulos,** Radboud Univ. Medical Ctr. (Netherlands), Dutch Expert Centre for Screening (LRCB) (Netherlands), TechMed Centre (Netherlands)

Lunch Break 12:00 PM - 02:00 PM

SESSION 2: OBSERVER PERFORMANCE

20 February 2024 • 02:00 PM - 03:20 PM | Palm 4
Session Chair(s): **Jovan G. Brankov**, Illinois Institute of Technology (United States); **Jongduk Baek**, Yonsei Univ. (Korea, Republic of)

12929-7 • 02:00 PM - 02:20 PM
Modeling human observer detection for varying data acquisition in undersampled MRI for two-alternative forced choice (2-AFC) and forced localization tasks
Author(s): **Rehan Mehta**, **Tetsuya A. Kawakita, Angel R. Pineda,** Manhattan College (United States)

12929-9 • 02:20 PM - 02:40 PM
Radiologists' performance in diagnosing silicosis on high-resolution computed tomography (HRCT) scans: an online platform
Author(s): **Jessica Yi**, **Kriscia Tapia**, **John Robinson**, **Ziba Gandomkar**, **Mo'ayyad E. Suleiman**, **Patrick C. Brennan,** The Univ. of Sydney (Australia); **Nigel Sommerfeld,** The Univ. of Sydney (Australia), Lungscreen Australia (Australia); **Seyedamir Tavakoli Taba,** The Univ. of Sydney (Australia)

12929-10 • 02:40 PM - 03:00 PM
Comparing multiple-target search performance and the satisfaction of search effect between 2D and segmented-3D search
Author(s): **Stephen H. Adamo,** Univ. of Central Florida (United States); **Rachel Brem, Stephen Mitroff,** The George Washington Univ. (United States)

12929-11 • 03:00 PM - 03:20 PM
Recognition of radiological decision errors from eye movement during chest x-ray readings
Author(s): **Anna Anikina,** Univ. of Copenhagen (Denmark); **Ilya Pershin,** Innopolis Univ. (Russian Federation); **Tamerlan Mustafaev,** Univ. of Pittsburgh (United States); **Bulat Ibragimov,** Univ. of Copenhagen (Denmark)

Coffee Break 03:20 PM - 03:50 PM

SESSION 3: MODEL OBSERVERS

20 February 2024 • 03:50 PM - 05:30 PM | Palm 4
Session Chair(s): **Craig K. Abbey**, Univ. of California, Santa Barbara (United States); **Matthew A. Kupinski**, Wyant College of Optical Sciences (United States)

12929-12 • 03:50 PM - 04:10 PM
A hybrid CNN-Swin Transformer network as deep learning model observer to predict human observer performance in 2AFC trial
Author(s): **Muhan Shao**, **Jhimli Mitra,** GE Research (United States); **Darrin W. Byrd,** Univ. of Washington (United States); **Craig Abbey,** Univ. of California, Santa Barbara (United States); **Fatemeh Behnia**, **Jean H. Lee**, **Amir Iravani**, **Murat Sadic**, **Delphine L. Chen**, **Paul E. Kinahan,** Univ. of Washington (United States); **Sangtae Ahn,** GE Research (United States)

12929-13 • 04:10 PM - 04:30 PM
Adaptive learning approach to improve generalization performance of a domain-aware CNN-based ideal model observer
Author(s): **Nebojsa Bogdanovic,** Illinois Institute of Technology (United States); **Craig K. Abbey,** Univ. of California, Santa Barbara (United States); **Yongyi Yang, Jovan G. Brankov,** Illinois Institute of Technology (United States)

12929-14 • 04:30 PM - 04:50 PM
Addition of a threshold mechanism to model observers for medical image quality assessment
Author(s): **Hongwei Lin, Howard Gifford,** Univ. of Houston (United States)

12929-15 • 04:50 PM - 05:10 PM
Investigation of different model observers for including signal-detectability in the training of CNNs for CT image reconstruction
Author(s): **Gregory Ongie**, **Megan Lantz,** Marquette Univ. (United States); **Emil Sidky**, **Ingrid Reiser, Xiaochuan Pan,** The Univ. of Chicago (United States)

12929-16 • 05:10 PM - 05:30 PM
Computed tomography optimization using a volumetric channelized Hotelling observer approach for energy integrating and photon-counting CT scanners
Author(s): **Dimitar Petrov**, **Gizem Yegin,** Univ. Ziekenhuis Leuven (Belgium); **Christoph Hoeschen,** Otto-von-Guericke-Univ. Magdeburg (Germany); **Hilde Bosmans,** Univ. Ziekenhuis Leuven (Belgium)

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: JOINT SESSION WITH CONFERENCES 12927 AND 12929

21 February 2024 • 10:30 AM - 12:30 PM | Town & Country C
Session Chair(s): **Susan M. Astley**, The Univ. of Manchester (United Kingdom); **Claudia R. Mello-Thoms**, Univ. Iowa Carver College of Medicine (United States)

12927-31 • 10:30 AM - 10:50 AM
Using artificial intelligence for chest radiograph interpretation: a retrospective multi-reader-multi-case (MRMC) study of the automatic detection of multiple abnormalities and generation of diagnostic report system
Author(s): **Lin Guo,** Shenzhen Zhiying Medical Imaging (China); **Guanxun Cheng,** Peking Univ. Shenzhen Hospital (China); **Lifei Wang,** Shenzhen 3rd People's Hospital, The 2nd Hospital Affilated to Southern Univ. of Science and Technology (China); **Bin Zheng,** The Univ. of Oklahoma (United States); **Stefan Jaeger,** U.S. National Library of Medicine, National Institutes of Health (United States); **Maryellen L. Giger**, **Jordan Fuhrman,** The Univ. of Chicago (United States); **Hui Li,** University of Chicago (United States); **Ajay Divekar,** Caddie Technology, Inc. (United States); **Qian Xiao**, **Lingjun Qian**, **Li Xia,** Shenzhen Zhiying Medical Imaging (China); **Hongjun Li,** Beijing Youan Hospital, Capital Medical Univ. (China); **Yuanming Fleming F. Lure,** MS Technologies Corp. (United States)

12929-17 • 10:50 AM - 11:10 AM
Sequestration of imaging studies in MIDRC: using load factor to minimize algorithm performance overestimation and image reuse
Author(s): **Dylan Tang**, **Heather M. Whitney,** The Univ. of Chicago (United States); **Kyle J. Myers,** Puente Solutions, LLC (United States); **Maryellen Giger,** The Univ. of Chicago (United States)

12927-32 • 11:10 AM - 11:30 AM
Using NURBS for virtual resections in liver surgery planning: a comparative usability study
Author(s): **Gabriella d'Albenzio,** Oslo Univ. Hospital (Norway), Univ. of Oslo (Norway); **Rebecca Hisey**, **Dilakshan Srikanthan**, **Tamas Ungi**, **Andras Lasso,** Queen's Univ. (Canada); **Davit Aghayan,** Oslo Univ. Hospital (Norway), Yerevan State Medical Univ. (Armenia), Institute of Clinical Medicine, Univ. of Oslo (Norway); **Gabor Fichtinger,** Queen's Univ. (Canada); **Rafael Palomar,** Oslo Univ. Hospital (Norway), Norwegian Univ. of Science and Technology (Norway)

12929-18 • 11:30 AM - 11:50 AM
Ambient-Pix2PixGAN for translating medical images from noisy data
Author(s): **Wentao Chen**, **Xichen Xu**, **Jie Luo, Weimin Zhou,** Shanghai Jiao Tong Univ. (China)

12927-33 • 11:50 AM - 12:10 PM
Automated plaque detection and Agatston score estimation on non-contrast CT scans: a multicenter study
Author(s): **Andrew Nguyen,** National Institutes of Health (United States); **Jianfei Liu**, **Tejas Sudharshan Mathai,** National Institutes of Health Clinical Ctr. (United States); **Peter C. Grayson,** National Institutes of Health (United States); **Ronald M. Summers,** National Institutes of Health Clinical Ctr. (United States)

12929-19 • 12:10 PM - 12:30 PM
Evaluating the capacity of a diffusion generative model to reproduce spatial context relevant to diagnostic imaging
Author(s): **Rucha Deshpande,** Washington Univ. in St. Louis (United States); **Muzaffer Ozbey**, **Hua Li**, **Mark A. Anastasio, Frank J. Brooks,** Univ. of Illinois (United States)

Lunch Break 12:30 PM - 02:00 PM

SESSION 5: BREAST II

21 February 2024 • 02:00 PM - 03:20 PM | Palm 4
Session Chair(s): **Claudia R. Mello-Thoms**, Univ. Iowa Carver College of Medicine (United States); **Elizabeth A. Krupinski**, Emory Univ. School of Medicine (United States)

12929-20 • 02:00 PM - 02:20 PM
Predicting the gist of breast cancer on a screening mammogram using global radiomic features
Author(s): **Somphone Siviengphanom**, **Sarah Lewis**, **Patrick Brennan, Ziba Gandomkar,** The Univ. of Sydney (Australia)

12929-21 • 02:20 PM - 02:40 PM
Contrast enhanced mammography (CEM): is experience necessary? an inter and intra-reader agreement study for lesion classification and breast density
Author(s): **Reham Altokhais,** The Univ. of Manchester (United Kingdom), King Saud Univ. (Saudi Arabia), King Faisal Specialist Hospital & Research Ctr. (Saudi Arabia); **Riham Eiada**, **Nuha Khoumayies**, **Leena Zeitouni**, **Deema Abunayyan,** King Faisal Specialist Hospital & Research Ctr. (Saudi Arabia); **Abdulrahman Alfuraih,** King Saud Univ. (Saudi Arabia); **Bandar Alghamdi**, **Reem Alghamdi,** King Faisal Specialist Hospital & Research Ctr. (Saudi Arabia); **Elaine F. Harkness, Susan Astley,** The Univ. of Manchester (United Kingdom)

12929-23 • 02:40 PM - 03:00 PM
Cancer-rates in completion-time defined batches of screening DBT images
Author(s): **Craig K. Abbey,** Univ. of California, Santa Barbara (United States); **Andriy I. Bandos,** Univ. of Pittsburgh (United States); **Mohana K. Parthasarathy**, **Michael A. Webster,** Univ. of Nevada, Reno (United States); **Margarita L. Zuley,** Univ. of Pittsburgh (United States)

12929-24 • 03:00 PM - 03:20 PM
Exploring varied time intervals on diagnostic performances of radiologists and trainees via test sets
Author(s): **Phuong Dung Trieu**, **Somphone Siviengphanom**, **Melissa Barron, Sarah Lewis,** The Univ. of Sydney (Australia)

Coffee Break 03:20 PM - 03:50 PM

SESSION 6: TECHNOLOGY ASSESSMENT AND STATISTICS

21 February 2024 • 03:50 PM - 05:30 PM | Palm 4
Session Chair(s): **Stephen L. Hillis**, The Univ. of Iowa (United States); **Frank W. Samuelson**, U.S. Food and Drug Administration (United States)

12929-25 • 03:50 PM - 04:10 PM
Unsupervised deep learning for the matching of vascular anatomy in multiple digital subtraction angiograms
Author(s): **Rosa Kraaijveld,** Univ. Medical Ctr. Utrecht (Netherlands); **Bas van der Velden,** Wageningen Food Safety Research (Netherlands), Univ. Medical Ctr. Utrecht (Netherlands); **Roger Goldman,** UC Davis Medical Ctr. (United States)

12929-26 • 04:10 PM - 04:30 PM
Can patient-specific acquisition protocol improve performance on defect detection task in myocardial perfusion SPECT?
Author(s): **Md Ashequr Rahman**, **Nuri Choi**, **Zitong Yu**, **Barry A. Siegel, Abhinav K. Jha,** Washington Univ. in St. Louis (United States)

12929-27 • 04:30 PM - 04:50 PM
Use of equivalent relative utility to evaluate artificial intelligence-based rule-out devices
Author(s): **Kwok Lung Fan**, **Yee Lam Elim Thompson**, **Weijie Chen,** U.S. Food and Drug Administration (United States); **Craig K. Abbey,** Univ. of California, Santa Barbara (United States); **Frank W. Samuelson,** U.S. Food and Drug Administration (United States)

12929-28 • 04:50 PM - 05:10 PM
An alternative parameterization for the binormal ROC curve, with applications to sizing and simulation studies
Author(s): **Stephen L. Hillis,** The Univ. of Iowa (United States)

12929-29 • 05:10 PM - 05:30 PM
A bivariate binormal model for modelling double reading of screening mammograms
Author(s): **Craig K. Abbey,** Univ. of California, Santa Barbara (United States); **Jessie J. J. Gommers,** Radboud Univ. Medical Ctr. (Netherlands); **Miguel P. Eckstein,** Univ. of California, Santa Barbara (United States); **Mireille J. M. Broeders,** Dutch Expert Ctr. for Screening (LRCB) (Netherlands); **Ioannis Sechopoulos,** Radboud Univ. Medical Ctr. (Netherlands)

POSTERS - WEDNESDAY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/wednesday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 5:00 PM Tuesday – 5:00 PM Wednesday

- In order to be considered for a poster award, it is recommended to have your poster set up by 12:00 PM Wednesday. Judging may begin after this time. Posters must remain on display until the end of the Wednesday evening poster session, but may be left hanging until 1:00 PM Thursday. After 1:00 PM, any posters left hanging will be discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

12929-36 • 05:30 PM - 07:00 PM
Stimulus design for 3D-CSF measurements and evaluation of its impact on the Human Visual System
Author(s): **Stijn Crul**, **Lode De Paepe, Tom Kimpe,** Barco N.V. (Belgium)

12929-37 • 05:30 PM - 07:00 PM
Structured radiology report text analysis using natural language processing for automatic billing
Author(s): **Nicolas Devanthery,** HES-SO Valais-Wallis (Switzerland); **Natalie Heracleous**, **Benoit Dufour**, **Jean-Daniel Fardel**, **Benoit Rizk**, **Hugues Brat**, **Cyril Thouly,** Réseau Radiologique Romand SA (Switzerland); **Henning Mueller,** HES-SO Valais-Wallis (Switzerland); **Federica Zanca,** Réseau Radiologique Romand SA (Switzerland)

12929-38 • 05:30 PM - 07:00 PM
A foveated channelized Hotelling observer model extended to anatomical liver CT images
Author(s): **Laura K. Evans,** Ctr. Hospitalier Univ. Vaudois (Switzerland), Univ. de Lausanne (Switzerland); **Craig K. Abbey**, **Devi S. Klein,** Univ. of California, Santa Barbara (United States); **François O. Bochud**, **Sabine Schmidt, Damien Racine,** Ctr. Hospitalier Univ. Vaudois, Univ. de Lausanne (Switzerland)

12929-39 • 05:30 PM - 07:00 PM
Computer vision-based guidance tool for correct radiographic hand positioning
Author(s): **Aloys Portafaix,** Concordia Univ. (Canada), Ludwig-Maximilians-Univ. München (Germany); **Paul Reidler**, **Bastian Sabel**, **Jakob Dexl**, **Katharina Jeblick**, **Andreas Mittermeier**, **Michael Ingrisch,** Ludwig-Maximilians-Univ. München (Germany); **Thomas Fevens,** Concordia Univ. (Canada)

12929-40 • 05:30 PM - 07:00 PM
Analysis of uncertainty in accuracy of the reference segmentation of ultrasound images of breast tumors
Author(s): **Lukasz Fura**, **Anna Pawlowska,** Institute of Fundamental Technological Research (Poland); **Anna Cwierz-Pienkowska**, **Agnieszka Domalik,** National Oncology Institute Maria Sklodowska-Curie - National Research Institute (Poland); **Dominika Jagus,** Institute of Fundamental Technological Research (Poland); **Piotr Kasprzak,** Lower Silesian Oncology Ctr. (Poland); **Rafal Matkowski,** Wroclaw Medical Univ. (Poland); **Norbert Zolek,** Institute of Fundamental Technological Research (Poland)

12929-41 • 05:30 PM - 07:00 PM
Exploring a method to evaluate image-conditioned deep generative models for their capacity to reproduce domain-relevant spatial context
Author(s): **Rucha Deshpande,** Washington Univ. in St. Louis (United States); **Mark A. Anastasio, Frank J. Brooks,** Univ. of Illinois (United States)

12929-42 • 05:30 PM - 07:00 PM
AmbientCycleGAN for establishing interpretable stochastic object models based on mathematical phantoms and medical imaging measurements
Author(s): **Xichen Xu**, **Wentao Chen, Weimin Zhou,** Shanghai Jiao Tong Univ. (China)

12929-43 • 05:30 PM - 07:00 PM
Modeling decision making in breast cancer screening using deep learning: usability of a Gabor convolutional layer
Author(s): **Karthika Kelat**, **Sarah E. Gerard, Claudia Mello-Thoms,** The Univ. of Iowa (United States)

12929-44 • 05:30 PM - 07:00 PM
Can inducing optical illusions add to perceptual benefits in medical imaging?
Author(s): **Mini Das**, **Diego Andrade, Jingcheng Yuan,** Univ. of Houston (United States)

12929-45 • 05:30 PM - 07:00 PM
Deep learning-based auto-segmentation of paraganglioma for growth monitoring
Author(s): **Evi Sijben,** Ctr. Wiskunde & Informatica (Netherlands); **Jeroen Jansen,** Leiden Univ. Medical Ctr. (Netherlands); **Mischa de Ridder,** Univ. Medical Ctr. Utrecht (Netherlands); **Peter Bosman,** Ctr. Wiskunde & Informatica (Netherlands); **Tanja Alderliesten,** Leiden Univ. Medical Ctr. (Netherlands)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 7: TECHNOLOGY ASSESSMENT II

22 February 2024 • 10:30 AM - 12:10 PM | Palm 4
Session Chair(s): **Claudia R. Mello-Thoms**, Univ. Iowa Carver College of Medicine (United States); **Miguel A. Lago**, U.S. Food and Drug Administration (United States)

12929-30 • 10:30 AM - 10:50 AM
Understanding the generalizability of a convolutional neural network-based model observer for breast tomosynthesis images with different volume glandular fractions
Author(s): **Hanjoo Jang, Jongduk Baek,** Yonsei Univ. (Korea, Republic of)

12929-31 • 10:50 AM - 11:10 AM
3D echocardiogram visualization: a new method based on "focus + context"
Author(s): **Samuelle St-Onge,** Ecole de Technologie Supérieure (Canada); **Silvani D. Amin**, **Alana R. Cianciulli**, **Matthew A. Jolley,** The Children's Hospital of Philadelphia (United States); **Simon Drouin,** Ecole de Technologie Supérieure (Canada)

12929-32 • 11:10 AM - 11:30 AM
SkinSAM: adapting the segmentation anything model for skin cancer segmentation
Author(s): **Mingzhe Hu**, **Yuheng Li, Xiaofeng Yang,** Emory Univ. (United States)

12929-34 • 11:30 AM - 11:50 AM
Image texture-based classification methods to mimic perceptual models of search and localization in medical images
Author(s): **Diego Andrade**, **Howard C. Gifford, Mini Das,** Univ. of Houston (United States)

12929-35 • 11:50 AM - 12:10 PM
How accurately can quantitative imaging methods be ranked without ground truth: an upper bound on no-gold-standard evaluation
Author(s): **Yan Liu, Abhinav K. Jha,** Washington Univ. in St. Louis (United States)

DIGITAL POSTERS

On Demand

The posters listed below are available exclusively for online viewing during the week of SPIE Medical Imaging 2024.

12929-5 • -

The performance of breast screening readers in a specificity-focused test set-based assessment scheme in a national breast screening programme

Author(s): **Eleni Michalopoulou**, **Iain Darker, Yan Chen,** The Univ. of Nottingham (United Kingdom)

CONFERENCE 12930

Clinical and Biomedical Imaging

20 - 22 February 2024 | Palm 7

Conference Chair(s): **Barjor S. Gimi,** Univ. of Massachusetts Chan Medical School (United States); **Andrzej Krol,** SUNY Upstate Medical Univ. (United States)

Program Committee: **Amir A. Amini,** Univ. of Louisville (United States); **Cristian T. Badea,** Duke Univ. School of Medicine (United States); **Nancy L. Ford,** The Univ. of British Columbia (Canada); **William E. Higgins,** The Pennsylvania State Univ. (United States); **Ciprian N. Ionita,** SUNY Univ. at Buffalo (United States); **Vikram Kodibagkar,** Arizona State Univ. (United States); **Changqing Li,** Univ. of California, Merced (United States); **Armando Manduca,** Mayo Clinic College of Medicine (United States); **Sunitha Thakur,** (); **John B. Weaver,** Dartmouth Hitchcock Medical Ctr. (United States); **David L. Wilson,** Case Western Reserve Univ. (United States); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States); **Baohong Yuan,** The Univ. of Texas at Arlington (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:40 AM

SESSION 1: SOFT TISSUE AND BONE IMAGING

20 February 2024 • 10:40 AM - 11:25 AM | Palm 7
Session Chair(s): **Axel Wismüller**, Univ. of Rochester Medical Ctr. (United States)

12930-1 • 10:40 AM - 10:55 AM
Deep learning-based head and neck segmentation in CT angiography
Author(s): **Prakhar Prakash**, **Theodore Colwell**, **Mara Noskowiak**, **Michail Fanariotis, Sandeep Dutta,** GE HealthCare (United States)

12930-2 • 10:55 AM - 11:10 AM
Quantitative trabecular bone morphometry using photon-counting CT
Author(s): **Gengxin Shi**, **Aswath Sivakumar,** Johns Hopkins Univ. (United States); **Ehsan Abadi,** Duke Univ. (United States); **Fernando Quevedo-González**, **Ryan Breighner**, **John Carrino,** Hospital for Special Surgery (United States); **Jeffrey H. Siewerdsen,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Wojciech Zbijewski,** Johns Hopkins Univ. (United States)

12930-3 • 11:10 AM - 11:25 AM
An in silico generative trabecular bone model for radiomic analysis of bone health
Author(s): **Qian Cao,** U.S. Food and Drug Administration (United States); **Gengxin Shi,** Johns Hopkins Univ. (United States); **Andrew Wang**, **Sriharsha Marupudi**, **Ravi Samala,** U.S. Food and Drug Administration (United States); **Wojciech Zbijewski,** Johns Hopkins Univ. (United States); **Nicholas Petrick,** U.S. Food and Drug Administration (United States)

SESSION 2: VESSEL AND AIRWAY IMAGING

20 February 2024 • 11:25 AM - 12:10 PM | Palm 7
Session Chair(s): **David L. Wilson**, Case Western Reserve Univ. (United States); **William E. Higgins**, The Pennsylvania State Univ. (United States)

12930-4 • 11:25 AM - 11:40 AM
Deep learning-based automated lung tumor segmentation in mouse preclinical micro-CT scans with limited annotations
Author(s): **Gain Robinson**, **Lin Li**, **Yimin Zhu**, **Rachel DuPont**, **Laura Engstrom**, **Laxminarayan G. Hegde**, **Jie Zhang-Hoover**, **Kimberly Bettano, Antong Chen,** Merck & Co., Inc. (United States)

12930-5 • 11:40 AM - 11:55 AM
Translating non-contrast CT calcium score images to virtual CCTA to aid segmentation of coronary arteries and myocardium
Author(s): **Hao Wu**, **Yingnan Song**, **Ammar Hoori**, **Ananya Subramaniam**, **Juhwan Lee**, **Justin Kim,** Case Western Reserve Univ. (United States); **Sadeer Al-Kindi,** Univ. Hospitals Cleveland Medical Ctr. (United States); **Chun-Ho Yun,** Mackay Memorial Hospital (Taiwan); **Sanjay Rajagopalan,** Univ. Hospitals Cleveland Medical Ctr. (United States); **David Wilson,** Case Western Reserve Univ. (United States)

12930-6 • 11:55 AM - 12:10 PM
3D rendering and analysis of dermal backflow as an early indicator of cancer-acquired lymphedema using RGB-D and Near-infrared fluorescence lymphatic imaging
Author(s): **Sara Bouhali**, **Fatima A. Merchant,** Univ. of Houston (United States); **Ron J. Karni**, **Carolina Gutierrez, John C. Rasmussen,** The Univ. of Texas Health Science Ctr. at Houston (United States)

Lunch Break 12:10 PM - 01:30 PM

SESSION 3: CARDIAC STRUCTURE AND FUNCTION

20 February 2024 • 01:30 PM - 03:00 PM | Palm 7
Session Chair(s): **Amir A. Amini**, Univ. of Louisville (United States); **Ciprian N. Ionita**, Univ. at Buffalo (United States)

12930-7 • 01:30 PM - 01:45 PM
A denoising diffusion fluid flow generative model for stenotic pipe flows
Author(s): **Aryan Ghazipour**, **Amirkhosro Kazemi, Amir Amini,** Univ. of Louisville (United States)

12930-8 • 01:45 PM - 02:00 PM
First in-vivo demonstration of 1000fps High Speed Coronary Angiography (HSCA) in a swine animal model
Author(s): **Swetadri Vasan Setlur Nagesh**, **Emily Vanderbilt**, **Carmon Koenigsknecht**, **Donald Pionessa,** Canon Stroke and Vascular Research Ctr. (United States); **Venkat Keshav Chivukula,** Florida Institute of Technology (United States); **Ciprian N. Ionita**, **David M Zlotnick**, **Daniel R. Bednarek, Stephen Rudin,** Canon Stroke and Vascular Research Ctr. (United States)

12930-9 • 02:00 PM - 02:15 PM
Deep learning-based epicardial adipose tissue measurement, maximizing prognostic information from attenuation correction imaging
Author(s): **Aakash Dhananjay Shanbhag**, **Robert J. H. Miller**, **Aditya Killekar**, **Mark Lemley**, **Bryan Bednarski**, **Serge D. Van Kriekinge**, **Paul Kavanagh,** Cedars-Sinai Medical Ctr. (United States); **Attila Feher**, **Edward J. Miller,** Yale School of Medicine (United States); **Timothy Bateman,** Cardiovascular Imaging Technologies, LLC (United States); **Joanna X. Liang**, **Valerie Builoff**, **Daniel Berman**, **Damini Dey, Piotr Slomka,** Cedars-Sinai Medical Ctr. (United States)

12930-10 • 02:15 PM - 02:30 PM
Prediction of major adverse cardiovascular events using comprehensive AI analysis of calcifications and fat depots in CT calcium score images
Author(s): **Ammar Hoori**, **Joshua Freeze**, **Prerna Singh**, **Tao Hu**, **Yingnan Song**, **Hao Wu**, **Juhwan Lee**, **Shuo Li,** Case Western Reserve Univ. (United States); **Robert Gilkeson,** Univ. Hospitals of Cleveland (United States); **Sadeer Al-Kindi**, **Sanjay Rajagopalan,** Univ. Hospitals Cleveland Medical Ctr. (United States); **David L. Wilson,** Case Western Reserve Univ. (United States)

12930-11 • 02:30 PM - 02:45 PM
Cardiovascular risk from the fat around the heart
Author(s): **Tao Hu**, **Ammar Hoori**, **Juhwan Lee**, **Justin Kim**, **Yingnan Song**, **Hao Wu,** Case Western Reserve Univ. (United States); **Sadeer Al-Kindi**, **Sanjay Rajagopalan,** Univ. Hospitals of Cleveland (United States); **David L. Wilson,** Case Western Reserve Univ. (United States)

12930-12 • 02:45 PM - 03:00 PM
Deep learning based whole heart segmentation from CT images
Author(s): **Yunfeng Li**, **Sandeep Dutta, Amy Deubig,** GE HealthCare (United States)

Coffee Break 03:00 PM - 03:20 PM

SESSION 4: IMAGE PROCESSING, DETECTION, SEGMENTATION, REGISTRATION, AND ANALYSIS

20 February 2024 • 03:20 PM - 05:35 PM | Palm 7
Session Chair(s): **David L. Wilson**, Case Western Reserve Univ. (United States); **Cristian T. Badea**, Duke Univ. School of Medicine (United States)

12930-13 • 03:20 PM - 03:35 PM
Propensity-matching of patients from a large database of CT calcium score images reveals a distinct coronary calcification profile in diabetes mellitus
Author(s): **Prerna Singh**, **Ammar Hoori**, **Joshua Freeze,** Case Western Reserve Univ. (United States); **Sadeer Al-Kindi**, **Sanjay Rajagopalan,** Univ. Hospitals of Cleveland (United States); **David L. Wilson,** Case Western Reserve Univ. (United States)

12930-14 • 03:35 PM - 03:50 PM
Whole heart CNN-based segmentation for phenotypical analysis of APOE mouse models using photon counting cine cardiac micro-CT data
Author(s): **Alex J. Allphin**, **Rohan Nadkarni,** Duke Univ. School of Medicine (United States); **Zay Han**, **Darin P. Clark**, **Alexandra Badea, Cristian T. Badea,** Duke Univ. Medical Ctr. (United States)

12930-15 • 03:50 PM - 04:05 PM
Anatomical structure-constrained thrombosis region segmentation and measurement using confocal laser scanning microscopic images
Author(s): **Cheng Wang**, **Yunheng Wu**, **Yuichiro Hayashi**, **Masahiro Oda,** Nagoya Univ. (Japan); **Shuntaro Kawamura**, **Takanori Takebe,** Tokyo Medical and Dental Univ. (Japan); **Kensaku Mori,** Nagoya Univ. (Japan)

12930-16 • 04:05 PM - 04:20 PM
Segmentation of catheter tubes and lines in chest x-rays using deep learning models
Author(s): **Akhil Kasturi**, **Ali Vosoughi**, **Nathan Hadjiyski,** Univ. of Rochester (United States); **Larry Stockmaster,** Univ. of Rochester Medical Ctr. (United States); **William Sehnert,** Carestream Health, Inc. (United States); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States)

12930-17 • 04:20 PM - 04:35 PM
Wavelet based harmonization of local and global model shifts in federated learning for histopathological images
Author(s): **Walia Farzana**, **Ahmed Temtam, Khan M. Iftekharuddin,** Old Dominion Univ. (United States)

12930-18 • 04:35 PM - 04:50 PM
Enhancing hierarchical transformers for whole brain segmentation with intracranial measurements integration
Author(s): **Xin Yu**, **Yucheng Tang**, **Qi Yang**, **Ho Hin Lee**, **Shunxing Bao**, **Yuankai Huo, Bennett A. Landman,** Vanderbilt Univ. (United States)

12930-19 • 04:50 PM - 05:05 PM
Classification of endotracheal tube position in chest x-rays images
Author(s): **Akhil Kasturi**, **Ali Vosoughi**, **Nathan Hadjiyski,** Univ. of Rochester (United States); **Larry Stockmaster,** Univ. of Rochester Medical Ctr. (United States); **William Sehnert,** Carestream Health, Inc. (United States); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States)

12930-20 • 05:05 PM - 05:20 PM
Classifying chronic obstructive pulmonary disease using computed tomography imaging and 2D and 3D convolutional neural networks
Author(s): **Sara Rezvanjou,** Toronto Metropolitan Univ. (Canada); **Amir Moslemi,** Sunnybrook Health Sciences Ctr. (Canada); **Wan-Cheng Tan-Hogg,** Ctr. for Heart Lung Innovation (Canada), The Univ. of British Columbia (Canada); **Jim Hogg,** Ctr. for Heart Lung Innovation (Canada); **Jean Bourbeau,** Royal Victoria Hospital (Canada); **Miranda Kirby,** Toronto Metropolitan Univ. (Canada)

12930-21 • 05:20 PM - 05:35 PM
Volumetric brain region segmentation and morphometry in mouse models using high-resolution hybrid micro-CT imaging
Author(s): **Rohan Nadkarni**, **Zay Y. Han**, **Robert J. Anderson**, **Alex J. Allphin**, **Darin P. Clark**, **Alexandra Badea, Cristian T. Badea,** Duke Univ. School of Medicine (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:40 AM

SESSION 5: FUNCTIONAL NEUROIMAGING AND BRAIN MAPPING

21 February 2024 • 10:40 AM - 11:25 AM | Palm 7
Session Chair(s): **Axel Wismüller**, Univ. of Rochester Medical Ctr. (United States); **Ciprian N. Ionita**, Univ. at Buffalo (United States)

12930-22 • 10:40 AM - 10:55 AM
Enhancing graph attention neural network performance for marijuana consumption classification through large-scale Augmented Granger Causality (lsAGC) analysis of functional MR images
Author(s): **Ali Vosoughi**, **Akhil Kasturi,** Univ. of Rochester (United States); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States)

12930-23 • 10:55 AM - 11:10 AM
Controllability and robustness of functional and structural connectomic networks in dementia
Author(s): **Kevin Mueller**, **Anke Meyer-Baese**, **Uwe Meyer-Baese,** Florida State Univ. (United States); **Diana A Bistrian,** University Politehnica Timisoara (Romania); **Andreas Stadlbauer,** University of Erlangen-Nuremberg (Germany); **Hagen Malberg,** Dresden University of Technolog (Germany); **Elena Doering,** German Ctr. for Neurodegenerative Diseases e.V. (Germany)

12930-24 • 11:10 AM - 11:25 AM
Investigating interactions between subcortical structure, fMRI vigilance signals, and cognition in healthy and pathological aging
Author(s): **Kate Wang**, **Sarah Goodale**, **Derek Doss,** Vanderbilt Univ. (United States); **Deepak Gupta**, **Katherine Gifford**, **Kimberly Pechman**, **Timothy Hohman,** Vanderbilt Univ. Medical Ctr. (United States); **Dario Englot,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States); **Angela Jefferson,** Vanderbilt Univ. Medical Ctr. (United States); **Catie Chang,** Vanderbilt Univ. (United States)

SESSION 6: MAGNETIC RESONANCE IMAGING (MRI): METHODS DEVELOPMENT, MRI QUANTITATION

21 February 2024 • 11:25 AM - 12:10 PM | Palm 7
Session Chair(s): **Barjor Sohrab Gimi**, Univ. of Massachusetts Chan Medical School (United States)

12930-25 • 11:25 AM - 11:40 AM
MRI data consistency guided conditional diffusion probabilistic model for MR imaging acceleration
Author(s): **Mojtaba Safari,** Univ. Laval (Canada); **Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States); **Ali Fatemi,** Jackson State Univ. (United States), Merit Health Central (United States)

12930-26 • 11:40 AM - 11:55 AM
Pipeline for automatic segmentation of multiparametric MRI data in a rat model of ischemic stroke
Author(s): **Duoyao Liang,** CarMeN Lab. (France), Institut National des Sciences Appliquées de Lyon (France), Univ. Claude Bernard Lyon 1 (France); **Marlène Wiart,** CarMeN Lab. (France), Univ. Claude Bernard Lyon 1 (France); **Fabien Chauveau,** Ctr. de Recherche en Neurosciences de Lyon (France); **Thomas Grenier,** CREATIS (France), Institut National des Sciences Appliquées de Lyon (France), Univ. Jean Monnet Saint-Etienne (France)

12930-27 • 11:55 AM - 12:10 PM
Efficient post-processing of diffusion tensor cardiac magnetic imaging using texture-conserving deformable registration
Author(s): **Fanwen Wang,** Imperial College London (United Kingdom), Royal Brompton Hospital (United Kingdom); **Pedro F. Ferreira,** Royal Brompton Hospital (United Kingdom), Imperial College London (United Kingdom); **Yinzhe Wu**, **Camila Munoz**, **Ke Wen**, **Yaqing Luo**, **Jiahao Huang,** Imperial College London (United Kingdom), Royal Brompton Hospital (United Kingdom); **Dudley Pennell**, **Andrew D. Scott**, **Sonia Nielles-Vallespin,** Royal Brompton Hospital (United Kingdom), Imperial College London (United Kingdom); **Guang Yang,** Imperial College London (United Kingdom), Royal Brompton Hospital (United Kingdom)

Lunch Break 12:10 PM - 01:30 PM

SESSION 7: PRECLINICAL, CLINICAL IMAGING, AND CO-CLINICAL IMAGING

21 February 2024 • 01:30 PM - 03:15 PM | Palm 7
Session Chair(s): **Cristian T. Badea**, Duke Univ. School of Medicine (United States)

12930-28 • 01:30 PM - 01:45 PM
Evaluation of deep learning frameworks coupled with an interactive user interface to predict clinical complications after aneurysmal subarachnoid hemorrhage
Author(s): **Rowzat Faiz**, **Gopichandh Danala,** The Univ. of Oklahoma (United States); **Bappaditya Ray,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Warid Islam, David Ebert,** The Univ. of Oklahoma (United States)

12930-29 • 01:45 PM - 02:00 PM
Enhancing in vivo preclinical studies with VivoVist™ and photon-counting micro-CT imaging
Author(s): **Cristian T. Badea**, **Ashlyn Rickard**, **Alex Allphin**, **Darin P. Clark,** Duke Univ. School of Medicine (United States); **Ketan B. Ghaghada,** Texas Children's Hospital (United States); **S. Ridwan**, **Henry M. Smilowitz,** Univ. of Connecticut Health Ctr. (United States); **James Hainfeld,** Nanoprobes, Inc. (United States); **Yvonne M. Mowery,** Duke Univ. (United States)

12930-30 • 02:00 PM - 02:15 PM
Gastro-intestinal lesion segmentation using deep learning: organ-based versus whole-body training
Author(s): **Mahsa Torkaman**, **Skander Jemaa**, **Jill Fredrickson,** Genentech, Inc. (United States); **Alexandre F. Coimbra,** Genetech, Inc. (United States); **Richard A. D. Carano,** Genentech, Inc. (United States), F. Hoffman-La Roche Ltd. (Switzerland)

12930-31 • 02:15 PM - 02:30 PM
Development of an inflatable murine lung phantom for phase-contrast and darkfield imaging
Author(s): **Serena Q. Z. Shi**, **Austin Zhuang, Peter B. Noël,** Univ. of Pennsylvania (United States)

12930-32 • 02:30 PM - 02:45 PM
Hypoplasia of the S1 vertebral body (pseudoretrolisthesis) and its association with early degenerative disc disease at the L5-S1 level
Author(s): **Barjor S. Gimi,** Tufts Medical Ctr. (United States)

12930-33 • 02:45 PM - 03:00 PM
A hyperspectral surgical microscope with super-resolution reconstruction for intraoperative image guidance
Author(s): **Ling Ma**, **Kelden T. Pruitt, Baowei Fei,** The Univ. of Texas at Dallas (United States)

12930-34 • 03:00 PM - 03:15 PM
Lung lesion segmentation of CT scans after SARS-CoV-2 infection: combining nonhuman primate with human data for inter-species transfer learning
Author(s): **Linh Shinguyen**, **Winston Chu,** National Institute of Allergy and Infectious Diseases (United States); **Mark Rustad**, **Ashkan Malayeri**, **Maryam Homayounieh,** Ctr. for Infectious Disease Imaging, Radiology and Imaging Sciences (United States), National Institutes of Health (United States); **Shiva Singh,** Ctr. for Infectious Disease Imaging, Radiology, and Imaging Sciences (United States), National Institutes of Health (United States); **Claudia Calcagna**, **Philip Sayre,** National Institute of Allergy and Infectious Diseases (United States); **Ian Crozier,** Frederick National Lab. for Cancer Research (United States); **Gabriella Worwa**, **Jens H. Kuhn,** National Institute of Allergy and Infectious Diseases (United States); **Bradford Wood,** National Institutes of Health (United States); **Marcelo Castro,** National Institute of Allergy and Infectious Diseases (United States); **Jeffrey Solomon,** Frederick National Lab. for Cancer Research (United States)

Coffee Break 03:15 PM - 03:45 PM

SESSION 8: NOVEL MOLECULAR AND FUNCTIONAL IMAGING TECHNOLOGIES

21 February 2024 • 03:45 PM - 05:15 PM | Palm 7
Session Chair(s): **Andrzej Krol**, SUNY Upstate Medical Univ. (United States); **Changqing Li**, Univ. of California, Merced (United States)

12930-35 • 03:45 PM - 04:00 PM
Comparing x-ray fluorescence emission tomography and computed tomography: contrast-to-noise ratios in a numerical mouse phantom
Author(s): **Hadley A. DeBrosse**, **Giavanna Jadick,** The Univ. of Chicago (United States); **Ling Jian Meng,** Univ. of Illinois (United States); **Patrick J. La Riviere,** The Univ. of Chicago (United States)

12930-36 • 04:00 PM - 04:15 PM
Simulation study of Compton scatter recovery in an ultra-high-performance brain PET scanner with "onion ring" geometry
Author(s): **Andrzej Krol,** SUNY Upstate Medical Univ. (United States); **Eric S. Harmon,** LightSpin Technologies, Inc. (United States); **Michael O. Thompson,** Cornell Univ. (United States); **C. Ross Schmidtlein,** Memorial Sloan-Kettering Cancer Ctr. (United States)

12930-37 • 04:15 PM - 04:30 PM
Quantitative Study of X-ray Luminescence Computed Tomography
Author(s): **Yile Fang**, **Yibing Zhang, Changqing Li,** Univ. of California, Merced (United States)

12930-38 • 04:30 PM - 04:45 PM
Graph attention transformers and large-scale granger causality to classify marijuana consumption from functional MR images
Author(s): **Ali Vosoughi**, **Akhil Kasturi,** Univ. of Rochester (United States); **Axel Wismüller,** Univ. of Rochester Medical Ctr. (United States)

12930-39 • 04:45 PM - 05:00 PM
Raman microspectroscopy imaging revealed the spatial distribution of ω-3 and ω-6 fatty acids in white adipose tissues
Author(s): **Elnaz Sheikh**, **Qianglin Liu**, **Xing Fu, Manas R. Gartia,** Louisiana State Univ. (United States)

12930-40 • 05:00 PM - 05:15 PM
Cluster synchronization in fractional-order dynamic dementia networks
Author(s): **Kevin Mueller**, **Anke Meyer-Baese,** Florida State Univ. (United States); **Elena Doering,** German Ctr. for Neurodegenerative Diseases e.V. (Germany)

POSTERS - WEDNESDAY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/wednesday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 5:00 PM Tuesday – 5:00 PM Wednesday

- In order to be considered for a poster award, it is recommended to have your poster set up by 12:00 PM Wednesday. Judging may begin after this time. Posters must remain on display until the end of the Wednesday evening poster session, but may be left hanging until 1:00 PM Thursday. After 1:00 PM, any posters left hanging will be discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

12930-47 • 05:30 PM - 07:00 PM
Plasmonic polarization-contrast imaging og aqueous solutions using two-dimensional metallic surface relief gratings
Author(s): **Yevgeniy Mikhyeyev, Ribal Georges Sabat,** Royal Military College of Canada (Canada)

12930-48 • 05:30 PM - 07:00 PM
Generation of IVIM parametric images using a kernelized total difference–based method
Author(s): **Hsuan-Ming Huang,** National Taiwan Univ. (Taiwan)

12930-49 • 05:30 PM - 07:00 PM
The use of thermal imaging for breast cancer detection
Author(s): **Ashwani Kumar,** Sant Longowal Institute of Engineering and Technology (India)

12930-50 • 05:30 PM - 07:00 PM
Interactive analysis system for narrow-band imaging bronchoscopy
Author(s): **Vahid Daneshpajooh,** The Pennsylvania State Univ. (United States); **Danish Ahmad**, **Jennifer Toth**, **Rebecca Bascom,** Penn State College of Medicine (United States); **William E. Higgins,** The Pennsylvania State Univ. (United States)

12930-51 • 05:30 PM - 07:00 PM
Information maximized U-Nets for vestibular schwannoma segmentation using MRI with missing modality
Author(s): **Mojtaba Safari,** Univ. Laval (Canada), Ctr. Intégré de Cancérologie (Canada), Ctr. de Recherche sur le Cancer (Canada); **Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States); **Ali Fatemi,** Jackson State Univ. (United States), Merit Health Central (United States)

12930-52 • 05:30 PM - 07:00 PM
Low-dimensional representation of fMRI disentangles temporal contributions of EEG-determined vigilance from other global effects

Author(s): **Haatef Pourmotabbed**, **Achyuth Vivek**, **Caroline G. Martin**, **Sarah E. Goodale**, **Shiyu Wang,** Vanderbilt Univ. (United States); **Victoria L. Morgan**, **Dario J. Englot,** Vanderbilt Univ. Medical Ctr. (United States); **Catie Chang,** Vanderbilt Univ. (United States)

12930-53 • 05:30 PM - 07:00 PM
Weakly supervised detection of cell activation
Author(s): **Zhilin Zou**, **Kicheon Park**, **Jiaxiang Ren**, **Wensheng Cheng**, **Sophia Liu**, **Yingtian Pan**, **Congwu Du, Haibin Ling,** Stony Brook Univ. (United States)

12930-55 • 05:30 PM - 07:00 PM
Translating the future: image-to-image translation for the prediction of future brain metabolism
Author(s): **Elena Doering,** German Ctr. for Neurodegenerative Diseases e.V. (Germany), Univ. zu Köln (Germany); **Merle Hönig,** Forschungszentrum Jülich GmbH (Germany); **Tobias Deußer,** Fraunhofer-Institut für Intelligente Analyse- und Informationssysteme IAIS (Germany), Rheinische Friedrich-Wilhelms-Univ. Bonn (Germany); **Gérard Bischof**, **Thilo van Eimeren**, **Alexander Drzezga,** Univ. zu Köln (Germany); **Lotta M. Ellingsen,** University of Iceland, Haskoli Islands (Iceland)

12930-56 • 05:30 PM - 07:00 PM
Demonstration of 1000 fps high-speed angiography (HSA) in pre-clinical in-vivo rabbit aneurysm models during flow-diverter treatment
Author(s): **Emily A. Vanderbilt**, **Carmon Koenigsknecht**, **Donald Pionessa**, **Ciprian N. Ionita**, **Daniel R. Bednarek**, **Stephen Rudin, Swetadri V. S. Nagesh,** Canon Stroke and Vascular Research Ctr. (United States), Univ. at Buffalo (United States)

12930-57 • 05:30 PM - 07:00 PM
Associations between small vessel function and progressive white matter injury in CADASIL using advanced 7T MRI
Author(s): **Stanley Pham,** Univ. Medical Ctr. Utrecht (Netherlands); **Hilde van den Brink,** Massachusetts General Hospital (United States); **Anna Kopczak,** Ludwig-Maximilians-Univ. München (Germany); **Alberto de Luca**, **Jaco J. M. Zwanenburg**, **Nikki Dieleman,** Univ. Medical Ctr. Utrecht (Netherlands); **Marco Düring,** Ludwig-Maximilians-Univ. München (Germany); **Geert J. Biessels,** Univ. Medical Ctr. Utrecht (Netherlands); **Martin Dichgans,** Ludwig-Maximilians-Univ. München (Germany); **Jeroen C. W. Siero,** Univ. Medical Ctr. Utrecht (Netherlands)

12930-58 • 05:30 PM - 07:00 PM
SegmentAnything helps microscopy images based on automatic and quantitative organoid detection and analysis
Author(s): **Xiaodan Xing,** National Heart and Lung Institute (United Kingdom); **Chunling Tang**, **Yunzhe Guo,** King's College London (United Kingdom); **Nicholas Kurniawan,** Technische Univ. Eindhoven (Netherlands); **Guang Yang,** Imperial College London (United Kingdom)

12930-59 • 05:30 PM - 07:00 PM
Data-efficient segmentation of coronary arteries for pericoronary adipose tissue analysis using self-supervised learning
Author(s): **Justin N. Kim**, **Juhwan Lee**, **Yingnan Song**, **Ananya Subramaniam**, **Hao Wu**, **Naomi M. Joseph,** Case Western Reserve Univ. (United States); **Mohamed H. E. Makhlouf**, **Neda Shafiabadi**, **Sadeer Al-Kindi,** Univ. Hospitals Cleveland Medical Ctr. (United States); **David L. Wilson,** Case Western Reserve Univ. (United States)

12930-61 • 05:30 PM - 07:00 PM
A histogram matching based approach to improve the robustness of deep learning medical image segmentation
Author(s): **Hossam Elkady**, **Ahmed Ayyad**, **Mohmaed Nabil, Ayman El-Ghotni,** Brightskies Inc. (Egypt)

12930-64 • 05:30 PM - 07:00 PM
A pipeline for importing detailed lung models into electrical impedance tomography software
Author(s): **Andrew S. Creegan**, **Merryn H. Tawhai, Poul M. F. Nielsen,** The Univ. of Auckland (New Zealand)

12930-65 • 05:30 PM - 07:00 PM
High-efficiency diffusion denoising probabilistic model for synthesizing full-dose PET from low-dose PET
Author(s): **Shaoyan Pan**, **Elham Abouei**, **Junbo Peng**, **Josh Qian**, **Jacob F. Wynne,** Emory Univ. (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Chih-Wei Chang**, **Justin Roper,** Emory Univ. (United States); **Jonathon A. Nye,** Medical Univ. of South Carolina (United States); **Hui Mao, Xiaofeng Yang,** Emory Univ. (United States)

12930-66 • 05:30 PM - 07:00 PM
Supervised and semi-supervised methods of nematode images classification for drug discovery
Author(s): **Lyuyang Wang**, **Sommer Chou**, **Gerry Wright**, **Lesley MacNeil, Mehdi Moradi,** McMaster Univ. (Canada)

12930-67 • 05:30 PM - 07:00 PM
Using diffusion model to generate high-resolution MRI
Author(s): **Chih-Wei Chang**, **Shaoyan Pan**, **Junbo Peng**, **Elahheh Salari**, **Justin Roper**, **Richard Qiu**, **Yuan Gao,** The Winship Cancer Institute of Emory Univ. (United States); **Tian Liu,** The Mount Sinai Medical Ctr. (United States); **Hui-Kuo Shu**, **Hui Mao, Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

12930-68 • 05:30 PM - 07:00 PM
Predicting glioma IDH mutation using multi-parametric MRI and fractal analysis
Author(s): **Brandon Qi,** Davis Senior High School (United States); **Jinyi Qi,** Univ. of California, Davis (United States)

12930-70 • 05:30 PM - 07:00 PM
Anatomic attention regions via optimal anatomy modeling and recognition for DL-based image segmentation
Author(s): **Yadavendra Nln**, **Jayaram K. Udupa**, **Dewey Odhner,** Univ. of Pennsylvania (United States); **Tiange Liu,** Yanshan Univ. (China); **Yubing Tong, Drew Torigian,** Univ. of Pennsylvania (United States)

12930-71 • 05:30 PM - 07:00 PM
Diaphragm motion and shape as a function of the scoliotic spinal curve in thoracic insufficiency syndrome (TIS)
Author(s): **Wenjuan Tan,** Medical Image Processing Group (United States), Dept. of Mechanical Engineering (China); **Jayaram K. Udupa**, **Yubing Tong**, **Caiyun Wu**, **Mahdie Hosseini**, **Mostafa Al-Noury**, **Shiva Shaghaghi,** Medical Image Processing Group (United States); **Joseph M. McDonough**, **Samantha Gogel**, **David M. Biko**, **Oscar H. Mayer**, **Jason B. Anari,** The Wyss/Campbell Ctr. for Thoracic Insufficiency Syndrome (United States), The Children's Hospital of Philadelphia (United States); **Drew A. Torigian,** Medical Image Processing Group (United States); **Patrick J. Cahill,** The Wyss/Campbell Ctr. for Thoracic Insufficiency Syndrome (United States), The Children's Hospital of Philadelphia (United States)

12930-72 • 05:30 PM - 07:00 PM
Automated pericardium-segmentation using an attention-based convolutional neural network
Author(s): **Abha Suntwal**, **Rahul Kumar**, **Subham Kumar,** GE HealthCare (India); **Prashanth Reddy,** Sri Sathya Sai Institute of Higher Medical Sciences (India); **Amy Deubig**, **Yunfeng Li,** GE HealthCare (United States); **Padmashree GK,** GE HealthCare (India); **Sandeep Dutta,** GE HealthCare (United States)

12930-73 • 05:30 PM - 07:00 PM
MLP-UNEXT for brain metastasis detection and segmentation in multiparametric MRI
Author(s): **Yuheng Li**, **Chih-Wei Chang, Xiaofeng Yang,** Emory Univ. (United States)

12930-74 • 05:30 PM - 07:00 PM
Active learning-based selection of diverse training data using radiomic features for optimal lung lesion segmentation in nonhuman primates
Author(s): **Mark Rustad,** Ctr. for Infectious Disease Imaging (United States), National Institutes of Health (United States); **Winston T. Chu,** National Institute of Allergy and Infectious Diseases (United States); **Syed Reza,** Ctr. for Infectious Disease Imaging (United States), National Institutes of Health (United States); **Philip J. Sayre,** National Institute of Allergy and Infectious Diseases (United States); **Ian Crozier,** Frederick National Lab. for Cancer Research (United States); **Gabriella Worwa**, **Jens H. Kuhn**, **Claudia Calcagno**, **Marcelo A. Castro,** National Institute of Allergy and Infectious Diseases (United States); **Jeffrey Solomon,** Frederick National Lab. for Cancer Research (United States)

12930-75 • 05:30 PM - 07:00 PM
Enhancing the UNet3+ architecture for deep learning segmentation of kidneys and cysts in autosomal dominant polycystic kidney disease (ADPKD)
Author(s): **Chetana Krishnan**, **Emma Schmidt**, **Ezinwanne Onuoha**, **Michal Mrug**, **Carlos E. Cardenas, Harrison Kim,** The Univ. of Alabama at Birmingham (United States)

12930-77 • 05:30 PM - 07:00 PM
A radiomics model for prediction of metastatic breast cancer progression risk
Author(s): **Qian Cao,** U.S. Food and Drug Administration (United States); **Thibaud Coroller,** Novartis Pharmaceuticals Corp. (United States); **Xin Xiong,** U.S. Food and Drug Administration (United States); **Craig Wang,** Novartis Pharmaceuticals Corp. (United States); **Tingting Hu,** U.S. Food and Drug Administration (United States); **Conor Moloney,** Novartis Pharmaceuticals Corp. (United States); **Anup Amatya**, **Chi Song**, **Ravi Samala**, **Kenny Cha**, **Nicholas Petrick, Berkman Sahiner,** U.S. Food and Drug Administration (United States)

12930-78 • 05:30 PM - 07:00 PM
Heart failure prediction from epicardial fat-omics opportunistically derived from screening computed tomography calcium score images
Author(s): **Joshua Freeze**, **Ammar Hoori**, **Prerna Singh**, **Tao Hu,** Case Western Reserve Univ. (United States); **Robert Gilkeson**, **Sadeer Al-Kindi,** Univ. Hospitals of Cleveland (United States); **Sanjay Rajagopalan**, **Shuo Li, David L. Wilson,** Case Western Reserve Univ. (United States)

12930-79 • 05:30 PM - 07:00 PM
Cardiac MRI segmentation using SWIN-MLP mixer
Author(s): **Elham Abouei**, **Shaoyan Pan**, **Mingzhe Hu**, **Aparna H. Kesarwala**, **Jun Zhou**, **Justin Roper**, **Tian Liu, Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

12930-80 • 05:30 PM - 07:00 PM
Image-domain material decomposition for dual-energy CT using a conditional diffusion model
Author(s): **Junbo Peng**, **Chih-Wei Chang**, **Mingdong Fan,** Emory Univ. School of Medicine (United States); **Huiqiao Xie,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Justin Roper**, **Richard L. J. Qiu,** Emory Univ. School of Medicine (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Xiangyang Tang, Xiaofeng Yang,** Emory Univ. School of Medicine (United States)

12930-81 • 05:30 PM - 07:00 PM
Dose-weighted proton linear energy transfer map generation using a deep learning framework
Author(s): **Yuan Gao**, **Chih-Wei Chang**, **Shaoyan Pan**, **Junbo Peng**, **Chaoqiong Ma**, **Pretesh Patel**, **Justin Roper**, **Jun Zhou, Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

12930-82 • 05:30 PM - 07:00 PM
GAN-based motion artifact correction of 3D MR volumes using an image-to-image translation algorithm
Author(s): **Vishnu Vardhan Reddy Kanamata Reddy,** The Univ. of Texas at Dallas (United States); **Chandan Ganesh Bangalore Yogananda**, **Nghi C. D. Truong**, **Ananth J. Madhuranthakam**, **Joseph A. Maldjian,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States), The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12930-83 • 05:30 PM - 07:00 PM
Characterizing low-cost registration for photographic images to computed tomography
Author(s): **Michael E. Kim**, **Ho Hin Lee**, **Karthik Ramadass**, **Chenyu Gao,** Vanderbilt Univ. (United States); **Katherine Van Schaik**, **Eric Tkaczyk,** Vanderbilt Univ. Medical Ctr. (United States); **Jeffrey Spraggins,** Vanderbilt Univ. School of Medicine (United States); **Daniel C. Moyer,** Vanderbilt Univ. (United States); **Bennett A. Landman,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States)

12930-84 • 05:30 PM - 07:00 PM
Standardized MR nano-radiomics for early detection and amyloid burden classification in Alzheimer's disease
Author(s): **Esther Ngan,** Baylor College of Medicine (United States); **Andrew A. Badachhape**, **Eric Tanifum,** Texas Children's Hospital (United States); **Ananth Annapragada**, **Ketan B. Ghaghada, Zbigniew Starosolski,** Baylor College of Medicine (United States), Texas Children's Hospital (United States)

12930-85 • 05:30 PM - 07:00 PM
Unsupervised generation of pseudo normal PET from MRI with diffusion model for epileptic focus localization
Author(s): **Wentao Chen**, **Jiwei Li**, **Xichen Xu**, **Hui Huang**, **Siyu Yuan**, **Miao Zhang**, **Tianming Xu**, **Jie Luo, Weimin Zhou,** Shanghai Jiao Tong Univ. (China)

12930-86 • 05:30 PM - 07:00 PM
Exploratory magnetic resonance elastography synthesis from magnetic resonance and diffusion tensor imaging
Author(s): **Junyi Liu,** Johns Hopkins Univ. (United States); **Rendong Zhang,** Vanderbilt Univ. (United States); **Aaron Carass,** Johns Hopkins Univ. (United States); **Curtis Johnson,** Univ. of Delaware (United States); **Jerry Prince,** Johns Hopkins Univ. (United States); **Ahmed Alshareef A.,** Univ. of South Carolina (United States)

12930-87 • 05:30 PM - 07:00 PM
AniRes2D: anisotropic residual-enhanced diffusion for 2D MR super-resolution
Author(s): **Zejun Wu**, **Samuel W. Remedios**, **Blake E. Dewey**, **Aaron Carass, Jerry L. Prince,** Johns Hopkins Univ. (United States)

12930-88 • 05:30 PM - 07:00 PM
Nerve detection and visualization using hyperspectral imaging for surgical guidance
Author(s): **Minh Ha Tran**, **Michelle D. Bryarly**, **Ling Ma**, **Muhammad Saad Yousuf**, **Theodore J. Price, Baowei Fei,** The Univ. of Texas at Dallas (United States)

12930-89 • 05:30 PM - 07:00 PM
Synthetic contrast enhanced DECT generation using conditional-DDPM based on non-contrast single energy CT
Author(s): **Yuan Gao,** The Winship Cancer Institute of Emory Univ. (United States); **Huiqiao Xie,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Chih-Wei Chang**, **Junbo Peng**, **Jing Wang**, **Lei Qiu,** The Winship Cancer Institute of Emory Univ. (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Beth B. Ghavidel**, **Justin Roper**, **Jun Zhou, Xiaofeng Yang,** The Winship Cancer Institute of Emory Univ. (United States)

12930-90 • 05:30 PM - 07:00 PM
Heatmaps autoencoders robustly capture Alzheimer's disease's brain alterations
Author(s): **Di Wang**, **Nicolas Honnorat**, **Anoop Benet Nirmala**, **Peter Fox**, **Sudha Seshadri, Mohamad Habes,** The Univ. of Texas Health Science Ctr. at San Antonio (United States)

12930-91 • 05:30 PM - 07:00 PM
Dynamic-threshold template matching with autodidactic enhancement algorithm for ischemic myocardial scar classification
Author(s): **Michael H. Udin**, **Sara Armstrong**, **Alice Kai**, **Scott Doyle**, **Ciprian N. Ionita,** Univ. at Buffalo (United States); **Saraswati Pokharel,** Roswell Park Comprehensive Cancer Ctr. (United States); **Umesh C. Sharma,** Univ. at Buffalo (United States)

12930-92 • 05:30 PM - 07:00 PM
Learning site-invariant features of connectomes to harmonize complex network measures
Author(s): **Nancy Newlin**, **Praitayini Kanakaraj**, **Thomas Z. Li,** Vanderbilt Univ. (United States); **Timothy Hohman,** Vanderbilt Univ. Medical Ctr. (United States), Vanderbilt Univ. School of Medicine (United States); **Kimberly Pechman,** Vanderbilt Univ. Medical Ctr. (United States); **Archer Derek,** Vanderbilt Univ. Medical Ctr. (United States), Vanderbilt Univ. School of Medicine (United States); **Angela Jefferson,** Vanderbilt Univ. Medical Ctr. (United States); **Bennett A. Landman,** Vanderbilt Univ. Institute of Imaging Science (United States), Vanderbilt Univ. (United States); **Daniel Moyer,** Vanderbilt Univ. (United States)

12930-93 • 05:30 PM - 07:00 PM
Human microscopic vagus nerve anatomy using deep learning on 3D-MUSE images
Author(s): **Naomi M. Joseph**, **Chaitanya Kolluru**, **James Seckler**, **Jun Chen**, **Justin Kim**, **Michael Jenkins**, **Andrew Shofstall, David L. Wilson,** Case Western Reserve Univ. (United States)

12930-95 • 05:30 PM - 07:00 PM
Segmentation of cerebral digital subtraction angiography (DSA) images in idiopathic intracranial hypertension and venous sinus stenosis: evaluating the efficacy of the segment anything model (SAM)
Author(s): **Amirkhosro Kazemi**, **Amir A. Amini**, **MJ Negahdar, Isaac Josh Abecassis,** Univ. of Louisville (United States)

12930-96 • 05:30 PM - 07:00 PM
CDPNet: a radiomic feature learning method with epigenetic application to estimating MGMT promoter methylation status in glioblastoma
Author(s): **Jun Guo**, **Fanyang Yu**, **Maclean P. Nasrallah, Christos Davatzikos,** Univ. of Pennsylvania (United States)

12930-97 • 05:30 PM - 07:00 PM
Harmonization-enriched domain adaptation with light fine-tuning for multiple sclerosis lesion segmentation
Author(s): **Jinwei Zhang**, **Lianrui Zuo**, **Blake E. Dewey**, **Samuel W. Remedios**, **Savannah P. Hays,** Johns Hopkins Univ. (United States); **Dzung L. Pham,** Uniformed Services Univ. of the Health Sciences (United States); **Jerry L. Prince, Aaron Carass,** Johns Hopkins Univ. (United States)

12930-98 • 05:30 PM - 07:00 PM
Optimizing biomedical volume rendering: fractal dimension-based approach for enhanced performance
Author(s): **Elena Denisova, Leonardo Bocchi,** Univ. degli Studi di Firenze (Italy)

12930-99 • 05:30 PM - 07:00 PM
Self-supervised super-resolution of 2-D pre-clinical MRI acquisitions
Author(s): **Lin Guo,** Henry M. Jackson Foundation (United States); **Samuel W. Remedios,** Johns Hopkins Univ. (United States); **Alexandru Korotcov,** Henry M. Jackson Foundation (United States); **Dzung L. Pham,** Uniformed Services Univ. of the Health Sciences (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 9: BIOMECHANICAL IMAGING AND MODELING

22 February 2024 • 10:30 AM - 11:30 AM | Palm 7
Session Chair(s): **William E. Higgins**, The Pennsylvania State Univ. (United States); **Changqing Li**, Univ. of California, Merced (United States)

12930-41 • 10:30 AM - 10:45 AM
Perovskite $Cs_3Cu_2I_5$ thin film for high-resolution x-ray imaging
Author(s): **Pijush Bhattacharya**, **Bipin Singh**, **Jun Wang, Vivek Nagarkar,** Radiation Monitoring Devices, Inc. (United States)

12930-42 • 10:45 AM - 11:00 AM
Modeling of thermography limitations in solid tumor detection
Author(s): **Denis Rancourt**, **François Martel**, **Maxime Rancourt**, **Amélie Caron-Laramée, Martin Lepage,** Univ. de Sherbrooke (Canada)

12930-43 • 11:00 AM - 11:15 AM
Photon counting micro-CT imaging of Bi_2WO_6 nanoparticles
Author(s): **Cristian T. Badea,** Duke Univ. School of Medicine (United States); **Rohan Bhavane,** Texas Children's Hospital (United States), Baylor College of Medicine (United States); **Alex Allphin**, **Rohan Nadkarni**, **Darin P. Clark,** Duke Univ. School of Medicine (United States); **Ananth Annapragada, Ketan Ghaghada,** Texas Children's Hospital (United States)

12930-44 • 11:15 AM - 11:30 AM
Evaluation of aneurysm flow diverter (stent) treatment using multi-angled 1000 fps high-speed angiography (HSA) and optical flow (OF)
Author(s): **Emily Vanderbilt,** Univ. at Buffalo (United States), Canon Stroke and Vascular Research Ctr. (United States); **Ruth White,** Florida Institute of Technology (United States); **S. V. Setlur Nagesh,** Univ. at Buffalo (United States); **Venkat K. Chivukula,** Florida Institute of Technology (United States); **Daniel R. Bednarek**, **Ciprian N. Ionita,** Univ. at Buffalo (United States), Canon Vascular Stroke and Research Ctr. (United States); **Stephen Rudin,** Univ. at Buffalo (United States)

SESSION 10: OPTICAL IMAGING AND OPTICAL COHERENCE TOMOGRAPHY (OCT)

22 February 2024 • 11:30 AM - 12:00 PM | Palm 7
Session Chair(s): **Vikram D. Kodibagkar**, Arizona State Univ. (United States)

12930-45 • 11:30 AM - 11:45 AM
Semi-automatic analysis of donor cornea EC images using self-supervised learning and interactive image analysis software
Author(s): **Ved Shivade**, **Nathan Romig**, **John McCormick**, **Naomi Joseph,** Case Western Reserve Univ. (United States); **Jonathan Lass**, **Beth Benetz,** Univ. Hospitals Cleveland Medical Ctr. (United States), Case Western Reserve Univ. (United States); **David Wilson,** Case Western Reserve Univ. (United States)

12930-46 • 11:45 AM - 12:00 PM
A deep learning approach for segmentation of oral lesions in OCT
Author(s): **Chloe Hill,** BC Cancer Research Institute (Canada), Simon Fraser Univ. (Canada); **Catherine Poh**, **Calum MacAulay,** BC Cancer Research Institute (Canada), The Univ. of British Columbia (Canada); **Pierre Lane,** BC Cancer Research Institute (Canada), The Univ. of British Columbia (Canada), Simon Fraser Univ. (Canada)

DIGITAL POSTERS

On Demand
The posters listed below are available exclusively for online viewing during the week of SPIE Medical Imaging 2024.

12930-94 • -
Synthesizing fractional anisotropy maps from T1-weighted magnetic resonance images using a simplified generative adversarial network
Author(s): **Al-yhuwert Murcia Tapias,** Univ. Nacional de Colombia (Colombia); **Diana Giraldo Franco,** Univ. Nacional de Colombia (Colombia), imec (Belgium), Univ. Antwerpen (Belgium); **Eduardo Romero,** Univ. Nacional de Colombia (Colombia)

12930-62 • -
Automatic CT pulmonary artery-vein segmentation using 3D RSU and semantic embedding
Author(s): **Hao Qi**, **Ming Wu**, **Ao Wang**, **Zhiyuan Liu**, **Yinran Chen,** Xiamen Univ. (China); **Sunkui Ke,** Zhongshan Hospital Affiliated to Xiamen Univ. (China); **Zhou Chengwei,** The Affiliated Hospital of Medical School of Ningbo University (China); **Xiongbiao Luo,** Xiamen Univ. (China)

12930-63 • -
Enhanced visualisation of major blood vessels using multispectral NIR imaging for surgical safety
Author(s): **Janak Dave**, **Antony Raj**, **Preejith SP, Mohanasankar Sivaprakasam,** Healthcare Technology Innovation Ctr. (India)

12930-69 • -
Improved gastrointestinal endoscopic imaging using spectral color estimation
Author(s): **Amalan S.,** Indian Institute of Technology Madras (India), Healthcare Technology Innovation Ctr. (India); **Leenasri R.,** Healthcare Technology Innovation Ctr. (India); **Antony Raj,** Indian Institute of Technology Madras (India); **Preejith SP,** Healthcare Technology Innovation Ctr. (India); **Mohanasankar Sivaprakasam,** Indian Institute of Technology Madras (India)

CONFERENCE 12931

Imaging Informatics for Healthcare, Research, and Applications

19 - 21 February 2024 | Palm 8

Conference Chair(s): **Hiroyuki Yoshida,** Massachusetts General Hospital (United States); **Shandong Wu,** Univ. of Pittsburgh (United States)

Program Committee: **Peter R. Bak,** McMaster Univ. (Canada); **Po-Hao Chen,** Cleveland Clinic (United States); **Tessa S. Cook,** The Univ. of Pennsylvania Health System (United States); **Thomas M. Deserno,** Technische Univ. Braunschweig (Germany); **Jessica Fried,** Michigan Medicine (United States); **Steven C. Horii,** The Univ. of Pennsylvania Health System (United States); **Maria Y. Law,** Hong Kong Sanatorium and Hospital (Hong Kong, China); **Anh H. Le,** Roswell Park Comprehensive Cancer Ctr. (United States); **Heinz U. Lemke,** Computer Assisted Radiology and Surgery (Germany); **Brent J. Liu,** The Univ. of Southern California (United States); **Brian J. Park,** Oregon Health & Science Univ. (United States); **Umber Shafique,** Indiana Univ. School of Medicine (United States); **Eliot L. Siegel,** Univ. of Maryland Medical Ctr. (United States); **Wyatt M. Tellis,** Univ. of California, San Francisco (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

SESSION 1: LARGE LANGUAGE MODELS

19 February 2024 • 02:00 PM - 03:00 PM | Palm 8
Session Chair(s): **Jessica Fried**, Michigan Medicine (United States); **Hiroyuki Yoshida**, Massachusetts General Hospital (United States)

12931-1 • 02:00 PM - 02:20 PM
Assessing breast cancer chemotherapy response in radiology and pathology reports via a large language model
Author(s): **Parth Dodhia,** Stanford Univ. (United States); **Shawn Meepagala,** Howard Univ. College of Medicine (United States); **Golnaz Moallem,** Stanford Univ. School of Medicine (United States); **Daniel Rubin,** Stanford Univ. (United States); **Gregory Bean, Mirabela Rusu,** Stanford Univ. School of Medicine (United States)

12931-2 • 02:20 PM - 02:40 PM
Leveraging LLMs like ChatGPT for robust quality checks and medical text agreement rationale, enhancing adjudication quality and alignment in BICR for oncology clinical trials
Author(s): **Manish Sharma,** Imaging Endpoints (India); **Samira Farough**, **Andre Burkett,** Imaging Endpoints, LLC (United States); **Jerome Prasanth,** Imaging Endpoints (India); **Nabil El-Shafeey**, **Dominic Zygadlo**, **Chera Dunn, Ron Korn,** Imaging Endpoints, LLC (United States)

12931-4 • 02:40 PM - 03:00 PM
Feasibility of extracting critical diagnostic imaging report findings following percutaneous liver ablation with a large language model
Author(s): **Alexander Shieh**, **Iwan Paolucci**, **Jessica Albuquerque**, **Kristy Brock, Bruno Odisio,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

Coffee Break 03:00 PM - 03:30 PM

SESSION 2: AUGMENTATION OF CLINICAL WORKFLOW

19 February 2024 • 03:30 PM - 05:30 PM | Palm 8
Session Chair(s): **Thomas Martin Deserno**, Peter L. Reichertz Institut für Medizinische Informatik (Germany); **Shandong Wu**, Univ. of Pittsburgh (United States)

12931-5 • 03:30 PM - 03:50 PM
Utilizing an open-source environment for cognitive-AI in feature detection and quantitative measurements of optical coherence tomography (OCT) images
Author(s): **Anshu Goyal**, **Seena Pourzand**, **Sachi Pawooskar-Almeida,** The Univ. of Southern California (United States); **M. Wasil Wahi-Anwar,** Univ. of California, Los Angeles (United States); **Benjamin Y. Xu,** Roski Eye Institute, The Univ. of Southern California (United States); **Matthew S. Brown,** Univ. of California, Los Angeles (United States); **Brent J. Liu,** The Univ. of Southern California (United States)

12931-6 • 03:50 PM - 04:10 PM
Use of natural language processing and semi-supervised machine learning to stratify STAT imaging studies by clinical urgency
Author(s): **Renaid B. Kim**, **Jordan Breyfogle**, **Benjamin Mervak**, **Lubomir Hadjiiski**, **Kenneth Buckwalter, Jessica Fried,** Univ. of Michigan (United States)

12931-7 • 04:10 PM - 04:30 PM
Utilizing data-mining and deep learning methods on retrospective head and neck radiation therapy cases for decision support of individualized treatment planning
Author(s): **Trent Benedick**, **Jorge Galvan**, **Wejdan Alshehri**, **Ryan Fue,** The Univ. of Southern California (United States); **John Asbach,** Univ. at Buffalo (United States), Roswell Park Comprehensive Cancer Ctr. (United States); **Anh H. Le,** Cedars-Sinai Medical Ctr. (United States), Roswell Park Comprehensive Cancer Ctr. (United States); **Brent Liu,** The Univ. of Southern California (United States)

12931-8 • 04:30 PM - 04:50 PM
DICOM sequence selection for medical imaging applications
Author(s): **Michal Brzus**, **Cavan J Riley**, **Joel Bruss**, **Aaron Boes,** The Univ. of Iowa (United States); **Randall Jones,** Bot Image, Inc. (United States); **Hans J. Johnson,** The Univ. of Iowa (United States)

12931-9 • 04:50 PM - 05:10 PM
Medical instrument detection with synthetically generated data
Author(s): **Leon Wiese**, **Lennart Hinz, Eduard Reithmeier,** Leibniz Univ. Hannover (Germany)

12931-10 • 05:10 PM - 05:30 PM
CNN-derived brain age gaps of different neurological and cardiovascular diseases in the UK Biobank and identifying affected brain regions
Author(s): **Elizabeth McAvoy**, **Matthias Wilms, Nils D. Forkert,** Univ. of Calgary (Canada)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 3: INFORMATICS DATA MANAGEMENT

20 February 2024 • 10:30 AM - 12:30 PM | Palm 8
Session Chair(s): **Brent J. Liu**, The Univ. of Southern California (United States); **Anh H. Le**, Roswell Park Comprehensive Cancer Ctr. (United States)

12931-11 • 10:30 AM - 10:50 AM
A single-file implementation of the DICOM-CT-PD raw projection data storage format
Author(s): **Joshua Genender, John M. Hoffman,** Univ. of California, Los Angeles (United States), UCLA Ctr. for Computer Vision & Imaging Biomarkers (United States)

12931-12 • 10:50 AM - 11:10 AM
An automatic pipeline for data shift detection and mitigation to improve outcome prediction of traumatic brain injury
Author(s): **Jiren Li**, **Dooman Arefan**, **Matthew Pease**, **Chang Liu**, **David O. Okonkwo, Shandong Wu,** Univ. of Pittsburgh (United States)

12931-13 • 11:10 AM - 11:30 AM
Predicting human effort needed to correct auto-segmentations
Author(s): **Da He,** Shanghai Jiao Tong Univ. (China); **Jayaram K. Udupa**, **Yubing Tong, Drew Torigian,** Univ. of Pennsylvania (United States)

12931-14 • 11:30 AM - 11:50 AM
Cleaning and harmonizing medical image data for reliable AI: Lessons learned from longitudinal oral cancer natural history study data
Author(s): **Zhiyun Xue**, **Tochi Oguguo,** U.S. National Library of Medicine (United States); **Kelly Yu,** National Cancer Institute (United States); **Tseng-Cheng Chen,** National Taiwan Univ. Hospital (Taiwan); **Chun-Hung Hua,** China Medical Univ. Hospital (Taiwan); **Chung Jan Kang**, **Chih-Yen Chien,** Chang Gung Memorial Hospital (Taiwan); **Ming-Hsui Tsai,** China Medical Univ. Hospital (Taiwan); **Cheng-Ping Wang,** National Taiwan Univ. Hospital (Taiwan); **Anil K. Chaturvedi,** National Cancer Institute (United States); **Sameer Antani,** U.S. National Library of Medicine (United States)

12931-15 • 11:50 AM - 12:10 PM
FeSEC: a secure and efficient federated learning framework for medical imaging
Author(s): **Muhammad Asad,** Zayed Univ. (United Arab Emirates); **Yading Yuan,** Columbia Univ. Irving Medical Ctr. (United States)

12931-16 • 12:10 PM - 12:30 PM
Why complete medical data curation matters: challenges faced while comparing two deep-learning based CT segmentation methods on in-complete testing data
Author(s): **Haoqi Wang**, **Mia Markey,** The Univ. of Texas at Austin (United States); **Nicolas Pannetier, Mehul Sampat,** Flywheel (United States)

Lunch Break 12:30 PM - 02:00 PM

SESSION 4: GENERATIVE AI - GANS AND FLOW MODELS

20 February 2024 • 02:00 PM - 03:20 PM | Palm 8
Session Chair(s): **Shandong Wu**, Univ. of Pittsburgh (United States); **Thomas Martin Deserno**, Peter L. Reichertz Institut für Medizinische Informatik (Germany)

12931-17 • 02:00 PM - 02:20 PM
Correlation between mammographic GAN artifacts and patient clinical variables
Author(s): **Ridhi Arora**, **Tamerlan Mustafaev, Juhun Lee,** Univ. of Pittsburgh (United States)

12931-18 • 02:20 PM - 02:40 PM
3D generation of dental crown bottoms using context learning
Author(s): **Imane Chafi**, **Farida Cheriet,** Polytechnique Montréal (Canada); **Julia Keren,** Intellident Dentaire Inc. (Canada); **Ying Zhang, François Guibault,** Polytechnique Montréal (Canada)

12931-19 • 02:40 PM - 03:00 PM
3D generative AI for electronic cleansing in CT colonography
Author(s): **Rie Tachibana,** National Institute of Technology, Oshima College (Japan), Massachusetts General Hospital (United States), Harvard Medical School (United States); **Janne J. Näppi**, **Toru Hironaka,** Massachusetts General Hospital (United States), Harvard Medical School (United States); **Masaki Okamoto,** Boston Medical Sciences Co., Ltd. (Japan); **Hiroyuki Yoshida,** Massachusetts General Hospital (United States), Harvard Medical School (United States)

12931-20 • 03:00 PM - 03:20 PM
MACAW 3D: A masked causal normalizing flow method for counterfactual 3D brain image generation
Author(s): **Erik Y. Ohara**, **Finn Vamosi**, **Harsh Patil**, **Vibujithan Vigneshwaran**, **Matthias Wilms, Nils D. Forkert,** Univ. of Calgary (Canada)

Coffee Break 03:20 PM - 03:50 PM

SESSION 5: GENERATIVE AI - DIFFUSION MODELS

20 February 2024 • 03:50 PM - 05:30 PM | Palm 8

Session Chair(s): **Hiroyuki Yoshida**, Massachusetts General Hospital (United States); **Thomas Martin Deserno**, Peter L. Reichertz Institut für Medizinische Informatik (Germany)

12931-21 • 03:50 PM - 04:10 PM **(CANCELLED)**

Reconstruction of stimulus images to human brain using latent diffusion, U-net and CLIP models

Author(s): **Talha Minhas,** Bahria Univ. (Pakistan)

12931-22 • 04:10 PM - 04:30 PM

Synthesizing 3D multi-contrast brain tumor MRIs using tumor mask conditioning

Author(s): **Nghi C. Truong**, **Chandan Ganesh Bangalore Yogananda**, **Benjamin C. Wagner**, **James M. Holcomb**, **Divya Reddy**, **Niloufar Saadat**, **Kimmo J. Hatanpaa**, **Toral R. Patel,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States); **Matthew D. Lee**, **Rajan Jain,** NYU Grossman School of Medicine (United States); **Richard J. Bruce,** Univ. of Wisconsin-Madison (United States); **Marco C. Pinho**, **Ananth J. Madhuranthakam, Joseph A. Maldjian,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12931-23 • 04:30 PM - 04:50 PM

Enhancing colorectal cancer diagnosis through generative models and vision-based tactile sensing: a Sim2Real study

Author(s): **Siddhartha Kapuria,** The Univ. of Texas at Austin (United States); **Naruhiko Ikoma,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States); **Sandeep Chinchali, Farshid Alambeigi,** The Univ. of Texas at Austin (United States)

12931-24 • 04:50 PM - 05:10 PM

Inpainting MRI for unsupervised knee bone marrow edema-like lesion segmentation using conditional diffusion models

Author(s): **Andrew S. Yu,** Case Western Reserve Univ. (United States), Cleveland Clinic (United States); **Richard Lartey**, **William Holden**, **Ahmet Hakan Ok**, **Jeehun Kim**, **Carl Winalski**, **Naveen Subhas,** Cleveland Clinic (United States); **Vipin Chaudhary,** Case Western Reserve Univ. (United States); **Xiaojuan Li,** Cleveland Clinic (United States)

12931-25 • 05:10 PM - 05:30 PM

3D volumetric CT image reconstruction with single x-ray projection using denoising diffusion probabilistic model

Author(s): **Shaoyan Pan,** Emory Univ. (United States); **Shao-Yuan Lo,** Honda Research Institute USA, Inc. (United States); **Chih-Wei Chang**, **Ella Salari,** Emory Univ. (United States); **Tonghe Wang,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Justin Roper**, **Aparna H. Kesarwala, Xiaofeng Yang,** Emory Univ. (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A

Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 6: AI/ML FOR DATA ANALYTICS

21 February 2024 • 10:30 AM - 12:30 PM | Palm 8
Session Chair(s): **Anh H. Le**, Roswell Park Comprehensive Cancer Ctr. (United States); **Brent J. Liu**, The Univ. of Southern California (United States)

12931-26 • 10:30 AM - 10:50 AM
A comparative study of deep convolutional neural networks for the analysis of retinal damage in optical coherence tomography
Author(s): **Anastasiia Rozhyna**, **Manfredo Atzori, Henning Müller,** HES-SO Valais-Wallis (Switzerland)

12931-27 • 10:50 AM - 11:10 AM
Radiomic texture analysis for classification of radiofrequency ablated thyroid nodules
Author(s): **Sidharth Sengupta**, **Ana A. Araujo**, **Maisie L. Shindo, Brian J. Park,** Oregon Health & Science Univ. (United States)

12931-28 • 11:10 AM - 11:30 AM
Mobile-friendly skin lesion detection using an attention-driven lightweight model
Author(s): **Mingzhe Hu, Xiaofeng Yang,** Emory Univ. (United States)

12931-29 • 11:30 AM - 11:50 AM
Breast cancer diagnostics using angular view infrared images
Author(s): **Sabyasachi Samantaray**, **Kartik S. Nair,** Indian Institute of Technology Bombay (India); **Matheus de Freitas Oliveira Baffa,** Univ. de São Paulo (Brazil); **Thomas M. Deserno,** Peter L. Reichertz Institut für Medizinische Informatik (Germany)

12931-30 • 11:50 AM - 12:10 PM
Renal tumor analysis using multi-phase abdominal CT images
Author(s): **Kaito Koshino**, **Dai Nishioka**, **Yoshiki Kawata,** Tokushima Univ. (Japan); **Yuuki Kobari,** Tokyo Women's Medical Univ. Hospital (Japan); **Atsushi Ikeda,** Univ. of Tsukuba (Japan); **Noboru Niki,** Tokushima Univ. (Japan)

12931-31 • 12:10 PM - 12:30 PM
Benchmarking radiomic features using CT simulated liver lesions
Author(s): **Shrey Sukhadia,** Dartmouth-Hitchcock Medical Ctr. (United States); **Abdibaset A Bare,** Thayer School of Engineering, Dartmouth College (United States); **Marthony L. Robins,** Dartmouth-Hitchcock Medical Ctr. (United States)

Lunch Break 12:30 PM - 01:40 PM

SESSION 7: AI/ML FOR PRECISION MEDICINE

21 February 2024 • 01:40 PM - 03:20 PM | Palm 8
Session Chair(s): **Hiroyuki Yoshida**, Massachusetts General Hospital (United States); **Brent J. Liu**, The Univ. of Southern California (United States)

12931-32 • 01:40 PM - 02:00 PM
Tuberculosis chest x-ray image retrieval system using deep learning based biomarker predictions
Author(s): **Bradley Lowekamp**, **Andrei Gabrielian**, **Darrell Hurt**, **Alex Rosenthal, Ziv R. Yaniv,** National Institute of Allergy and Infectious Diseases (United States)

12931-33 • 02:00 PM - 02:20 PM
A radiomics approach in predicting the risk of diabetes mellitus type II emergence in five years using mammography images
Author(s): **Nishta Letchumanan,** The Univ. of Tokyo (Japan); **Shouhei Hanaoka**, **Tomomi Takenaga**, **Yusuke Suzuki,** The Univ. of Tokyo Hospital (Japan); **Takahiro Nakao,** The Univ. of Tokyo (Japan); **Yukihiro Nomura,** Ctr. for Frontier Medical Engineering, Chiba Univ. (Japan); **Takeharu Yoshikawa,** The Univ. of Tokyo (Japan); **Osamu Abe,** The Univ. of Tokyo Hospital (Japan)

12931-34 • 02:20 PM - 02:40 PM
Unsupervised deep learning for clustering tumor subcompartments in histopathological images of non-small cell lung cancer
Author(s): **Matheus de Freitas Oliveira Baffa,** Univ. de São Paulo (Brazil); **Nadine S. Schaadt**, **Friedrich Feuerhake,** Medizinische Hochschule Hannover (Germany); **Thomas M. Deserno,** Peter L. Reichertz Institut für Medizinische Informatik (Germany)

12931-35 • 02:40 PM - 03:00 PM
Micro-nodule analysis by severity of pneumoconiosis using 3D CT images
Author(s): **Rento Nii**, **Yoshiki Kawata,** Tokushima Univ. (Japan); **Yosinori Ohtsuka,** Hokkaido Chuo Rosai hospital (Japan); **Takumi Kishimoto,** Okayama Rosai Hospital (Japan); **Kazuto Ashizawa,** Department of Clinical Oncology Unit of Translational Medicine (Japan); **Noboru Niki,** Medical Science Institute Inc (Japan)

12931-36 • 03:00 PM - 03:20 PM
A normative database of free-breathing thoracic 4D dynamic MRI images and associated regional respiratory parameters of healthy children
Author(s): **Yubing Tong**, **Jayaram K. Udupa,** Univ. of Pennsylvania (United States); **Joseph McDonough,** The Children's Hospital of Philadelphia (United States); **Caiyun Wu**, **Yusuf Akhtar**, **Lipeng Xie**, **Mostafa Alnoury**, **Mahdie Hosseini**, **Leihui Tong,** Univ. of Pennsylvania (United States); **Samantha Gogel**, **David Biko**, **Oscar H. Mayer**, **Jason Anari,** The Children's Hospital of Philadelphia (United States); **Drew Torigian,** Univ. of Pennsylvania (United States); **Patrick Cahill,** The Children's Hospital of Philadelphia (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 8: MULTIMODAL AND HYBRID DATA/SYSTEMS

21 February 2024 • 03:50 PM - 05:30 PM | Palm 8
Session Chair(s): **Shandong Wu**, Univ. of Pittsburgh (United States); **Anh H. Le**, Roswell Park Comprehensive Cancer Ctr. (United States)

12931-37 • 03:50 PM - 04:10 PM
Multi-modal segmentation for paramagnetic rim lesion detection in multiple sclerosis
Author(s): **Maxence Wynen,** Univ. Catholique de Louvain (Belgium); **Pedro M. Gordaliza,** Ctr. for Biomedical Imaging, Univ. de Lausanne (Switzerland), Lausanne Univ. Hospital (Switzerland); **Anna Stölting**, **Pietro Maggi,** Univ. Catholique de Louvain (Belgium); **Meritxell Bach Cuadra,** Ctr. for Biomedical Imaging, Univ. de Lausanne (Switzerland), Lausanne Univ. Hospital (Switzerland); **Benoit Macq,** Univ. Catholique de Louvain (Belgium)

12931-38 • 04:10 PM - 04:30 PM
Real-time ECG-monitoring in virtual reality
Author(s): **Willi Schüler**, **Lisa-Marie Bente**, **Thomas M. Deserno, Tim Kacprowski,** Technische Univ. Braunschweig (Germany)

12931-39 • 04:30 PM - 04:50 PM
A transformer model guided by histopathological image information for DCE-MRI-based prediction of response to neoadjuvant chemotherapy in breast cancer
Author(s): **Zhou Yu**, **Ming Fan**, **Yuanling Chen**, **Xinquan Xiao**, **Xinxin Pan, Lihua Li,** Intelligent Biomedicine, Hangzhou Dianzi Univ. (China)

12931-40 • 04:50 PM - 05:10 PM
Development of decision support tools for gait analysis and rehabilitation utilizing the integrated biomechanics informatics system (IBIS)
Author(s): **Anshu Goyal**, **Joseph Liu**, **Harper E. Stewart**, **Jingqi Hu**, **Casey Wiens**, **Jill L. McNitt-Gray, Brent J. Liu,** The Univ. of Southern California (United States)

12931-41 • 05:10 PM - 05:30 PM
ShapeAXI: shape analysis explainability and interpretability
Author(s): **Juan Carlos Prieto,** The Univ. of North Carolina at Chapel Hill (United States); **Felicia Miranda**, **Marcela Gurgel**, **Luc Anchling**, **Nathan Hutin**, **Selene Barone**, **Najla Al Turkestani**, **Aron Aliaga,** Univ. of Michigan (United States); **Marilia Yatabe,** The Univ. of North Carolina at Chapel Hill (United States); **Jonas Bianchi,** Univ. of the Pacific (United States); **Lucia Cevidanes,** Univ. of Michigan (United States)

POSTERS - WEDNESDAY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/wednesday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 5:00 PM Tuesday – 5:00 PM Wednesday

- In order to be considered for a poster award, it is recommended to have your poster set up by 12:00 PM Wednesday. Judging may begin after this time. Posters must remain on display until the end of the Wednesday evening poster session, but may be left hanging until 1:00 PM Thursday. After 1:00 PM, any posters left hanging will be discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

12931-42 • 05:30 PM - 07:00 PM
Enhancing interpretation assistance by real-time query resolution in BICR of oncology clinical trials by leveraging ChatGPT bots
Author(s): **Manish Sharma,** Imaging Endpoints (India); **Samira Farough**, **Andre Burkett,** Imaging Endpoints, LLC (United States); **Jerome Prasanth,** Imaging Endpoints (India); **Nabil El-Shafeey**, **Dominic Zygadlo**, **Chera Dunn, Ron Korn,** Imaging Endpoints, LLC (United States)

12931-43 • 05:30 PM - 07:00 PM
A contrastive learning-based neural network to synthesize cell subpopulation features from DCE-MRI for predicting prognosis in breast cancer
Author(s): **Yuanyuan Ge**, **Ming Fan**, **Xian Li**, **Yueyue Liu, Lihua Li,** Intelligent Biomedicine, Hangzhou Dianzi Univ. (China)

12931-44 • 05:30 PM - 07:00 PM
Unsupervised lung lesion detection on FDG-PET/CT images by deep image transformation-based 2.5-dimensional local anomaly detection
Author(s): **Arata Segawa**, **Mitsutaka Nemoto,** Kindai Univ. (Japan); **Hayato Kaida,** Kindai Univ. (Japan), Kindai Univ. Hospital (Japan); **Yuichi Kimura**, **Takashi Nagaoka**, **Katsuhiro Mikami,** Kindai Univ. (Japan); **Takahiro Yamada**, **Kohei Hanaoka,** Kindai Univ. Hospital (Japan); **Tatsuya Tsuchitani**, **Kazuhiro Kitajima,** Hyogo College of Medicine (Japan); **Kazunari Ishii,** Kindai Univ. (Japan), Kindai Univ. Hospital (Japan)

12931-45 • 05:30 PM - 07:00 PM
DCE-MRI habitat descriptors in prostate cancer staging
Author(s): **Zhouping Wei, Yoganand Balagurunanthan,** Moffitt Cancer Ctr. (United States)

12931-46 • 05:30 PM - 07:00 PM
Electronic cleansing in CT colonography using transformer-based UNet
Author(s): **Rie Tachibana,** National Institute of Technology, Oshima College (Japan), Massachusetts General Hospital, Harvard Medical School (United States); **Janne J. Näppi,** Massachusetts General Hospital, Harvard Medical School (United States); **Masaki Okamoto,** Boston Medical Sciences Co., Ltd. (Japan); **Hiroyuki Yoshida,** Massachusetts General Hospital, Harvard Medical School (United States)

12931-47 • 05:30 PM - 07:00 PM
Automated segmentation of polyps by 3D deep learning in photon-counting CT colonography
Author(s): **Janne J. Näppi,** Massachusetts General Hospital (United States), Harvard Medical School (United States); **Toru Hironaka,** Massachusetts General Hospital (United States); **Dufan Wu**, **Rajiv Gupta,** Massachusetts General Hospital (United States), Harvard Medical School (United States); **Rie Tachibana,** Massachusetts General Hospital (United States), Harvard Medical School (United States), National Institute of Technology, Oshima College (Japan); **Katsuyuki Taguchi,** Johns Hopkins Univ. (United States); **Masaki Okamoto,** Boston Medical Sciences Co., Ltd. (Japan); **Hiroyuki Yoshida,** Massachusetts General Hospital (United States), Harvard Medical School (United States)

12931-48 • 05:30 PM - 07:00 PM
Light-weight U-NET structure inducted in Kidney Image Segmentation for anomalies analysis
Author(s): **Manahil Shaikh**, **Bisma Khalid**, **Javaria Latif**, **Uzair Iqbal, Labiba Fahad,** National Univ. of Computer and Emerging Sciences (Pakistan)

12931-49 • 05:30 PM - 07:00 PM
All-in-one platform for AI R&D in medical imaging, encompassing data collection, selection, annotation, and pre-processing
Author(s): **Changhee Han,** Callisto Inc. (Japan); **Kyohei Shibano,** The Univ. of Tokyo (Japan); **Wataru Ozaki**, **Keishiro Osaki,** Callisto Inc. (Japan); **Takafumi Haraguchi,** St. Marianna Univ. School of Medicine (Japan); **Daisuke Hirahara,** Harada Academy (Japan); **Shumon Kimura**, **Yasuyuki Kobayashi,** St. Marianna Univ. School of Medicine (Japan); **Gento Mogi,** The Univ. of Tokyo (Japan)

12931-50 • 05:30 PM - 07:00 PM
Methods for modeled bioprinting of soft and hard tissues
Author(s): **Trenton D. Campos**, **Gregory Datto**, **Andy Liu**, **Carlos Mendez-Cruz**, **Krunal Patel**, **Chet Friday**, **Rashad Madi**, **Michael Hast**, **Yubing Tong, Chamith S. Rajapakse,** Univ. of Pennsylvania (United States)

12931-51 • 05:30 PM - 07:00 PM
Evaluation of multi-modal image segmentation for radiotherapy planning
Author(s): **Sreeja Malladi**, **Sanket Purohit**, **Advait Brahme, Julia A. Scott,** Santa Clara Univ. (United States)

12931-52 • 05:30 PM - 07:00 PM
Developing classification and segmentation algorithms for GAN-generated mammographic artifacts based on radiologist annotation
Author(s): **Tamerlan Mustafaev,** Univ. of Pittsburgh (United States); **Robert Nishikawa, Juhun Lee,** University of Pittsburgh (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

CONFERENCE 12932

Ultrasonic Imaging and Tomography

19 - 20 February 2024 | Pacific E

Conference Chair(s): **Christian Boehm,** ETH Zurich (Switzerland); **Nick Bottenus,** Univ. of Colorado Boulder (United States)

Program Committee: **Mark A. Anastasio,** Washington Univ. in St. Louis (United States); **Johan G. Bosch,** Erasmus Univ. Rotterdam (Netherlands); **Brett C. Byram,** Vanderbilt Univ. (United States); **Marvin M. Doyley,** Univ. of Rochester (United States); **Aaron Fenster,** Robarts Research Institute (Canada); **James F. Greenleaf,** Mayo Clinic (United States); **Lluis Guasch,** Imperial College London (United Kingdom); **Joaquin L. Herraiz,** Univ. Complutense de Madrid (Spain); **Torsten Hopp,** Karlsruher Institut für Technologie (Germany); **Peter E. Huthwaite,** Imperial College London (United Kingdom); **Michael Jaeger,** Univ. Bern (Switzerland); **Jørgen Arendt Jensen,** Technical Univ. of Denmark (Denmark); **David H. Kim,** Pohang Univ. of Science and Technology (Korea, Republic of); **Cuiping Li,** Delphinus Medical Technologies, Inc. (United States); **Bilal H. Malik,** Genentech Inc. (United States); **Stephen A. McAleavey**, **Mohammad Mehrmohammadi,** Univ. of Rochester (United States); **Svetoslav I. Nikolov,** BK Medical (Denmark); **Olivier Roy,** Barbara Ann Karmanos Cancer Institute (United States); **Nicole V. Ruiter,** Karlsruher Institut für Technologie (Germany); **Daniel Sarno,** National Physical Lab. (United Kingdom); **François Varray,** CREATIS (France); **James W. Wiskin,** QT Ultrasound LLC (United States); **Haichong Kai Zhang,** Worcester Polytechnic Institute (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Coffee Break 10:45 AM - 11:10 AM

SESSION 1: ULTRASOUND IMAGE PROCESSING AND ANALYSIS

19 February 2024 • 11:10 AM - 12:40 PM | Pacific E
Session Chair(s): **Nick Bottenus**, Univ. of Colorado Boulder (United States); **Christian Boehm**, ETH Zurich (Switzerland)

12932-1 • 11:10 AM - 11:25 AM
Video-level view classification in focused cardiac ultrasound
Author(s): **Catarina Rodrigues,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal), ICVS/3B's - PT Government Associate Lab. (Portugal), Algoritmi Ctr., School of Engineering, Univ. do Minho (Portugal); **Bárbara Malainho,** Life and Health Sciences Research Institute (Portugal), ICVS/3B's - PT Government Associate Lab. (Portugal), Algoritmi Ctr., School of Engineering, Univ. do Minho (Portugal); **Ana Claudia Tonelli,** Hospital de Clínicas de Porto Alegre (Brazil), Unisinos Univ. (Brazil); **André Santanchè,** Univ. of Campinas (Brazil); **Marco A. Carvalho-Filho,** Univ. Medical Ctr. Groningen, Univ. of Groningen (Netherlands); **Jorge Correia-Pinto,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal), ICVS/3B's - PT Government Associate Lab. (Portugal); **Vitor Hugo Pereira,** Life and Health Sciences Research Institute (Portugal), ICVS/3B's - PT Government Associate Lab. (Portugal); **Jaime C. Fonseca,** Algoritmi Ctr., School of Engineering, Univ. do Minho (Portugal); **Sandro Queirós,** Life and Health Sciences Research Institute, Univ. do Minho (Portugal), ICVS/3B's - PT Government Associate Lab. (Portugal)

12932-2 • 11:25 AM - 11:40 AM
Ultra-TransUNet: Ultrasound segmentation framework with spatial-temporal context feature fusion
Author(s): **Bowen Li**, **Zongwei Zhou**, **Alan L. Yuille,** Johns Hopkins Univ. (United States); **Max Allan, Jonathan McLeod,** Intuitive Surgical, Inc. (United States)

12932-3 • 11:40 AM - 11:55 AM
Expanding gCNR into a clinically relevant measure of lesion detectability by considering size and spatial resolution
Author(s): **Siegfried Schlunk, Brett C. Byram,** Vanderbilt Univ. (United States)

12932-4 • 11:55 AM - 12:10 PM
Validating the use of three-dimensional ultrasound to detect partial flexor tendon lacerations
Author(s): **Randa Mudathir**, **Megan Hutter,** Robarts Research Institute (Canada); **Rabeeh Fares**, **Emily A. Lalone,** Western Univ. (Canada); **Aaron Fenster,** Robarts Research Institute (Canada); **Assaf Kadar,** Western Univ. (Canada)

12932-5 • 12:10 PM - 12:25 PM
Deep learning for prostate and central gland segmentation on micro-ultrasound images
Author(s): **Lichun Zhang**, **Steve R. Zhou**, **Moonhyung Choi**, **Richard E. Fan**, **Shengtian Sang**, **Geoffrey A. Sonn, Mirabela Rusu,** Stanford Univ. (United States)

12932-6 • 12:25 PM - 12:40 PM
Transformer-based affine registration of MRI and ultrasound images of the prostate
Author(s): **Shengtian Sang**, **Hassan Jahanandish**, **Xinran Li**, **Sulaiman Vesal**, **Indrani Bhattacharya**, **Lichun Zhang**, **Richard E. Fan**, **Geoffrey A. Sonn, Mirabela Rusu,** Stanford Univ. (United States)

Lunch Break 12:40 PM - 01:40 PM

SESSION 2: ELASTOGRAPHY AND TISSUE CHARACTERIZATION

19 February 2024 • 01:40 PM - 03:20 PM | Pacific E
Session Chair(s): **Mohammad Mehrmohammadi**, Univ. of Rochester (United States); **Nebojsa Duric**, Univ. of Rochester (United States)

12932-7 • 01:40 PM - 02:05 PM
Ultrasonic evaluation of carotid plaque for stroke risk assessment *(Invited Paper)*
Author(s): **Caterina M. Gallippi,** The Univ. of North Carolina at Chapel Hill (United States); **Keerthi S. Anand,** Univ. of North Carolina at Chapel Hill (United States); **Mark A. Farber**, **Jonathon W. Homeister, Boyce E. Griffith,** The Univ. of North Carolina at Chapel Hill (United States)

12932-8 • 02:05 PM - 02:20 PM
Two-dimensional displacement estimation using mixed second-order regularization in total variation-based ultrasound elastography
Author(s): **Md Ashikuzzaman,** Johns Hopkins Univ. (United States); **Hassan Rivaz,** Concordia Univ. (Canada); **Muyinatu A. Lediju Bell,** Johns Hopkins Univ. (United States)

12932-9 • 02:20 PM - 02:35 PM
Improving image quality in a new method of data-driven elastography
Author(s): **Will Newman**, **Jamshid Ghaboussi, Michael F. Insana,** Univ. of Illinois (United States)

12932-10 • 02:35 PM - 02:50 PM
Echocardiogram image segmentation and cardiac adipose tissue estimation using spectral analysis and deep learning
Author(s): **Julian Rene Cuellar Buritica**, **Jon D. Klingensmith,** Southern Illinois Univ. Edwardsville (United States); **Pamela K. Woodard,** Mallinckrodt Institute of Radiology, Washington Univ. School of Medicine in St. Louis (United States); **Manjula Burri,** Southern Illinois Univ. School of Medicine (United States); **Vu Q. Dinh, Lucas Gillette,** Southern Illinois Univ. Edwardsville (United States)

12932-11 • 02:50 PM - 03:05 PM
Displacement tracking reliability in muscle shear strain quantification
Author(s): **Md Ashikuzzaman,** Johns Hopkins Univ. (United States); **Jonny Huang**, **Steve Bonwit**, **Azin Etemadimanesh**, **Preeti Raghavan,** Johns Hopkins Medicine (United States); **Muyinatu A. Bell,** Johns Hopkins Univ. (United States)

12932-12 • 03:05 PM - 03:20 PM
The efficacy of an ultrasound ring-array transducer for hyperthermia generation
Author(s): **David Bustamante,** Univ. of Rochester (United States); **Yan Yan**, **Trevor Mitcham**, **Nebojsa Duric, Mohammad Mehrmohammadi,** Univ. of Rochester Medical Ctr. (United States)

Coffee Break 03:20 PM - 03:55 PM

SESSION 3: ULTRASOUND COMPUTED TOMOGRAPHY

19 February 2024 • 03:55 PM - 05:25 PM | Pacific E
Session Chair(s): **Nicole V. Ruiter**, Karlsruher Institut für Technologie (Germany); **James W. Wiskin**, QT Imaging, Inc. (United States)

12932-13 • 03:55 PM - 04:10 PM
Reconstruction of tissue scatter characteristics using 3D ultrasound tomography
Author(s): **Torsten Hopp**, **Johannes Maul**, **Benedikt Ebener**, **Michael Zapf, Nicole V. Ruiter,** Karlsruher Institut für Technologie (Germany)

12932-14 • 04:10 PM - 04:25 PM
A new strategy to overcome cycle skipping: frequency-difference waveform inversion
Author(s): **Rehman Ali**, **Trevor M. Mitcham, Nebojsa Duric,** Univ. of Rochester Medical Ctr. (United States)

12932-15 • 04:25 PM - 04:40 PM
Waveform inversion with calibrated source-time functions for improving in-vivo ultrasound computed tomography
Author(s): **Ines Elisa Ulrich**, **Christian Boehm**, **Patrick Marty,** ETH Zurich (Switzerland); **Naiara Korta Martiartu,** Univ. Bern (Switzerland); **Berkan Lafci**, **Xose Luis Dean-Ben**, **Daniel Razansky,** Univ. Zürich (Switzerland); **Andreas Fichtner,** ETH Zurich (Switzerland)

12932-16 • 04:40 PM - 04:55 PM
Learned measurement correction for simplified acoustic forward models in ultrasound computed tomography
Author(s): **Luke Lozenski,** Washington Univ. in St. Louis (United States); **Hanchen Wang**, **Brendt E. Wohlberg,** Los Alamos National Lab. (United States); **Umberto Villa,** The Univ. of Texas at Austin (United States); **Youzuo Lin,** Los Alamos National Lab. (United States)

12932-17 • 04:55 PM - 05:10 PM
Imaging stroke through the skull using ultrasound tomography
Author(s): **Trevor M. Mitcham**, **Rehman Ali**, **Derrek Schartz,** Univ. of Rochester (United States); **Redi Rahmani,** Barrow Neurological Institute (United States); **Melanie Singh**, **Matthew Bender**, **Edward Vates, Nebojsa Duric,** Univ. of Rochester (United States)

12932-18 • 05:10 PM - 05:25 PM
Towards elastic bone characterization in transcranial ultrasound
Author(s): **Patrick Marty,** ETH Zurich (Switzerland); **Trevor M. Mitcham**, **Rehman Ali,** Univ. of Rochester Medical Ctr. (United States); **Christian Boehm,** ETH Zurich (Switzerland); **Nebojsa Duric,** Univ. of Rochester Medical Ctr. (United States); **Andreas Fichtner,** ETH Zurich (Switzerland)

POSTERS - MONDAY

19 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/monday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Monday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 7:30 AM– 5:00 PM Monday

- In order to be considered for a poster award, it is recommended to have your poster set up by 1:00 PM Monday. Judging may begin after this time. Posters must remain on display until the end of the Monday evening poster session, but may be left hanging until 1:00 PM Tuesday. After 1:00 PM on Tuesday, posters will be removed and discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

12932-34 • 05:30 PM - 07:00 PM
Ultrasound computed tomography imaging technique advances in HUST
Author(s): **Mingyue Ding**, **Qiude Zhang,** Huazhong Univ. of Science and Technology (China); **Junjie Song,** WeeSee Medical Imaging Ltd. Co. (China); **Zhaohui Liu**, **Hui Zhang,** Huazhong Univ. of Science and Technology (China); **Yuanyi Zheng,** Shanghai Sixth People's Hospital (China); **Ming Yuchi,** Huazhong Univ. of Science and Technology (China)

12932-35 • 05:30 PM - 07:00 PM
Effect of different stomach-filling drinks on signal detectability in abdominal ultrasonography
Author(s): **Akiko Ihori**, **Takahiro Yoshida**, **Sora Suzuki, Yoshino Kachi,** Gifu Univ. of Medical Science (Japan)

12932-36 • 05:30 PM - 07:00 PM
ClickSAM: fine-tuning segment anything model using click prompts for ultrasound image segmentation
Author(s): **Aimee W. Guo,** The Hockaday School (United States); **Grace Fei,** Liberty High School (United States); **Hemanth Pasupuleti,** The Univ. of Texas at Dallas (United States); **Jing Wang,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12932-37 • 05:30 PM - 07:00 PM
Utilizing a mask R-CNN for segmentation of the carotid lumen in subjects with plaque deposition
Author(s): **Maxwell Kiernan**, **Rashid Al Mukaddim,** Univ. of Wisconsin-Madison (United States); **Carol C. Mitchell**, **Jenna Maybock**, **Stephanie Wildebrand**, **Robert J. Dempsey,** Univ. of Wisconsin School of Medicine and Public Health (United States); **Tomy Varghese,** Univ. of Wisconsin-Madison (United States)

12932-38 • 05:30 PM - 07:00 PM
Determination of a detectability index for image quality evaluation using a PVA-microcapsules phantom
Author(s): **Chatsuda Songsaeng**, **Elisabeth Salomon**, **Markus Ortner**, **Lukas Zalka**, **Peter Homolka**, **Julia Pospischek**, **Christian Kollmann,** Medizinische Univ. Wien (Austria); **Uli Palli,** Accella Group (United States); **Jack Miloslavsky**, **Michael Figl, Johann B. Hummel,** Medizinische Univ. Wien (Austria)

12932-39 • 05:30 PM - 07:00 PM
Assessment of ocular injury using 3D ultrasound images
Author(s): **Ahmed Tahseen Minhaz,** Case Western Reserve Univ. (United States); **Faruk H. Orge,** Univ. Hospitals Rainbow Babies & Children's Hospital (United States); **David L. Wilson, Mahdi Bayat,** Case Western Reserve Univ. (United States)

12932-40 • 05:30 PM - 07:00 PM
Efficient helmholtz equation solver for frequency domain waveform inversion based on the decomposition into one-way wave equation
Author(s): **Rehman Ali,** Univ. of Rochester Medical Ctr. (United States); **Feiyu Wang,** Univ. of Rochester (United States); **Trevor M. Mitcham, Nebojsa Duric,** Univ. of Rochester Medical Ctr. (United States)

12932-41 • 05:30 PM - 07:00 PM
Realization of automated whole breast 3D Doppler ultrasound for characterization of breast lesions
Author(s): **Amal Aziz**, **Rayhan Abdul Rahman,** Western Univ. (Canada); **Claire K. Park,** Harvard Medical School (United States); **Tiana Trumpour**, **Jeffrey Bax**, **Lori Gardi**, **David Tessier**, **Kevin C. Barker**, **Tamie L. Poepping, Aaron Fenster,** Western Univ. (Canada)

12932-42 • 05:30 PM - 07:00 PM
Despecking of ultrasound image using LENet based nonlocal-means method
Author(s): **Houqiang Yu,** Huazhong Univ. of Science and Technology (China); **Ling Li,** Hubei Univ. of Science and Technology (China)

12932-43 • 05:30 PM - 07:00 PM
Adaptive design of ultrasound phantoms using additive manufacturing
Author(s): **Lukas Zalka**, **Johannes Köhrer**, **Chatsuda Songsaeng**, **Peter Homolka**, **Christian Kollmann**, **Johann B. Hummel, Michael Figl,** Medizinische Univ. Wien (Austria)

12932-44 • 05:30 PM - 07:00 PM
Identifying trends in carotid artery health using strain indices
Author(s): **Maxwell Kiernan,** Univ. of Wisconsin-Madison (United States); **Yimeng Dou**, **Yurim Lee**, **Carol C. Mitchell**, **Erica Fletcher**, **Mark Kliewer**, **Matthew H. Lee, Tomy Varghese,** Univ. of Wisconsin School of Medicine and Public Health, Univ. of Wisconsin-Madison (United States)

12932-45 • 05:30 PM - 07:00 PM
Quantitative data analysis and multiparameter inversion of Biot wave data: insights from topology and geometry
Author(s): **James W. Wiskin, John Klock,** QT Imaging, Inc. (United States)

12932-46 • 05:30 PM - 07:00 PM
Motion-based temporal interpolations of power Doppler ultrasound
Author(s): **Simon Biberger**, **Clemens Kirisits,** Univ. Wien (Austria), Medizinische Univ. Wien (Austria); **Christian Wallinger**, **Daniel J. Buckton,** GE HealthCare (Austria); **Otmar Scherzer,** Univ. Wien (Austria), Johannes Kepler Univ. Linz (Austria), Johann Radon Institute for Computational and Applied Mathematics (Austria)

12932-47 • 05:30 PM - 07:00 PM
Realistic digital phantoms for prostate ultrasound and photoacoustic imaging
Author(s): **Yixuan Wu,** Johns Hopkins Univ. (United States), National Institutes of Health (United States); **Jacob Enders,** National Institutes of Health (United States); **Baichuan Jiang,** Johns Hopkins Univ. (United States); **James W. Wiskin,** QT Imaging, Inc. (United States); **Baris Turkbey**, **Peter A. Pinto**, **Bradford J. Wood,** National Institutes of Health (United States); **Emad M. Boctor,** Johns Hopkins Univ. (United States)

12932-48 • 05:30 PM - 07:00 PM
A learning-based method for compensating 3D-2D model mismatch in ring-array ultrasound computed tomography
Author(s): **Fu Li,** Univ. of Illinois (United States); **Umberto Villa,** The Univ. of Texas at Austin (United States); **Mark A. Anastasio,** Univ. of Illinois (United States)

12932-49 • 05:30 PM - 07:00 PM
Ultrasound radiofrequency data feature extraction for classification of prostate peripheral zone of human patients
Author(s): **Teja R. Pathour**, **Ling Ma,** The Univ. of Texas at Dallas (United States); **Douglas W. Strand,** The Univ. of Texas Southwestern Medical Ctr. (United States); **Jeffrey Gahan**, **Brett A. Johnson,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Shashank R. Sirsi,** The Univ. of Texas at Dallas (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States), The Univ. of Texas Southwestern Medical Ctr. (United States)

12932-50 • 05:30 PM - 07:00 PM
Evaluation of U-Nets for object segmentation in ultrasound images
Author(s): **Rui Wang**, **Katelyn Craft**, **Elisa Hotlzman**, **Hannah G. Mason**, **Christopher Khan**, **Brett C. Byram**, **Jason E. Mitchell, Jack H. Noble,** Vanderbilt Univ. (United States)

12932-51 • 05:30 PM - 07:00 PM
Multimodality in silico imaging of dense breasts: a comparative study of ultrasound computed tomography and digital breast tomosynthesis
Author(s): **Tara Diba, Andreu Badal,** U.S. Food and Drug Administration (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: ULTRASOUND BEAMFORMING, SIGNAL PROCESSING, AND NOVEL APPLICATIONS

20 February 2024 • 10:30 AM - 12:25 PM | Pacific E
Session Chair(s): **Brett C. Byram**, Vanderbilt Univ. (United States); **Haichong Kai Zhang**, Worcester Polytechnic Institute (United States)

12932-19 • 10:30 AM - 10:55 AM
Large aperture imaging, from multi-array prototype to imaging device *(Invited Paper)*
Author(s): **Josquin Foiret**, **Eun-Yeong Park**, **Ning Lu, Katherine W. Ferrara,** Stanford Univ. (United States)

12932-20 • 10:55 AM - 11:10 AM
using domain adaptive deep neural networks to improve transthoracic echocardiography
Author(s): **Lening N. Cui**, **Christopher Khan**, **Ying-Chun Pan**, **Siegfried Schlunk**, **Emelina P. Vienneau,** Vanderbilt Univ. (United States); **Emmanuel Ofosu,** Meharry Medical College (United States); **Jason Harbert**, **Ryan LeFevre**, **Susan Eagle,** Vanderbilt Univ. Medical Ctr. (United States); **Brett C. Byram,** Vanderbilt Univ. (United States)

12932-21 • 11:10 AM - 11:25 AM
Improving spatial coherence of multi-line transmit imaging: effects of synthetic focusing
Author(s): **Nazli Javadi Eshkalak, Nick Bottenus,** Univ. of Colorado Boulder (United States)

12932-22 • 11:25 AM - 11:40 AM
FLEX-RT: feasibility study of using flexible array transducer for tumor motion tracking in pancreatic cancer radiotherapy
Author(s): **Hamed Hooshangnejad**, **Debarghya China**, **Ali Uneri,** Johns Hopkins Univ. (United States); **Sarah Han-Oh,** Johns Hopkins Univ (United States); **Kai Ding,** Johns Hopkins Univ. (United States)

12932-23 • 11:40 AM - 11:55 AM
Dual-Modality Bioluminescence and Ultrasound 3D 360-Degree Imaging System for Small Animal Tumor Imaging Using Homemade Transducers
Author(s): **Shih-Po Su, Huihua Kenny Chiang,** National Yang-Ming Univ. (Taiwan)

12932-24 • 11:55 AM - 12:10 PM
Three-dimensional ultrasound for assessing synovial blood flow with exercise in thumb osteoarthritis
Author(s): **Megan Hutter**, **Randa Mudathir,** Robarts Research Institute (Canada), Western Univ. (Canada); **Carla du Toit,** Robarts Research Institute (Canada); **Aaron Fenster,** Robarts Research Institute (Canada), Western Univ. (Canada); **Emily A. Lalone,** Western Univ. (Canada)

12932-25 • 12:10 PM - 12:25 PM
Nonlinear speed-of-sound tomography with pulse-echo ultrasound
Author(s): **Naiara Korta Martiartu**, **Parisa Salemi Yolgunlu**, **Martin Frenz, Michael Jaeger,** Univ. Bern (Switzerland)

Lunch Break 12:25 PM - 01:45 PM

SESSION 5: APPLICATIONS OF ML

20 February 2024 • 01:45 PM - 03:15 PM | Pacific E
Session Chair(s): **Torsten Hopp**, Karlsruher Institut für Technologie (Germany); **Rehman Ali**, Univ. of Rochester Medical Ctr. (United States)

12932-26 • 01:45 PM - 02:00 PM
A deep learning framework to assess the feasibility of localizing prostate cancer on b-mode transrectal ultrasound images
Author(s): **Hassan Jahanandish**, **Sulaiman Vesal**, **Indrani Bhattacharya**, **Xinran Li**, **Richard E. Fan**, **Geoffrey A. Sonn, Mirabela Rusu,** Stanford Univ. (United States)

12932-27 • 02:00 PM - 02:15 PM
Deep supervised domain adaptation for invasive pancreatic cancer diagnosis from endoscopic ultrasound images
Author(s): **Do Kieu Trang Thoi**, **Kangwon Seo,** Ewha Womans Univ. (Korea, Republic of); **Jin-Seok Park,** Inha Univ. (Korea, Republic of); **Suhyun Park,** Ewha Womans Univ. (Korea, Republic of)

12932-28 • 02:15 PM - 02:30 PM
Developing an enhanced UNet-based architecture for breast tumor segmentation in ultrasound images
Author(s): **Donya Khaledyan,** Univ. of Rochester (United States); **Thomas J. Marini,** Univ. of Rochester Medical Ctr. (United States); **Kevin Parker,** Univ. of Rochester (United States); **Avice O'Connell,** Univ. of Rochester Medical Ctr. (United States)

12932-29 • 02:30 PM - 02:45 PM
BreastSAM: adapting the segmentation anything model for breast tumor segmentation in ultrasound imaging
Author(s): **Mingzhe Hu**, **Yuheng Li, Xiaofeng Yang,** Emory Univ. (United States)

12932-30 • 02:45 PM - 03:00 PM
Multiple photoacoustic sources localization using deep learning
Author(s): **Hamid Moradi**, **Ronald de Jong**, **Vincent Vousten**, **Robert N. Rohling, Septimiu E. Salcudean,** The Univ. of British Columbia (Canada)

12932-31 • 03:00 PM - 03:15 PM
BrainPuzzle: A new data-driven method for ultrasound brain imaging
Author(s): **Shengyu Chen,** Univ. of Pittsburgh (United States); **Shihang Fang,** Los Alamos National Lab. (United States); **Yi Luo,** Seiswave Corp. (United States); **Xiaowei Jia,** Univ. of Pittsburgh (United States); **Youzuo Lin,** Los Alamos National Lab. (United States)

Coffee Break 03:15 PM - 03:50 PM

SESSION 6: JOINT SESSION WITH CONFERENCES 12928 AND 12932

20 February 2024 • 03:50 PM - 05:30 PM | Pacific C
Session Chair(s): **Purang Abolmaesumi**, The Univ. of British Columbia (Canada); **Josquin Foiret**, Stanford Univ. School of Medicine (United States)

12928-25 • 03:50 PM - 04:10 PM
Real-time vasculature segmentation during laparoscopic liver resection using attention-enriched U-Net model in intraoperative ultrasound videos
Author(s): **Muhammad Awais**, **Mais Altaie**, **Caleb S. O'Connor**, **Austin H. Castelo**, **Hop S. Tran Cao, Kristy K. Brock,** The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

12932-32 • 04:10 PM - 04:30 PM
An automated system for registration and fusion of 3D ultrasound images during cervical brachytherapy procedures
Author(s): **Tiana Trumpour,** Robarts Research Institute (Canada); **Jamiel Nasser,** Univ. of Waterloo (Canada); **Jessica R. Rodgers,** Univ. of Manitoba (Canada); **Jeffrey Bax**, **Lori Gardi,** Robarts Research Institute (Canada); **Lucas C. Mendez**, **Kathleen Surry,** London Regional Cancer Program (Canada); **Aaron Fenster,** Robarts Research Institute (Canada)

12928-26 • 04:30 PM - 04:50 PM
Percutaneous nephrostomy needle guidance using real-time 3D anatomical visualization with live ultrasound segmentation
Author(s): **Andrew S. Kim**, **Chris Yeung,** Queen's Univ. (Canada); **Robert Szabo,** Óbuda Univ. (Hungary); **Kyle Sunderland**, **Rebecca Hisey**, **David Morton,** Queen's Univ. (Canada); **Ron Kikinis,** Brigham and Women's Hospital (United States); **Babacar Diao,** Univ. Cheikh Anta Diop (Senegal); **Parvin Mousavi**, **Tamas Ungi, Gabor Fichtinger,** Queen's Univ. (Canada)

12932-33 • 04:50 PM - 05:10 PM
Mirror-based ultrasound system for exploring hand gesture classification through convolutional neural network and vision transformer
Author(s): **Keshav Bimbraw, Haichong K. Zhang,** Worcester Polytechnic Institute (United States)

12928-27 • 05:10 PM - 05:30 PM
Design and evaluation of an educational system for ultrasound-guided interventional procedures
Author(s): **Purnima Rajan**, **Martin Hossbach**, **Pezhman Foroughi**, **Alican Demir**, **Christopher Schlichter,** Clear Guide Medical (United States); **Karina Gattamorta, Shayne Hauglum,** School of Nursing and Health Studies, Univ. of Miami (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

CONFERENCE 12933

Digital and Computational Pathology

19 - 21 February 2024 | Town & Country D

Conference Chair(s): **John E. Tomaszewski,** Univ. at Buffalo (United States); **Aaron D. Ward,** The Univ. of Western Ontario (Canada)

Program Committee: **Selim Aksoy,** Bilkent Univ. (Turkey); **Ulysses J. Balis,** Univ. of Michigan Health System (United States); **Rohit Bhargava,** Univ. of Illinois at Urbana-Champaign (United States); **Ulf-Dietrich Braumann,** Institut für Angewandte Informatik e.V. (Germany); **Bradley Brimhall,** The Univ. of Texas Health Science Ctr. at San Antonio (United States); **Matthew J. Cecchini,** London Health Sciences Ctr. (Canada); **Keith C. Cheng,** Penn State College of Medicine (United States); **Wei-Chung Cheng,** U.S. Food and Drug Administration (United States); **Eric Cosatto,** NEC Labs. America, Inc. (United States); **Scott Doyle,** Rutgers, The State Univ. of New Jersey (United States); **Alton B. Farris,** Emory Univ. (United States); **Michael D. Feldman,** The Univ. of Pennsylvania Health System (United States); **Marios A. Gavrielides,** AstraZeneca Pharmaceuticals LP (United States); **April Khademi,** Toronto Metropolitan Univ. (Canada); **Nadieh Khalili,** Radboud Univ. Medical Ctr. (Netherlands); **Elizabeth A. Krupinski,** Emory Univ. School of Medicine (United States); **Tom R. L. Kimpe,** Barco N.V. (Belgium); **Richard M. Levenson,** Univ. of California, Davis (United States); **Olivier Lezoray,** Univ. de Caen Basse-Normandie (France); **Geert Litjens,** Radboud Univ. Medical Ctr. (Netherlands); **Anant Madabhushi,** Emory Univ. School of Medicine (United States); **Derek R. Magee,** Univ. of Leeds (United Kingdom); **Erik Meijering,** The Univ. of New South Wales (Australia); **James P. Monaco,** Inspirata, Inc. (United States); **Mehdi Moradi,** McMaster Univ. (Canada); **Bahram Parvin,** Lawrence Berkeley National Lab. (United States); **Nasir M. Rajpoot,** The Univ. of Warwick (United Kingdom); **Berkman Sahiner,** U.S. Food and Drug Administration (United States); **Pinaki Sarder,** Univ. of Florida College of Medicine (United States); **Chukka Srinivas,** Amazon Lab126 (United States); **Jeroen van der Laak,** Radboud Univ. Nijmegen Medical Ctr. (Netherlands); **Darren Treanor,** Univ. of Leeds (United Kingdom); **Mitko Veta,** Technische Univ. Eindhoven (Netherlands); **Martin J. Yaffe,** Sunnybrook Research Institute (Canada); **Bülent Yener,** Rensselaer Polytechnic Institute (United States)

Sunday 18 February 2024

SPIE MEDICAL IMAGING AWARDS AND PLENARY

18 February 2024 • 05:30 PM - 06:30 PM | Town & Country A

View Full Details: spie.org/medical-imaging-awards-plenary

5:30 PM - 5:40 PM:
Symposium Chair Welcome and Best Student Paper Award announcement
First-place winner and runner-up of the Robert F. Wagner All-Conference Best Student Paper Award
Sponsored by:
MIPS and SPIE

5:40 PM - 5:45 PM:
New SPIE Fellow acknowledgments
Each year, SPIE promotes Members as new Fellows of the Society. Join us as we recognize colleagues of the medical imaging community who have been selected.

5:45 PM - 5:50 PM:
SPIE Harrison H. Barrett Award in Medical Imaging
Presented in recognition of outstanding accomplishments in medical imaging

12927-501 • 05:50 PM - 06:30 PM
Interpretable deep learning in medical imaging (Plenary Presentation)
Author(s): **Cynthia Rudin,** Duke Univ. (United States)

Monday 19 February 2024

MONDAY MORNING KEYNOTES

19 February 2024 • 08:30 AM - 10:45 AM | Town & Country A

View Full Details: spie.org/monday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:45 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12927, 12928, and 12932
- Computer-Aided Diagnosis Best Paper Award
- Image-Guided Procedures, Robotic Interventions, and Modeling student paper and Young Scientist Award

12927-403 • 08:45 AM - 09:25 AM
Clinical translation of machine learning for medical imaging (Keynote Presentation)
Author(s): **Curtis P. Langlotz,** Stanford Univ. School of Medicine (United States)

12928-404 • 09:25 AM - 10:05 AM
Beyond the visible: The true state of AI in medical imaging (Keynote Presentation)
Author(s): **Lena Maier-Hein,** Deutsches Krebsforschungszentrum (Germany)

12932-408 • 10:05 AM - 10:45 AM
From dolphins in the sea to stars in the sky: the inspired birth of ultrasound tomography (Keynote Presentation)
Author(s): **Nebojsa Duric,** Univ. of Rochester (United States), Delphinus Medical Technologies (United States)

Coffee Break 10:45 AM - 11:10 AM

SESSION 1: GRADING AND CLASSIFICATION OF PATHOLOGY IMAGES I

19 February 2024 • 11:10 AM - 12:30 PM | Town & Country D
Session Chair(s): **April Khademi**, Toronto Metropolitan Univ. (Canada); **Elizabeth A. Krupinski**, Emory Univ. School of Medicine (United States)

12933-1 • 11:10 AM - 11:30 AM **(CANCELLED)**
Semi-supervised model adaptative cross-tissue histopathological image classification
Author(s): **Yitian Zhou**, **Xingguang Wang, Chang Cai,** Xi'an Jiaotong Univ. (China)

12933-2 • 11:30 AM - 11:50 AM
A full pipeline to analyze lung histopathology images
Author(s): **Lluis Borras Ferris**, **Simon Püttmann**, **Niccolò Marini,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland); **Simona Vatrano**, **Filippo Fragetta**, **Alessandro Caputo,** Azienda Ospedaliera Gravina (Italy); **Francesco Ciompi,** Radboud Univ. Medical Ctr. (Netherlands); **Manfredo Atzori,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland), Univ. degli Studi di Padova (Italy); **Henning Müller,** Haute Ecole Spécialisée de Suisse Occidentale (Switzerland), The Sense (Switzerland)

12933-3 • 11:50 AM - 12:10 PM
Embedding stain-invariance in convolutional neural networks for H&E-stained histopathology
Author(s): **Khrystyna Faryna**, **Geert Litjens, Jeroen van der Laak,** Radboud Univ. Medical Ctr. (Netherlands)

12933-4 • 12:10 PM - 12:30 PM
Efficient grading of prostate cancer WSI with deep learning
Author(s): **Riddhasree Bhattacharyya,** Indian Statistical Institute (India); **Paromita Roy,** Tata Medical Ctr. (India); **Sugata Banerji,** Lake Forest College (United States); **Sushmita Mitra,** Indian Statistical Institute (India)

Lunch Break 12:30 PM - 01:40 PM

SESSION 2: COMPUTER-AIDED DIAGNOSIS, PROGNOSIS, AND PREDICTIVE ANALYSIS I

19 February 2024 • 01:40 PM - 03:00 PM | Town & Country D

Session Chair(s): **Geert J.S. Litjens**, Radboud Univ. Medical Ctr. (Netherlands); **Pinaki Sarder**, Univ. of Florida College of Medicine (United States)

12933-5 • 01:40 PM - 02:00 PM

CA-fuse-MIL: cross-attention fusion of handcrafted and deep features for whole slide image classification

Author(s): **Paras Goel,** BASIS Independent Silicon Valley (United States); **Saarthak Kapse,** Stony Brook Univ. (United States); **Pushpak Pati,** IBM Research - Zürich (Switzerland); **Prateek Prasanna,** Stony Brook Univ. (United States)

12933-6 • 02:00 PM - 02:20 PM

Deep-ODX: an efficient deep learning tool to risk stratify breast cancer patients from histopathology images

Author(s): **Ziyu Su,** Wake Forest Univ. School of Medicine (United States); **Amanda Rosen,** Duke Univ. (United States); **Robert Wesolowski,** The Ohio State Univ. College of Medicine (United States); **Gary Tozbikian,** The Ohio State Univ. (United States); **Muhammad Khalid Khan Niazi, Metin N. Gurcan,** Wake Forest Univ. School of Medicine (United States)

12933-7 • 02:20 PM - 02:40 PM

Survival prediction in pancreatic cancer by attention-driven feature extraction on histopathology whole slide images: a multi-cohort validation

Author(s): **Gustavo Pineda,** Univ. of Wisconsin-Madison (United States), Univ. Nacional de Colombia (Colombia); **Olivia Krebs,** Case Western Reserve Univ. (United States); **Alvaro Sandino,** Univ. of Wisconsin-Madison (United States); **Eduardo Romero,** School of Medicine, Univ. Nacional de Colombia (Colombia); **Pallavi Tiwari,** Univ. of Wisconsin-Madison (United States)

12933-8 • 02:40 PM - 03:00 PM

Cross-modality attention-based multimodal fusion for Non-small Cell Lung Cancer (NSCLC) patient survival prediction

Author(s): **Ruining Deng,** Roche Diagnostics (United States), Vanderbilt Univ. (United States); **Nazim Shaikh**, **Gareth Shannon, Yao Nie,** Roche Diagnostics (United States)

Coffee Break 03:00 PM - 03:30 PM

SESSION 3: SEGMENTATION OF CELLULAR AND TISSUE STRUCTURES I

19 February 2024 • 03:30 PM - 05:30 PM | Town & Country D

Session Chair(s): **Richard M. Levenson**, Univ. of California, Davis (United States); **Selim Aksoy**, Bilkent Univ. (Turkey)

12933-9 • 03:30 PM - 03:50 PM

Few-shot tumor bud segmentation using generative model in colorectal carcinoma

Author(s): **Ziyu Su,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Wei Chen,** The Ohio State Univ. Wexner Medical Ctr. (United States); **Preston J. Leigh,** The Univ. of Arizona (United States); **Usama Sajjad,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Shuo Niu,** Wake Forest Univ. School of Medicine (United States); **Mostafa Rezapour,** Ctr. for Biomedical Informatics (United States); **Wendy L. Frankel,** The Ohio State Univ. Wexner Medical Ctr. (United States); **Metin N. Gurcan, Muhammad Khalid Khan Niazi,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States)

12933-10 • 03:50 PM - 04:10 PM

Tissue cross-section and pen marking segmentation in whole slide images

Author(s): **Ruben T. Lucassen,** Univ. Medical Ctr. Utrecht (Netherlands), Technische Univ. Eindhoven (Netherlands); **Willeke A. M. Blokx,** Univ. Medical Ctr. Utrecht (Netherlands); **Mitko Veta,** Technische Univ. Eindhoven (Netherlands)

12933-11 • 04:10 PM - 04:30 PM

Adapting SAM to histopathology images for tumor bud segmentation in colorectal cancer

Author(s): **Ziyu Su,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Wei Chen,** The Ohio State Univ. Wexner Medical Ctr. (United States); **Sony Annem,** The Univ. of North Carolina at Greensboro (United States); **Usama Sajjad,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Mostafa Rezapour,** Ctr. for Biomedical Informatics (United States); **Wendy L. Frankel,** The Ohio State Univ. Wexner Medical Ctr. (United States); **Metin N. Gurcan, Muhammad Khalid Khan Niazi,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States)

12933-12 • 04:30 PM - 04:50 PM

Automatic segmentation of histogical images of the brain of mice

Author(s): **Juan Cisneros**, **Alain Lalande,** ICMUB Lab., Univ. de Dijon (France); **Binnaz Yalcin,** NeuroGeMM Lab., Univ. de Dijon (France); **Fabrice Meriaudeau,** ICMUB Lab., Univ. de Dijon (France); **Stephan Collins,** NeuroGeMM Lab., Univ. de Dijon (France)

12933-13 • 04:50 PM - 05:10 PM

Advancing in vitro virtual nuclei staining of stem cells through a cross-structure, artifact-free U-Net approach

Author(s): **Polat Goktas, Ricardo Simon Carbajo,** Univ. College Dublin (Ireland)

12933-14 • 05:10 PM - 05:30 PM
Nucleus subtype classification using inter-modality learning
Author(s): **Lucas W. Remedios**, **Shunxing Bao,** Vanderbilt Univ. (United States); **Samuel W. Remedios,** Johns Hopkins Univ. (United States); **Ho Hin Lee**, **Leon Cai**, **Thomas Li**, **Ruining Deng**, **Can Cui,** Vanderbilt Univ. (United States); **Jia Li**, **Qi Liu,** Vanderbilt Univ. Medical Ctr. (United States); **Ken S. Lau,** Vanderbilt Univ. (United States); **Joseph T. Roland**, **Mary K. Washington**, **Lori A. Coburn**, **Keith T. Wilson,** Vanderbilt Univ. Medical Ctr. (United States); **Yuankai Huo, Bennett A. Landman,** Vanderbilt Univ. (United States)

Tuesday 20 February 2024

TUESDAY MORNING KEYNOTES

20 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/tuesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12930 and 12933

12930-406 • 08:40 AM - 09:20 AM
Unlocking the value of 3D printing medical devices in hospitals and universities (Keynote Presentation)
Author(s): **Frank J. Rybicki,** The Univ. of Arizona College of Medicine (United States)

12933-409 • 09:20 AM - 10:00 AM
Clinical AI model translation and deployment: creating a scalable, standardized, and responsible AI lifecycle framework in healthcare (Keynote Presentation)
Author(s): **David S. McClintock,** Mayo Clinic (United States)

Coffee Break 10:00 AM - 10:30 AM

SESSION 4: SEGMENTATION OF CELLULAR AND TISSUE STRUCTURES II

20 February 2024 • 10:30 AM - 12:30 PM | Town & Country D
Session Chair(s): **Selim Aksoy**, Bilkent Univ. (Turkey); **Nadieh Khalili**, Radboud Univ. Medical Ctr. (Netherlands)

12933-15 • 10:30 AM - 10:50 AM
Synthesis of annotated colon cancer tissue images from gland layout
Author(s): **Srijay Deshpande**, **Fayyaz ul Amir Asfar Minhas, Nasir Rajpoot,** The Univ. of Warwick (United Kingdom)

12933-16 • 10:50 AM - 11:10 AM
Eosinophils instance object segmentation on whole slide imaging using multi-label circle representation
Author(s): **Yilin Liu**, **Ruining Deng**, **Juming Xiong,** Vanderbilt Univ. (United States); **Regina N. Tyree**, **Hernan Correa**, **Girish Hiremath**, **Yaohong Wang,** Vanderbilt Univ. Medical Ctr. (United States); **Yuankai Huo,** Vanderbilt Univ. (United States)

12933-17 • 11:10 AM - 11:30 AM **(CANCELLED)**
The robustness of nuclear segmentation models in computational pathology
Author(s): **Sam Molyneux**, **Fayyaz ul Amir Asfar Minhas, Dang Vu,** The Univ. of Warwick (United Kingdom)

12933-18 • 11:30 AM - 11:50 AM
Leverage weekly annotation to pixel-wise annotation via zero-shot segment anything model for molecular-empowered learning
Author(s): **Xueyuan Li**, **Ruining Deng,** Vanderbilt Univ. (United States); **Yucheng Tang,** NVIDIA Corp. (United States); **Shunxing Bao,** Vanderbilt Univ. (United States); **Haichun Yang,** Vanderbilt Univ. Medical Ctr. (United States); **Yuankai Huo,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States)

12933-19 • 11:50 AM - 12:10 PM
Leveraging weakly labeled datasets with target adaptive loss for cell segmentation in immunofluorescence images
Author(s): **Nicolas Brieu,** AstraZeneca GmbH (Germany); **Joshua Z. Drago,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Mai Bui,** AstraZeneca GmbH (Germany); **Fresia Z. Pareja,** Memorial Sloan-Kettering Cancer Ctr. (United States); **Ansh Kapil**, **Tillmann Falck**, **Anatoliy Shumilov, Günter Schmidt,** AstraZeneca GmbH (Germany)

12933-20 • 12:10 PM - 12:30 PM
Efficient semantic segmentation for computational pathology
Author(s): **Doanh Bui Cao**, **Changsu Kim, Jin Tae Kwak,** Korea Univ. (Korea, Republic of)

Lunch Break 12:30 PM - 01:40 PM

SESSION 5: GRADING AND CLASSIFICATION OF PATHOLOGY IMAGES II

20 February 2024 • 01:40 PM - 03:20 PM | Town & Country D
Session Chair(s): **Nadieh Khalili**, Radboud Univ. Medical Ctr. (Netherlands); **Richard M. Levenson**, Univ. of California, Davis (United States)

12933-21 • 01:40 PM - 02:00 PM
Automated anomaly detection in histology images using deep learning
Author(s): **Lillie E. Shelton**, **Rajath Soans**, **Tosha Shah**, **Thomas Forest**, **Kyathanahalli Janardhan**, **Michael Napolitano**, **Raymond Gonzalez**, **Grady Carlson**, **Jyoti Shah, Antong Chen,** Merck & Co., Inc. (United States)

12933-22 • 02:00 PM - 02:20 PM
Automatic segmentation and scoring of 3D in vitro skin models using deep learning methods
Author(s): **Anna-Sophia Hertlein,** Fraunhofer-Institut für Graphische Datenverarbeitung IGD (Germany), Technische Univ. Darmstadt (Germany), Fraunhofer Cluster of Excellence Immune-Mediated Diseases (Germany); **Maximiliane Wußmann,** Fraunhofer-Institut für Silicatforschung ISC (Germany), Fraunhofer Cluster of Excellence Immune-Mediated Diseases (Germany); **Benjamin Boche**, **Felix Pracht,** Fraunhofer-Institut für Graphische Datenverarbeitung IGD (Germany); **Siegfried Holzer,** Fraunhofer-Institut für Silicatforschung ISC (Germany); **Florian Groeber-Becker,** Fraunhofer-Institut für Silicatforschung ISC (Germany), Fraunhofer Cluster of Excellence Immune-Mediated Diseases (Germany); **Stefan Wesarg,** Fraunhofer-Institut für Graphische Datenverarbeitung IGD (Germany), Fraunhofer Cluster of Excellence Immune-Mediated Diseases (Germany)

12933-23 • 02:20 PM - 02:40 PM
An ensemble learning method for detection of head and neck squamous cell carcinoma using polarized hyperspectral microscopic imaging
Author(s): **Hasan K. Mubarak**, **Ximing Zhou,** The Univ. of Texas at Dallas (United States); **Doreen Palsgrove**, **Baran D. Sumer,** The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); **Amy Y. Chen,** Emory Univ. (United States); **Baowei Fei,** The Univ. of Texas at Dallas (United States), The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States)

12933-24 • 02:40 PM - 03:00 PM
Malignant and benign classification using supervised contrastive learning based on distance metric in embedding spaces for rapid on-site cytologic evaluation
Author(s): **Yasuo Omi,** NEC Corp. (Japan); **Keisuke Kirita,** Ageo Central General Hospital (Japan), National Cancer Ctr. Hospital East (Japan); **Tetsuya Sakai**, **Yosuke Kagawa**, **Mari Takahashi, Koichi Goto,** National Cancer Ctr. Hospital East (Japan)

12933-25 • 03:00 PM - 03:20 PM
HER2 prediction from breast H&E-stained whole slide images: a comparison between ROI-based supervised learning and multiple instance learning approaches
Author(s): **Tosha Shah**, **Antong Chen**, **Lin Li,** Merck & Co., Inc. (United States); **Radha Krishnan,** Merck, Sharp & Dohme Ltd. (United Kingdom); **Razvan Cristescu**, **Amir Vajdi, Rajath Soans,** Merck & Co., Inc. (United States)

Coffee Break 03:20 PM - 03:50 PM

SESSION 6: COMPUTER-AIDED DIAGNOSIS, PROGNOSIS, AND PREDICTIVE ANALYSIS II

20 February 2024 • 03:50 PM - 05:10 PM | Town & Country D
Session Chair(s): **Pinaki Sarder**, Univ. of Florida College of Medicine (United States); **Geert J.S. Litjens**, Radboud Univ. Medical Ctr. (Netherlands)

12933-26 • 03:50 PM - 04:10 PM
Deep learning-based ROI detection of AEH and EC on histopathology WSIs for predicting hormonal treatment response
Author(s): **Seyed M. M. Kahaki,** U.S. Food and Drug Administration (United States); **Ian Hagemann,** Washington Univ. School of Medicine in St. Louis (United States); **Kenny Cha**, **Christopher Trindade,** U.S. Food and Drug Administration (United States); **Nicholas Petrick,** US Food and Drug Administration (United States); **Nicolas Kostelecky,** Washington Univ. School of Medicine in St. Louis (United States); **Lindsay E. Borden**, **Doaa Atwi**, **Kar-Ming Fung,** The Univ. of Oklahoma Health Sciences Ctr. (United States); **Weijie Chen,** U.S. Food and Drug Administration (United States)

12933-27 • 04:10 PM - 04:30 PM
Enhancing colorectal cancer tumor bud detection using deep learning from routine H&E-stained slides
Author(s): **Usama Sajjad,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Wei Chen,** The Ohio State Univ. (United States); **Mostafa Rezapour**, **Ziyu Su,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States); **Thomas Tavolara,** Mayo Clinic (United States); **Wendy L. Frankel,** The Ohio State Univ. (United States); **Metin N. Gurcan, Muhammad Khalid Khan Niazi,** Ctr. for Biomedical Informatics, Wake Forest Univ. School of Medicine (United States)

12933-28 • 04:30 PM - 04:50 PM
Federated learning in computational pathology: classification of tall cell patterns in papillary thyroid carcinoma
Author(s): **Sonal Shukla,** Univ. at Buffalo (United States); **Margaret Brandwein-Weber,** Mount Sinai West, Icahn School of Medicine at Mount Sinai (United States), Mount Sinai Beth Israel (United States); **Shabnam Samankan,** The George Washington Univ. (United States); **Ahmed Ayad**, **Mohamed Rabie,** Mount Sinai Health System (United States); **Scott T. Doyle,** Univ. at Buffalo (United States)

12933-29 • 04:50 PM - 05:10 PM
Using integrated radiomic and pathomic-based models to predict progression-free survival in early-stage lung adenocarcinoma
Author(s): **Tengyue Zhang**, **Anil Yadav**, **Ruiwen Ding**, **Sean Johnson**, **Denise Aberle**, **Ashley Prosper**, **Erika Rodriguez,** Univ. of California, Los Angeles (United States); **Ana Cristina Araujo Lemos da Silva,** Univ. Federal de Uberlândia (Brazil); **William Hsu,** Univ. of California, Los Angeles (United States)

LIVE DEMONSTRATIONS WORKSHOP

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Karen Drukker**, The Univ. of Chicago (United States); **Lubomir M. Hadjiiski**, Michigan Medicine (United States); **Horst Karl Hahn**, Fraunhofer-Institut für Digitale Medizin MEVIS (Germany)

View Full Details: spie.org/live-demonstrations-workshop

The goal of this workshop is to provide a forum for systems and algorithms developers to show off their creations. The intent is for the audience to be inspired to conduct derivative research, for the demonstrators to receive feedback and find new collaborators, and for all to learn about the rapidly evolving field of medical imaging. The Live Demonstrations Workshop invites participation from all attendees of the SPIE Medical Imaging symposium. Workshop demonstrations include samples, systems, and software demonstrations that depict the implementation, operation, and utility of cutting-edge as well as mature research. Having an accepted SPIE Medical Imaging paper is not required for giving a live demonstration. A certificate of merit and $500 award will be presented to one demonstration considered to be of exceptional interest.

Award sponsored by:
Siemens Healthineers

PUBLICLY AVAILABLE DATA AND TOOLS TO PROMOTE MACHINE LEARNING: AN INTERACTIVE WORKSHOP EXPLORING MIDRC

20 February 2024 • 05:30 PM - 07:00 PM | Pacific A
Session Chair(s): **Weijie Chen**, U.S. Food and Drug Administration (United States); **Heather M. Whitney**, The Univ. of Chicago (United States)

View Full Details: spie.org/midrc-workshop

In this interactive hands-on workshop exploring the infrastructure and resources of the Medical Imaging and Data Resource Center (MIDRC), we will introduce the data collection and curation methods; the user portal for accessing data including tools designed specifically for cohort building; system evaluation approaches and tools including evaluation metric selection; as well as tools for diversity assessment, identification and mitigation of bias and more.

3D PRINTING AND IMAGING: ENABLING INNOVATION IN PERSONALIZED MEDICINE, DEVICE DEVELOPMENT, AND SYSTEM COMPONENTS

20 February 2024 • 05:30 PM - 07:00 PM | Town & Country A

View Full Details: spie.org/3d-printing-and-imaging

Join this technical event on 3D printing and imaging and hear how it is enabling innovation in personalized medicine, device development, and system components. This special session consists of four presentations followed by a panel discussion.

12925-801 • 05:30 PM - 05:32 PM
Chair welcome and introduction

12925-170 • 05:32 PM - 05:49 PM
Additive manufacturing: the promise and the challenge
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12925-168 • 05:49 PM - 06:06 PM
Point-of-care manufacturing at Mayo Clinic
Author(s): **Jonathan M. Morris,** Mayo Clinic (United States)

12925-169 • 06:06 PM - 06:23 PM
3D-printed anatomical models for vascular device development
Author(s): **Alex Grenning,** The Jacobs Institute, Inc. (United States)

12925-171 • 06:23 PM - 06:40 PM
3D printing patient-specific implants
Author(s): **Devarsh Vyas, Benjamin Johnson,** 3D Systems Corp. (United States)

12925-802 • 06:40 PM - 07:00 PM
Panel Discussion

ESTABLISHING GROUND TRUTH IN RADIOLOGY AND PATHOLOGY

20 February 2024 • 05:30 PM - 07:00 PM | Palm 4

View Full Details: spie.org/radiology-pathology-panel

Establishing ground truth is one of the hardest parts in an imaging experiment. In this workshop we'll talk to pathologists, radiologists, an imaging scientist (who evaluates imaging technology without ground truth), and an FDA staff scientist (who creates his own ground truth) to determine how to best deal with this difficult problem.

Moderator:
Ronald Summers, National Institutes of Health (United States)

Panelists:
Richard Levenson, Univ. of California, Davis (United States)
Steven Horii, Univ. of Pennsylvania (United States)
Abhinav Kumar Jha, Washington Univ., St. Louis (United States)
Miguel Lago, U.S. Food and Drug Administration (United States)

Wednesday 21 February 2024

WEDNESDAY MORNING KEYNOTES

21 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/wednesday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Robert F. Wagner Award finalists announcements for conferences 12929 and 12931

12929-405 • 08:40 AM - 09:20 AM
The journey to better breast cancer detection: a trilogy (Keynote Presentation)
Author(s): **Robert M. Nishikawa,** Univ. of Pittsburgh (United States)

12931-407 • 09:20 AM - 10:00 AM
A tale of two imaging informatics translational licensing models: commercial and open source (Keynote Presentation)
Author(s): **Gordon J. Harris,** Massachusetts General Hospital (United States)

Coffee Break 10:00 AM - 10:40 AM

SESSION 7: EMERGING TOOLS

21 February 2024 • 10:40 AM - 12:20 PM | Town & Country D
Session Chair(s): **Mehdi Moradi**, McMaster Univ. (Canada); **John E. Tomaszewski**, Univ. at Buffalo (United States)

12933-31 • 10:40 AM - 11:00 AM
CODEX and H&E imaging: cell type mapping, analysis, and visualization pipeline
Author(s): **Julio Maragall**, **Nicholas Lucarelli,** Univ. of Florida College of Medicine (United States); **Samuel Border,** Univ. of Florida (United States); **Myles Joshua T. Tan,** Univ. of Florida College of Medicine (United States); **Seth Winfree,** Univ. of Nebraska-Lincoln (United States); **Zoltan Laszik,** Univ. of California, San Francisco (United States); **Michael T. Eadon**, **Tarek M. El-Achkar,** Indiana Univ. (United States); **Sanjay Jain,** Washington Univ. in St. Louis (United States); **Pinaki Sarder,** Univ. of Florida College of Medicine (United States)

12933-33 • 11:00 AM - 11:20 AM
Deep learning-based open source toolkit for eosinophil detection in pediatric eosinophilic esophagitis
Author(s): **Juming Xiong**, **Yilin Liu**, **Ruining Deng**, **Regina N. Tyree**, **Hernan Correa**, **Girish Hiremath**, **Yaohong Wang, Yuankai Huo,** Vanderbilt Univ. (United States)

12933-34 • 11:20 AM - 11:40 AM
High-performance data management for whole slide image analysis in digital pathology
Author(s): **Haoju Leng**, **Ruining Deng**, **Shunxing Bao**, **Dazheng Fang**, **Bryan A. Millis,** Vanderbilt Univ. (United States); **Yucheng Tang,** NVIDIA Corp. (United States); **Haichun Yang,** Vanderbilt Univ. Medical Ctr. (United States); **Xiao Wang,** Oak Ridge National Lab. (United States); **Yifan Peng,** Weill Cornell Medicine (United States); **Lipeng Wan,** Georgia State Univ. (United States); **Yuankai Huo,** Vanderbilt Univ. (United States)

12933-35 • 11:40 AM - 12:00 PM
ComPRePS: An automated cloud-based image analysis tool to democratize AI in digital pathology
Author(s): **Sayat Mimar**, **Anindya Paul**, **Nicholas Lucarelli**, **Samuel Border**, **Sumanth Devarasetty**, **Praveen Kumar Dandee,** Univ. of Florida College of Medicine (United States); **Ujwala Guttikonda,** Univ of Florida College of Medicine (United States); **Nikhil Yerra,** Univ. of Florida College of Medicine (United States); **Laura Barisoni,** Duke Univ. (United States); **Jeffrey Hodgin,** Univ. of Michigan (United States); **Avi Z. Rosenberg,** The Johns Hopkins Univ. School of Medicine (United States); **William Clapp, Pinaki Sarder,** Univ. of Florida College of Medicine (United States)

12933-36 • 12:00 PM - 12:20 PM
Spatial pathomics toolkit for quantitative analysis of podocyte nuclei with histology and spatial transcriptomics data in renal pathology
Author(s): **Jiayuan Chen,** Vanderbilt Univ. (United States); **Yu Wang,** Vanderbilt Univ. Medical Ctr. (United States); **Ruining Deng**, **Quan Liu**, **Can Cui**, **Tianyuan Yao**, **Yilin Liu,** Vanderbilt Univ. (United States); **Jianyong Zhong**, **Agnes B. Fogo**, **Haichun Yang**, **Shilin Zhao,** Vanderbilt Univ. Medical Ctr. (United States); **Yuankai Huo,** Vanderbilt Univ. (United States)

Lunch Break 12:20 PM - 01:40 PM

SESSION 8: FROM IMAGING TO OBSERVER STUDIES

21 February 2024 • 01:40 PM - 03:20 PM | Town & Country D
Session Chair(s): **Elizabeth A. Krupinski**, Emory Univ. School of Medicine (United States); **Aaron D. Ward**, Western Univ. (Canada)

12933-37 • 01:40 PM - 02:00 PM
Quantitative oblique back-illumination microscopy (qOBM) for stain-free tissue imaging with cycleGAN mode conversion can emulate H&E histology
Author(s): **Tanishq Abraham,** UC Davis Medical Ctr. (United States); **Paloma C. Costa**, **Caroline E. Filan**, **Francisco Robles,** Georgia Institute of Technology (United States); **Richard M. Levenson,** UC Davis Medical Ctr. (United States)

12933-38 • 02:00 PM - 02:20 PM
Investigating staining variance effects on deep learning-based semantic segmentation in digital pathology
Author(s): **Amine Marzouki,** Lab. d'Informatique Paris Descartes, Univ. Paris Cité (France); **Zografoula Vagena,** Data Intelligence Institute of Paris, Univ. Paris Cité (France); **Camille Kurtz, Nicolas Loménie,** Lab. d'Informatique Paris Descartes, Univ. Paris Cité (France)

12933-39 • 02:20 PM - 02:40 PM
Pixel-level analysis of protein markers in highly multiplexed immunofluorescence images of kidney biopsies
Author(s): **Madeleine S. Durkee**, **Junting Ai**, **Thao Cao**, **Gabriel Casella**, **Deepjyoti Ghosh**, **Michael S. Andrade**, **Marcus R. Clark, Maryellen L. Giger,** The Univ. of Chicago (United States)

12933-40 • 02:40 PM - 03:00 PM
Cell spatial analysis in Crohn's disease: unveiling local cell arrangement pattern with graph-based signatures
Author(s): **Shunxing Bao,** Vanderbilt Univ. (United States); **Sichen Zhu,** Georgia Institute of Technology (United States), Emory Univ. (United States); **Vasantha L. Kolachala,** Emory Univ. School of Medicine (United States); **Lucas W. Remedios,** Vanderbilt Univ. (United States); **Yeonjoo Hwang,** Emory Univ. School of Medicine (United States); **Yutong Sun,** Georgia Institute of Technology (United States); **Ruining Deng**, **Can Cui**, **Rendong Zhang,** Vanderbilt Univ. (United States); **Yike Li**, **Jia Li**, **Joseph T. Roland**, **Qi Liu,** Vanderbilt Univ. Medical Ctr. (United States); **Ken S. Lau,** Vanderbilt Univ. (United States); **Subra Kugathasan,** Emory Univ. School of Medicine (United States); **Peng Qiu,** Georgia Institute of Technology (United States), Emory Univ. (United States); **Keith T. Wilson**, **Lori A. Coburn,** Vanderbilt Univ. Medical Ctr. (United States); **Bennett A. Landman, Yuankai Huo,** Vanderbilt Univ. (United States)

12933-41 • 03:00 PM - 03:20 PM
Assessment of machine learning algorithms for TILs scoring using whole slide images: comparison with pathologists
Author(s): **Arian Arab**, **Victor Garcia**, **Seyed M. M. Kahaki**, **Nicholas Petrick**, **Brandon D. Gallas, Weijie Chen,** U.S. Food and Drug Administration (United States)

POSTERS - WEDNESDAY

21 February 2024 • 05:30 PM - 07:00 PM | Pacific A

View Full Details: spie.org/mi/wednesday-poster-session

Conference attendees are invited to attend the SPIE Medical Imaging poster session on Wednesday evening. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges.

Poster Presenters:
Poster Setup Period: 5:00 PM Tuesday – 5:00 PM Wednesday

- In order to be considered for a poster award, it is recommended to have your poster set up by 12:00 PM Wednesday. Judging may begin after this time. Posters must remain on display until the end of the Wednesday evening poster session, but may be left hanging until 1:00 PM Thursday. After 1:00 PM, any posters left hanging will be discarded.

View poster presentation guidelines and set-up instructions at
spie.org/MI/Poster-Presentation-Guidelines

12933-42 • 05:30 PM - 07:00 PM
An unsupervised workflow for explainable biomarker identification based on multiplex data
Author(s): **Tillmann Falck**, **Harald Hessel**, **Florian Song**, **Markus Schick**, **Corina Cotoi, Nicolas Brieu,** AstraZeneca GmbH (Germany)

12933-43 • 05:30 PM - 07:00 PM
Automated eosinophilic segmentation and counting: a comprehensive evaluation
Author(s): **Gurmeher Kaur**, **Crystal Soong,** Chapel Hill High School (United States); **Martin Styner, Dimitri Trembath,** The Univ. of North Carolina at Chapel Hill (United States)

12933-44 • 05:30 PM - 07:00 PM
A generative AI approach for interference study on chromogenic triplex images
Author(s): **Satarupa Mukherjee**, **Jim Martin, Yao Nie,** Roche Diagnostics (United States)

12933-46 • 05:30 PM - 07:00 PM
Multi-scale multi-site renal microvascular structures segmentation for whole slide imaging in renal pathology
Author(s): **Franklin Hu**, **Ruining Deng**, **Shunxing Bao,** Vanderbilt Univ. (United States); **Haichun Yang,** Vanderbilt Univ. Medical Ctr. (United States); **Yuankai Huo,** Vanderbilt Univ. (United States)

12933-47 • 05:30 PM - 07:00 PM
Evaluating diffusion model generated synthetic histopathology image data against authentic digital pathology images
Author(s): **Taranpreet Rai**, **Cecilia Gola**, **Marta Hernández**, **Sai Fingerhood**, **Javier Marrero**, **Pablo Diaz Santana,** Univ. of Surrey (United Kingdom); **Giuseppe Giglia,** University of Perugia (Italy); **Ambra Morisi,** Univ. of Surrey (United Kingdom); **Barbara Bacci,** Univ. degli Studi di Bologna (Italy); **Spencer A. Thomas,** Univ. of Surrey (United Kingdom), National Physical Lab. (United Kingdom); **Lorenzo Ressel,** Leahurst Campus, University of Liverpool (United Kingdom); **Nicholas Bacon,** AURA Veterinary (United Kingdom), Univ. of Surrey (United Kingdom); **Nikolaos Papachristou,** Aristotle University of Thessaloniki (Greece); **Alasdair Cook**, **Roberto La Ragione, Kevin Wells,** Univ. of Surrey (United Kingdom)

12933-48 • 05:30 PM - 07:00 PM
Patch stitching data augmentation for cancer classification in pathology images
Author(s): **Jiamu Wang**, **Chang-Su Kim, Jin Tae Kwak,** Korea Univ. (Korea, Republic of)

12933-49 • 05:30 PM - 07:00 PM
Weakly supervised medulloblastoma tumor classification using domain specific patch-level feature extraction
Author(s): **Lennart Maack**, **Debayan Bhattacharya**, **Finn Behrendt,** Institute of Medical Technology and Intelligent Systems, Technische Univ. Hamburg-Harburg (Germany); **Michael Bockmayr,** Universitätsklinikum Hamburg-Eppendorf (Germany); **Alexander Schlaefer,** Institute of Medical Technology and Intelligent Systems, Technische Univ. Hamburg-Harburg (Germany)

12933-50 • 05:30 PM - 07:00 PM
Evaluation kidney layer segmentation on whole slide imaging using convolutional neural networks and transformers
Author(s): **Muhao Liu,** Vanderbilt Univ. (United States); **Chenyang Qi,** Tongji Univ. (China); **Shunxing Bao**, **Quan Liu**, **Ruining Deng,** Vanderbilt Univ. (United States); **Yu Wang**, **Shilin Zhao**, **Haichun Yang,** Vanderbilt Univ. Medical Ctr. (United States); **Yuankai Huo,** Vanderbilt Univ. (United States), Vanderbilt Univ. Medical Ctr. (United States)

12933-51 • 05:30 PM - 07:00 PM
Segmenting cardiac muscle Z-disks with deep neural networks
Author(s): **Mihaela Croitor Ibrahim**, **Nishant Ravikumar**, **Alistair Curd**, **Joanna Leng**, **Oliver Umney, Michelle Peckham,** Univ. of Leeds (United Kingdom)

12933-52 • 05:30 PM - 07:00 PM
Computational integration of CODEX and brightfield histology for cell annotation using deep learning
Author(s): **Nicholas Lucarelli,** Univ. of Florida College of Medicine (United States); **Zoltan Laszik,** Univ. of California, San Francisco (United States); **Seth Winfree,** Univ. of Nebraska-Lincoln (United States); **Tarek M. El-Achkar**, **Michael T. Eadon,** Indiana Univ. (United States); **Sanjay Jain,** Washington Univ. in St. Louis (United States); **Pinaki Sarder,** Univ. of Florida College of Medicine (United States)

12933-53 • 05:30 PM - 07:00 PM
Correlation of glomerular histomorphometry changes with spatially resolved transcriptomic profiles in diabetic nephropathy
Author(s): **Ahmed Naglah**, **Sayat Mimar**, **Anindya Paul,** Univ. of Florida College of Medicine (United States); **Ricardo Melo Ferreira,** Indiana Univ. (United States); **Avi Z. Rosenberg,** The Johns Hopkins Univ. School of Medicine (United States); **Seung Seok Han,** Seoul National Univ. (Korea, Republic of); **Jessica Ray,** Univ. of Florida (United States); **Michael T. Eadon,** Indiana Univ. (United States); **Pinaki Sarder,** Univ. of Florida College of Medicine (United States)

12933-54 • 05:30 PM - 07:00 PM
Renal cell classification in highly multiplexed microscopy imaging using a biology-based decision tree classifier
Author(s): **Gabriel Casella**, **Madeleine S. Durkee**, **Junting Ai**, **Thao Cao**, **Deepjyoti Ghosh**, **Michael S Andrade**, **Anthony Chang**, **Maryellen L. Giger, Marcus R Clark,** The Univ. of Chicago Pritzker School of Medicine (United States)

12933-55 • 05:30 PM - 07:00 PM
Multi-class instance segmentation of renal structures in highly multiplexed immunofluorescence microscopy images
Author(s): **Thao Cao**, **Madeleine S. Durkee**, **Junting Ai**, **Gabriel Casella**, **Deepjyoti Ghosh**, **Michael S. Andrade**, **Anthony Chang**, **Maryellen L. Giger, Marcus R. Clark,** The Univ. of Chicago (United States)

Thursday 22 February 2024

THURSDAY MORNING KEYNOTES

22 February 2024 • 08:30 AM - 10:00 AM | Town & Country A

View Full Details: spie.org/thursday-morning-keynotes

8:30 AM - 8:35 AM:
Welcome and introduction

8:35 AM - 8:40 AM:
Award announcements

- Robert F. Wagner Award finalists for conferences 12925 and 12926
- Physics of Medical Imaging Best Student Paper Award
- Image Processing Best Paper Award

12925-401 • 08:40 AM - 09:20 AM
Medical imaging applications for additive manufacturing: challenges and opportunities (Keynote Presentation)
Author(s): **David W. Holdsworth,** Western Univ. (Canada)

12926-402 • 09:20 AM - 10:00 AM
Integrating vision and language: Revolutionary foundations in medical imaging AI (Keynote Presentation)
Author(s): **Shuo Li,** Case Western Reserve Univ. (United States)

SPIE EVENT POLICIES

Acceptance of policies and registration conditions

The following policies and conditions apply to all SPIE events, both online and in person. As a condition of registration, you will be required to acknowledge and accept the SPIE policies and conditions contained herein.

SPIE has established a confidential reporting system for all SPIE event participants to raise concerns about possible unethical or inappropriate behavior within our community. When at an SPIE event, you may contact any SPIE staff with concerns. If you feel that you are in immediate danger, please dial the local emergency number for police intervention.

Be well agreement

You acknowledge that attending an event involves some risk of exposure to COVID-19 or other communicable diseases. You voluntarily assume this risk and agree not to hold SPIE or any of its affiliates liable for any illness you may contract. You also agree not to attend the event if you feel ill or have had recent exposure to a COVID-19 case.

SPIE will provide hand sanitizer locations and disposable face masks upon request.

Anti-harassment policy

It is SPIE policy that all employees, volunteers, and participants are entitled to respectful treatment. Any form of bullying, discrimination, harassment, sexual or otherwise, is unacceptable and will not be tolerated. This policy applies to all locations and situations where SPIE business is conducted and to all SPIE-sponsored activities and events.

Read complete policy: https://spie.org/about-spie/the-society/policies-and-reporting

SPIE Conferences app messaging policy

The SPIE Conferences app supports attendee-to-attendee messaging to facilitate professional networking among meeting participants. This feature should not be used to push high-volume solicitations, and messaging will be disabled for attendees who exceed reasonable use or are in violation of other SPIE event policies. Attendees should report inappropriate use via the app reporting feature. SPIE will also monitor for high-volume patterns suggesting improper use.

SPIE Conferences app connect feature

The connect feature in the SPIE Conferences app is a personal networking tool that allows individuals to share their contact information with other attendees via their phones while using the SPIE app. This tool should not be used for systematic scanning of badges for managing sales leads. Inappropriate use is a violation of event policy.

SPIE Conferences app lead retrieval feature

The lead retrieval feature in the SPIE Conferences app is a lead generation tool that allows attendees to share their contact information with SPIE exhibitors. Exhibitor representatives using the lead retrieval app may scan attendee badges in the exhibition or supporting company events after receiving permission from an attendee. It should not be used in the technical conference area. The lead retrieval feature will be disabled for exhibitor representatives who exceed reasonable use or are in violation of other SPIE event policies. Attendees should report inappropriate use by notifying staff or contacting support via the help link in the app.

Attendee registration and admission policies

SPIE, or their officially designated event management, in their sole discretion, reserves the right to accept or decline an individual's registration for an event. Further, SPIE, or event management, reserves the right to prohibit entry of or to remove any individual whether registered or not, be they attendees, exhibitors, representatives, or vendors, whose conduct is not in keeping with the character and purpose of the event. Without limiting the foregoing, SPIE and event management reserve the right to remove or refuse entry to anyone who has registered or gained access under false pretenses, provided false information, or for any other reason whatsoever that they deem is cause under the circumstances.

Capture and use of a person's image

By registering for an SPIE event, you grant full permission to SPIE to capture, store, use, and/or reproduce your image or likeness, including incidental capture of any individuals in your household or workplace, by any audio and/or visual recording technique and create derivative works of these images and recordings in any SPIE media now known or later developed, for any legitimate SPIE purpose. By registering for an SPIE event, you waive any right to inspect or approve the use of the images or recordings or of any written copy. You also waive any right to royalties or other compensation arising from or related to the use of the images, recordings, or materials. By registering, you release, defend, indemnify, and hold harmless SPIE from and against any claims, damages, or liability arising from or related to the use of the images, recordings, or materials, including but not limited to claims of defamation, invasion of privacy, or rights of publicity or copyright infringement, or any misuse, distortion, blurring, alteration, optical illusion, or use in composite form that may occur or be produced in taking, processing, reduction, or production of the finished product, its publication or distribution.

Code of conduct

SPIE is committed to providing a harassment- and discrimination-free experience for everyone at our events, an experience that embraces the richness of diversity where participants may exchange ideas, learn, network, and socialize in the company of colleagues in an environment of mutual respect.

Read complete code: https://www.spie.org/about-spie/the-society/policies-and-reporting?_ga=2.105671243.912797836.1705281624-151969846.1705281624

Event and course cancellation by SPIE

If for some unforeseen reason, SPIE should have to cancel a course or an entire event, processed registration fees for the canceled activity will be refunded to registrants. Registrants will be responsible for the cancellation of travel arrangements or housing reservations and the applicable fees.

Family-friendly policy

Conference events: all conference technical and networking events require a badge for admission. Registered attendees may bring children with them if they have been issued a badge. Registration badges for children under 18 are free and available at the SPIE registration desk onsite. Children under 14 years of age must be accompanied by an adult at all times, and guardians are asked to help maintain a professional, disturbance-free conference environment.

Identification requirement

To verify registered participants and provide a measure of security, SPIE will ask attendees to present a government-issued photo identification at registration to collect registration materials. Individuals are not allowed to pick up badges for other attendees. Further, attendees may not have some other person participate in their place at any conference-related activity. Such other individuals will be required to register on their own behalf to participate.

For online events, SPIE requires individuals to register with their legal identity.

Laser-pointer safety policy

SPIE events are subject to the applicable laser safety rules and regulations of the host location. SPIE supplies industry-standard Class 2 presentation laser pointers for all conference and other meeting rooms. For safety reasons, SPIE requests that presenters use provided laser pointers. The use of a personal laser pointer represents the user's acceptance of liability for any damage or injuries to the presenter or others.

No smoking policy

Attendees will observe all non-smoking regulations that are publicly posted by the facilities used by the event.

Online commenting policy

SPIE moderates all comments posted in an online event. We encourage robust discussion, the exchange of scientific ideas, and the sharing of multiple, diverse perspectives. We expect the discussion to be consistent with the norms of scholarly research community interactions at events. Online event participants should report any comments or content that falls short of those community norms. We will remove comments, content, or people that are considered inappropriate by SPIE standards or that:

- are defamatory, libelous, obscene, indecent, abusive, or threatening to others
- infringe the copyright, trademark, or other rights of a third party
- upload viruses or are a cybersecurity hazard
- are off-topic or inappropriately commercial in nature
- are in violation of any applicable laws or regulations

Payment policy

Registrations must be fully paid before access to the conference is allowed. SPIE accepts VISA, MasterCard, American Express, Discover, Diner's Club, checks, and wire transfers. Onsite registrations can also be paid with cash.

Recording policy

Conferences and poster sessions: audio and video recordings are prohibited without prior written consent of SPIE and the presenter. Consent forms are available at Speaker Check-in, SPIE Registration, or the Chair Services Desk. Individuals not complying with this policy will be asked to surrender their recording media and leave the conference room. Refusal to comply with such requests is grounds for expulsion from the event. Please see the SPIE code of conduct.

Courses: audio and video recordings are prohibited without explicit permission from SPIE and the instructor. Individuals not complying with this policy will be asked to surrender their recording media and leave the classroom. Refusal to comply with such requests is grounds for expulsion from the event.

Unauthorized solicitation

Unauthorized solicitation in the exhibition hall is prohibited. Any non-exhibiting organization observed to be distributing information or soliciting business in the aisles, or in another company's booth, will be asked to leave immediately.

Unsecured items

Personal belongings should not be left unattended in meeting rooms or public areas. Unattended items are subject to removal by security. SPIE is not responsible for items left unattended.

Wireless internet service

At most events, SPIE provides wireless access for attendees. Properly secure your computer before accessing the public wireless network. SPIE is not responsible for computer viruses or other kinds of computer damage.

PUBLISH IN JMI

Journal of Medical Imaging

The *Journal of Medical Imaging* (JMI) allows for the peer-reviewed communication and archiving of fundamental and translational research, as well as applications, focused on medical imaging.

ABOUT THE EDITOR

Bennett A. Landman
is professor and department chair of electrical and computer engineering at Vanderbilt University, USA

6 Issues/Year; ISSN: 2329-4302; E-ISSN: 2329-4310
Online from Vol. 1 (2014)

PUBLISHED BY:

SPIE.

Submit your research to the ***Journal of Medical Imaging***

SPIEDigitalLibrary.org/JMI