SPIE. MEDICAL IMAGING

19–23 February 2023
Town and Country Resort & Convention Center
San Diego, CA, USA

SUBMIT ABSTRACTS
BY 10 AUGUST 2022

spie.org/mi23call
#SPIEMedicalImaging
An invitation to participate

SPIE Medical Imaging is the right choice for your next conference. You’ll experience five days of thought-provoking sessions, plenary talks, and networking events that will bring the community together again in sunny San Diego.

This meeting is the internationally recognized forum for reporting state-of-the-art research and development in medical imaging. The event focuses on the latest innovations found in underlying fundamental scientific principles, technology developments, scientific evaluation, and clinical application. The symposium covers the full range of medical imaging modalities focusing on image acquisition, display, processing, analysis, perception, decision support, and informatics.

Come share with—and learn from—world experts, researchers, and innovators discussing advancements in image processing, physics, computer-aided diagnosis, perception, image-guided procedures, biomedical applications, ultrasound, informatics, radiology, and digital pathology. The conference topics include an increased focus on fast emerging areas such as deep learning, AI, machine learning, and information fusion.

We hope you will consider joining your community in San Diego. Until then—with much anticipation and appreciation,

Your 2023 Medical Imaging Chairs

ABSTRACT SUBMISSIONS ARE DUE 10 AUGUST.
Executive Organizing Committee

Christian Boehm, ETH Zurich (Switzerland)
Nick Bottenus, Univ. of Colorado Boulder (United States)
Weijie Chen, U.S. Food and Drug Administration (United States)
Olivier Colliot, Ctr. National de la Recherche Scientifique (France)
Rebecca Fahrig, Siemens Healthineers (Germany)
Barjor Gimi, Trinity Health Corp. (United States)
Khan Iftekharuddin, Old Dominion Univ. (United States)
Ivana Išgum, Amsterdam UMC (Netherlands)
Andrzej Krol, SUNY Upstate Medical Univ. (United States)
Cristian Linte, Rochester Institute of Technology (United States)
Claudia Mello-Thoms, Univ. Iowa Carver College of Medicine (United States) and Univ. of Pittsburgh (United States)

Brian Park, Oregon Health & Science Univ. (United States)
Nicole Ruiter, Karlsruher Institut für Technologie (Germany)
John Sabol, Konica Minolta Healthcare Americas, Inc. (United States)
Jeffrey Siewerdsen, Johns Hopkins Univ. (United States)
Sian Taylor-Phillips, The Univ. of Warwick (United Kingdom)
John Tomaszewski, Univ. at Buffalo (United States)
Aaron Ward, The Univ. of Western Ontario (Canada)
Hiroyuki Yoshida, Massachusetts General Hospital (United States) and Harvard Medical School (United States)
Lifeng Yu, Mayo Clinic (United States)

Contents

CONFERENCE MI101: Physics of Medical Imaging
Lifeng Yu; Rebecca Fahrig; John M. Sabo

CONFERENCE MI102: Image Processing
Olivier Colliot; Ivana Išgum

CONFERENCE MI103: Computer-Aided Diagnosis
Weijie Chen; Khan M. Iftekharuddin

CONFERENCE MI104: Image-Guided Procedures, Robotic Interventions, and Modeling
Cristian A. Linte; Jeffrey H. Siewerdsen

CONFERENCE MI105: Image Perception, Observer Performance, and Technology Assessment
Claudia R. Mello-Thoms; Sian Taylor-Phillips

CONFERENCE MI106: Biomedical Applications in Molecular, Structural, and Functional Imaging
Barjor S. Gimi; Andrzej Krol

CONFERENCE MI107: Imaging Informatics for Healthcare
Brian J. Park; Hiroyuki Yoshida

CONFERENCE MI108: Ultrasonic Imaging and Tomography
Christian Boehm; Nick Bottenus; Nicole V. Ruiter

CONFERENCE MI109: Digital and Computational Pathology
John E. Tomaszewski; Aaron D. Ward

CONFERENCE MI110: General Information

2023 STUDENT PAPER AWARDS INFORMATION
ATTENTION STUDENTS
Submission instructions and eligibility requirements for the 2023 All Conference Best Student Paper Awards will be available in July 2022.

See 2022 Award Winners online: www.spie.org/awards2022

Nominations now being accepted for the
SPIE HARRISON H. BARRETT AWARD
Nominate a colleague in recognition of outstanding accomplishments in medical imaging. Deadline for 2023 nominations is 1 July 2022.

View award details and past winners online.

2022 AWARD RECIPIENT
Maryellen L. Giger
Maryellen L. Giger, University of Chicago, Chicago, Illinois, USA
**Physics of Medical Imaging (MI101)**

*Conference Chairs: Lifeng Yu, Mayo Clinic (United States); Rebecca Fahrig, Siemens Healthineers (Germany)*

*Conference Co-Chair: John M. Sabol, Konica Minolta Healthcare Americas, Inc. (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); 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), Univ. of Massachusetts Medical School (United States); Talty Glat 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); Ke Li, Univ. of Wisconsin School of Medicine and Public Health (United States); Quanzheng Li, Massachusetts General Hospital (United States); Joseph Y. Lo, Carl E. Ravin Advanced Imaging Labs. (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); Joseph W. Stayman, Johns Hopkins Univ. (United States); Anders Tingberg, Skåne Univ. Hospital (Sweden); Adam S. Wang, Stanford Univ. School of Medicine (United States); Yuxiang Xing, Tsinghua Univ. (China); Wei Zhao, Stony Brook Univ. (United States)*

This conference will cover all aspects of image formation in medical imaging, including systems using ionizing radiation (X-rays, gamma rays) or non-ionizing techniques (ultrasound, optical, thermal, magnetic resonance, or magnetic particle imaging). Papers of a theoretical nature, or reporting new experimental results, or describing applications of artificial intelligence techniques are invited. Topics of particular interest include novel methods for image formation, experimental methods and results regarding image performance, algorithms for image reconstruction and correction, detector materials and electronic design, analytical and computer modeling of imaging systems, and physics of contrast media. Work directed toward the imaging of human subjects, small animals, or tissue specimens are welcome. The conference will also cover various specific imaging applications resulting from the above-mentioned general imaging framework, for example cardiovascular or neuroimaging applications. Original papers are especially requested in the following areas:

**IMAGING SCIENCE**
- Physics of signal detection, image formation and signal degradation
- Object characterization and contrast mechanisms
- Characterization of detector and system performance (MTF, NPS, DQE, task- and observer-based)
- Virtual imaging and virtual clinical trials

**TECHNOLOGY**
- Novel medical imaging systems and methods including contrast media/nanoparticles
- Properties of scintillating, photoconductive, or other sensor materials
- Novel sources of radiation
- Image reconstruction methods (e.g., for CT, tomosynthesis, SPECT and PET, optical imaging, MRI, etc.)
- Machine-learning approaches to image formation
- Multi-energy (spectral) X-ray and CT imaging
- Computer simulation of imaging systems including models for radiation sources, imaged objects, physical interactions, and detectors
- Phenoms (physical and numerical)
- Photon counting techniques including hardware, image reconstruction, image quality, and applications
- Imaging methods for radiation therapy
- Radiation (e.g., optical) and signal transport
- Radiation dose, dosimetry, and dose effects (risk), as well as possible stratification

**DEVICES**
- Advanced multi-slice or cone beam CT systems
- Advanced radiographic, fluoroscopic, or angiographic systems (including phase contrast and diffraction)
- Ultrasound, MRI, optical, thermal, magnetic particle imaging (and other non-ionizing radiation systems)
- Small animal imaging systems
- Nuclear medicine imaging methods (SPECT and PET)
- Multi-modality imaging devices
- Low-cost imaging devices with global health applications

**APPLICATIONS**
- Cardiovascular imaging
- Neuroimaging
- Mammographic imaging
- Interventional imaging
- Imaging applications in therapy (e.g., radiation therapy, surgery, in-vivo verification)
- Advanced applications (clinical, translational, preclinical, basic science, biomarkers)
- Novel medical imaging for precision medicine applications

This conference will cover all aspects of image formation in medical imaging, including systems using ionizing radiation (X-rays, gamma rays) or non-ionizing techniques (ultrasound, optical, thermal, magnetic resonance, or magnetic particle imaging). Papers of a theoretical nature, or reporting new experimental results, or describing applications of artificial intelligence techniques are invited. Topics of particular interest include novel methods for image formation, experimental methods and results regarding image performance, algorithms for image reconstruction and correction, detector materials and electronic design, analytical and computer modeling of imaging systems, and physics of contrast media. Work directed toward the imaging of human subjects, small animals, or tissue specimens are welcome. The conference will also cover various specific imaging applications resulting from the above-mentioned general imaging framework, for example cardiovascular or neuroimaging applications. Original papers are especially requested in the following areas:

**IMAGING SCIENCE**
- Physics of signal detection, image formation and signal degradation
- Object characterization and contrast mechanisms
- Characterization of detector and system performance (MTF, NPS, DQE, task- and observer-based)
- Virtual imaging and virtual clinical trials

**TECHNOLOGY**
- Novel medical imaging systems and methods including contrast media/nanoparticles
- Properties of scintillating, photoconductive, or other sensor materials
- Novel sources of radiation
- Image reconstruction methods (e.g., for CT, tomosynthesis, SPECT and PET, optical imaging, MRI, etc.)
- Machine-learning approaches to image formation
- Multi-energy (spectral) X-ray and CT imaging
- Computer simulation of imaging systems including models for radiation sources, imaged objects, physical interactions, and detectors
- Phenoms (physical and numerical)
- Photon counting techniques including hardware, image reconstruction, image quality, and applications
- Imaging methods for radiation therapy
- Radiation (e.g., optical) and signal transport
- Radiation dose, dosimetry, and dose effects (risk), as well as possible stratification

**DEVICES**
- Advanced multi-slice or cone beam CT systems
- Advanced radiographic, fluoroscopic, or angiographic systems (including phase contrast and diffraction)
- Ultrasound, MRI, optical, thermal, magnetic particle imaging (and other non-ionizing radiation systems)
- Small animal imaging systems
- Nuclear medicine imaging methods (SPECT and PET)
- Multi-modality imaging devices
- Low-cost imaging devices with global health applications

**APPLICATIONS**
- Cardiovascular imaging
- Neuroimaging
- Mammographic imaging
- Interventional imaging
- Imaging applications in therapy (e.g., radiation therapy, surgery, in-vivo verification)
- Advanced applications (clinical, translational, preclinical, basic science, biomarkers)
- Novel medical imaging for precision medicine applications

This conference will cover all aspects of image formation in medical imaging, including systems using ionizing radiation (X-rays, gamma rays) or non-ionizing techniques (ultrasound, optical, thermal, magnetic resonance, or magnetic particle imaging). Papers of a theoretical nature, or reporting new experimental results, or describing applications of artificial intelligence techniques are invited. Topics of particular interest include novel methods for image formation, experimental methods and results regarding image performance, algorithms for image reconstruction and correction, detector materials and electronic design, analytical and computer modeling of imaging systems, and physics of contrast media. Work directed toward the imaging of human subjects, small animals, or tissue specimens are welcome. The conference will also cover various specific imaging applications resulting from the above-mentioned general imaging framework, for example cardiovascular or neuroimaging applications. Original papers are especially requested in the following areas:

**IMAGING SCIENCE**
- Physics of signal detection, image formation and signal degradation
- Object characterization and contrast mechanisms
- Characterization of detector and system performance (MTF, NPS, DQE, task- and observer-based)
- Virtual imaging and virtual clinical trials

**TECHNOLOGY**
- Novel medical imaging systems and methods including contrast media/nanoparticles
- Properties of scintillating, photoconductive, or other sensor materials
- Novel sources of radiation
- Image reconstruction methods (e.g., for CT, tomosynthesis, SPECT and PET, optical imaging, MRI, etc.)
- Machine-learning approaches to image formation
- Multi-energy (spectral) X-ray and CT imaging
- Computer simulation of imaging systems including models for radiation sources, imaged objects, physical interactions, and detectors
- Phenoms (physical and numerical)
- Photon counting techniques including hardware, image reconstruction, image quality, and applications
- Imaging methods for radiation therapy
- Radiation (e.g., optical) and signal transport
- Radiation dose, dosimetry, and dose effects (risk), as well as possible stratification

**DEVICES**
- Advanced multi-slice or cone beam CT systems
- Advanced radiographic, fluoroscopic, or angiographic systems (including phase contrast and diffraction)
- Ultrasound, MRI, optical, thermal, magnetic particle imaging (and other non-ionizing radiation systems)
- Small animal imaging systems
- Nuclear medicine imaging methods (SPECT and PET)
- Multi-modality imaging devices
- Low-cost imaging devices with global health applications

**APPLICATIONS**
- Cardiovascular imaging
- Neuroimaging
- Mammographic imaging
- Interventional imaging
- Imaging applications in therapy (e.g., radiation therapy, surgery, in-vivo verification)
- Advanced applications (clinical, translational, preclinical, basic science, biomarkers)
- Novel medical imaging for precision medicine applications
Image Processing (MI02)

Conference Chairs: Olivier Colliot, Ctr. National de la Recherche Scientifique (France); Ivana Isgum, Amsterdam UMC (Netherlands)

Program Committee: Elsa D. Angelini, Imperial College London (United Kingdom); Columbia Univ. (United States); Télécom ParisTech (France); Meritxell Bach-Cuadra, Univ. de Léausanne (Switzerland); Ulas Bagci, Northwestern Univ. (United States); Niha G. Beig, Tempus Labs 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); Antong Chen, Merck & Co., Inc. (United States); Tolga Cukur, Bilimli 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. Falção, Univ. of Campinas (Brazil); Aaron Fenster, Roberts Research Institute (Canada); James Fishbaugh, NYU Tandon School of Engineering (United States); Alejandro F. Frangi, Univ. of Leeds (United Kingdom); Yu Gan, The Univ. of Alabama (United States); Mona K. Garvin, The Univ. of Iowa (United States);

James C. Gee, Univ. of Pennsylvania (United States); Miguel Angel González Ballesté, Univ. Pompeu Fabra (Spain); Hayit Greenspan, Tel Aviv Univ. (Israel); David R. Haynor, Univ. of Washington (United States); Tobias Heimann, Siemens Healthineers (Germany); Bulat Ibragimov, Univ. of Copenhagen (Denmark); Leigh Johnston, The Univ. of Melbourne (Australia); Jayashree Kalpathy-Cramer, Athinoulia A. Martins Ctr. for Biomedical Imaging (United States), Harvard Univ. (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 Lantixien, CREATIS (France); Tianhu Lei, Univ. of Pittsburgh (United States); Tim Leiner, Univ. Medical Ctr. Utrecht (Netherlands); Karim Lekadir, Univ. de Barcelona (Spain); Bouw甸win P. F. Lellieveldt, Leiden Univ. Medical Ctr. (Netherlands);

Natasha Lepore, Children’s Hospital Los Angeles (United States), The Univ. of Southern California (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, PUCRS-IPCT (Brazil);

Diana Mateus, Ecole Centrale de Nantes (France); Jhihmi Mita, GE Research (United States);

Marc Modat, King's College London (United Kingdom); Albert Montillo, The Univ. of Texas Southwestern Medical Ctr. at Dallas (United States); Kensaku Mori, Nagoya Univ. (Japan); Mads Nielsen, Univ. of Copenhagen (Denmark); İpek Oguz, Vanderbilt Univ. (United States); Tingying Peng, Helmholtz Zentrum München GmbH (Germany); Dzung L. Pham, Henry M. Jackson Foundation (United States), National Institutes of Health (United States), Johns Hopkins Univ. (United States); Juan Carlos Prieto, The Univ. of North Carolina at Chapel Hill (United States); Jerry L. Prince, Johns Hopkins Univ. (United States);

Xin Qi, Rutgers, The State Univ. of New Jersey (United States); Nishant Ravikumar, Univ. of Leeds (United Kingdom); Maryam E. Rettmann, Mayo Clinic (United States); Leticia 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); Martin A. Styner, The Univ. of North Carolina at Chapel Hill (United States); Kenji Suzuki, Tokyo Institute of Technology (Japan);

Tanveer F. Syeda-Mahmood, IBM Research - Almaden (United States); Zeike A. Taylor, Univ. of Leeds (United Kingdom); Yubing Tong, Univ. of Pennsylvania (United States); Jayaram K. Udupa, Univ. of Pennsylvania (United States); Koen Van Leemput, Harvard Medical School (United States), Massachusetts General Hospital (United States); Tomaz Vrtovsek, Univ. of Ljubiana (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)

Original papers are invited on all aspects of the processing and analysis of medical, small animal, or cellular images, with applications in medicine, biological, and pharmaceutical research. Of interest are algorithms applied to all imaging modalities, including x-ray, DSA, CT, MRI, neuroimaging, nuclear medicine, optical, ultrasound, macroscopic, and microscopic imaging. Papers dealing with the challenges of bringing advances in research laboratories into clinical application are particularly welcomed.

Papers typically involve research that includes one or more of the following categories:

- augmented/virtual reality
- classification
- compressed sensing, sparse reconstruction methods
- computational anatomy and atlases
- computer vision
- connectome analysis
- deep learning
- deformable geometry
- diffusion MRI analysis
- functional imaging analysis
- generative/adversarial learning
- image representation and compression
- image restoration and enhancement
- image synthesis
- imaging genetics
- machine learning and pattern recognition
- methods for training and validation, including ground truth generation
- model-based image analysis
- motion/time series analysis
- open software for medical image processing
- population/studies
- quantitative image analysis/quantitative imaging biomarkers
- registration methodologies
- radiomics and texture representation/analysis
- segmentation methodologies
- shape representation and analysis
- statistical methodology
- visualization methods
- voxel/deformation/tensor-based morphometry.

Conference Co-Sponsor: Philips

Deep-Dive Session

A limited number of papers selected for oral presentation will be chosen for a novel deep-dive session. This session will comprise very few oral presentations followed by a longer more in-depth discussion that will be led by experienced researchers. In order to be considered for the deep-dive session, select it as one of your topics in the topics selection step of the abstract submission process (it is the first-listed topic).

Best Student Paper Award

We are pleased to announce that a sponsored cash prize will be awarded to the best student paper in this conference. Qualifying applications will be evaluated by the awards committee. Manuscripts will be judged based on scientific merit, impact, and clarity. The winners will be announced during the conference and the presenting author will be recognized and awarded a cash prize.

To be eligible for the Best Student Paper Award, you must:

- be a student without a doctoral degree (undergraduate, graduate, or PhD student)
- submit your abstract online, and select “Yes” when asked if you are a full-time student, and select yourself as the speaker
- be listed as the speaker on an accepted paper within this conference
- have conducted the majority of the work to be presented
- submit an application for this award with preliminary version of your manuscript for judging by 12 December 2022
- submit the final version of your manuscript through your SPIE.org account by 1 February 2023
- present your paper as scheduled.

Nominations

All submitted papers will be eligible for the award if they meet the above criteria.

Award Sponsored by Philips

Submit your abstract today: www.spie.org/mi23call

Call for Papers

DEEP-DIVE SESSION

POSTER AWARD

Nominations

All submitted papers will be eligible for the award if they meet the above criteria.

AWARD SPONSORED BY...
Computer-Aided Diagnosis (MI03)

Conference Chairs: Weijie Chen, U.S. Food and Drug Administration (United States); Khan M. Itekharuddin, Old Dominion Univ. (United States)

Program Committee: Sameer K. Antani, U.S. National Library of Medicine (United States); Samuel G. Armato III, The Univ. of Chicago (United States); Susan M. Astley, The Univ. of Manchester (United Kingdom); Ulas Bagci, Northwestern Univ. (United States); Esther E. Bron, Erasmus MC (Netherlands); 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 Ehhardt, Univ. zu Lübeck (Germany); Catalin Feltia, Télécom SudParis (France); Aimilia Gavstou, Penn Medicine (United States); Maryellen L. Giger, The Univ. of Chicago (United States); Hayit Greenspan, Tel Aviv Univ. (Israel); Lubomir M. Hadijiski, Univ. of Michigan (United States); Horst K. Hahn, Fraunhofer MEVIS (Germany); Jacobs Univ. Bremen (Germany); Takeshi Hara, Gifu Univ. School of Medicine (Japan); Helen Hong, Seoul Women’s Univ. (Korea, Republic of); JongHyo Kim, Seoul National Univ. Hospital (Korea, Republic of); Despina Kontos, Penn Medicine (United States); Juhun Lee, Univ. of Pittsburgh (United States); Zhengrong Jerome Liang, Stony Brook Univ. (United States); Marius George Lingurararu, 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), Harvard Medical School (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); Leticia Rittner, Univ. of Campinas (Brazil); Ravi K. Samala, U.S. Food and Drug Administration (United States); Clarisa I. Sánchez-Gutiérrez, Univ. of Amsterdam (Netherlands); Ronald M. Summers, National Institutes of Health Clinical Ctr. (United States); Kenji Suzuki, Tokyo Institute of Technology (Japan); Jonas Teuwen, Netherlands Cancer Institute (Netherlands); Radboud Univ. Medical Ctr. (Netherlands); Pallavi Tiwari, Case Western Reserve Univ. (United States); 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), Harvard Medical School (United States); Chuan Zhou, Michigan Medicine (United States)

This conference will provide a forum for researchers involved in development and application of computer-aided detection and diagnosis (CAD) systems in medical imaging. Original papers are requested on all novel CAD methods and applications, including both conventional and deep-learning approaches. CAD has found increasing medical applications since its inception a few decades ago and it continues to be a hot topic, especially with the proliferation of artificial intelligence (AI) in many aspects of daily life. Thus, the CAD conference is soliciting papers in the broad sense of CAD-AI, including topics also beyond detection and diagnosis with an emphasis on novel methods, applications, learning paradigms, -omics integration, and performance evaluation. A detailed list of topics can be found below. Applications in all medical imaging modalities are encouraged, including but not limited to X-ray, computed tomography, magnetic resonance imaging, nuclear medicine, molecular imaging, optical imaging, ultrasound, endoscopy, macroscopic and microscopic imaging, and multi-modality technologies.

**Topic areas for this conference**

During submission you will be asked to choose 2-3 relevant topics to assist in the review process. We ask that you choose one keyword from this application list:

- abdomen
- breast
- cardiovascular
- COVID-19 (including, e.g., lung, heart, brain)
- eye, retina
- head and neck
- lung
- musculoskeletal
- multiple organ systems
- neurology
- novel applications
- pediatrics, fetal
- skin
- other (please specify).

And choose up to two keywords from this topics list:

- classification
- comparison and/or fusion of CAD systems
- content-based image retrieval, reference libraries
- data harmonization
- deep learning, novel learning methods
- detection
- imaging biomarkers
- performance evaluation
- precision medicine
- prognosis, outcome prediction
- quantitative imaging
- radiomics
- radiogenomics, multi-omics
- risk assessment
- segmentation
- staging, treatment response monitoring
- system quality, validation.
**Image Perception, Observer Performance, and Technology Assessment**

**Conference Chairs:** Claudia R. Mello-Thoms, Univ. Iowa Carver College of Medicine (United States); Univ. of Pittsburgh (United States); Sian Taylor-Phillips, The Univ. of Warwick (United Kingdom)

**Program Committee:** Craig K. Abbey, Univ. of California, Santa Barbara (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); Yan Chen, Loughborough Univ. (United Kingdom); 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); Mark F. McIntee, Univ. College Cork (Ireland); Robert M. Nishikawa, Univ. of Pittsburgh (United States); Lijiliana Plattifa, Gent (Belgium); Ingrid S. Reiser, The Univ. of Chicago (United States); Frank W. Samuelson, U.S. Food and Drug Administration (United States); Pontus A. Timberg, Scania Univ. Hospital (Sweden)

This conference focuses on a broad understanding of medical image perception, observer-performance assessment, and the application of these methods to the evaluation of medical technology including new technologies such as artificial intelligence. Areas of traditional interest include, but are not limited to, optimizing image acquisition, display and workstations, psychophysical and vision-science based models of human observer performance, perceptual factors that affect the diagnostic process, eye-movement studies, observer performance methods, human-computer interaction, medical decision-making strategies, statistical models for evaluation of observer performance, and observer variability assessment. The conference welcomes new areas of research related to medical image perception and observer performance assessment. Standardized stand-alone performance measurements for the purposes of developing imaging technologies may be more relevant to other device-specific conferences. Original papers and posters are requested in the following areas:

- **medical image perception research in, but not exclusive to, radiology, pathology, medical physics, radiography, etc.**
- **impact of AI technologies on provider clinical decisions and workflow**
- **evaluation of AI technologies in head-to-head comparison to human observers examining the same images/in the same study**
- **observer performance evaluation of new technologies (acquisition devices, CAD/AI/ML, display devices etc.)**
- **technology assessment related to medical image perception and observer performance**
- **diagnostic-performance evaluation methodologies (ROC, FROC and alternatives)**
- **cognitive aspects of image interpretation**
- **visual search of medical images**
- **perceptual and performance factors in diagnostic workstation and environmental design**
- **models of detection, discrimination, and localization**
- **the nature of reader expertise**
- **sources of observer variance**
- **human factors.**

**POSTER AWARD**

The Image Perception, Observer Performance, and Technology Assessment conference will feature a cum laude poster award. All posters displayed at the meeting for this conference are eligible. Posters will be evaluated at the meeting by the awards committee. The winners will be announced during the conference and the presenting author will be recognized and awarded a certificate.

**JOINT SESSION ON TRANSLATION OF AI METHODS IN CLINICAL PRACTICE**

We are calling for papers on comparisons of accuracy between AI and humans, retrospective studies comparing AI decision to original clinical decision, test set studies with a human comparator, and studies of CAD-AI in clinical practice, for a joint session with the conference on Computer-Aided Diagnosis. To be considered for this joint session, select it as one of your topics in the topics selection step of the abstract submission process (it is the first-listed topic).

**CALL FOR PAPERS**

Submit your abstract today: [www.spie.org/mi23call](http://www.spie.org/mi23call)

Tel: +1 360 676 3290 • help@spie.org • #SPIEMedicalImaging
Biomedical Applications in Molecular, Structural, and Functional Imaging (MI106)

Conference Chairs: Barjor S. Gimi, Trinity Health Corp. (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. State College (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); Robert C. Moltchan, Medical College of Wisconsin (United States), GE Healthcare (United States); Nicholas J. Tustison, Univ. of Virginia (United States); 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)

This conference will cover all aspects of observing, measuring, quantifying and modeling molecular, structural and functional parameters from biomedically imaged images. Descriptions of work based on any imaging technology, including multidimensional and multimodality, are invited. Techniques, methods, and systems for evaluation and interpretation of structure-function relationships and interrelationships from images of intact, living tissues, are of particular interest. Work in emerging areas such as novel imaging probes, small animal imaging, optical or electrical impedance tomography, and multi-modality imaging is also of special interest. Original papers are requested in, but not limited to, the following areas:

- artificial intelligence, machine learning, deep learning, neural networks in molecular, structural, and functional imaging
- breast imaging
- bone and skeletal imaging: micro-structure, orthopedic, finite-element models, and segmentation
- biomechanical imaging and modeling
- cardiac structure and function: perfusion, modeling, electrophysiology
- electrical impedance, electrical impedance spectroscopy (EIS), terahertz or microwave imaging
- functional neuroimaging and brain mapping, fMRI, rsfMRI, fcMRI, PET, SPECT, tractography, connectome
- image based hemodynamics modeling (including in-silico, in-vitro and in-vivo models)
- image processing, detection, segmentation, registration, and analysis for quantifying and modeling molecular, structural and functional parameters
- magnetic resonance imaging (MRI)
- MRI quantitation of fat, diffusion and CEST, MRI spectroscopy
- multimodality imaging, hybrid imaging
- nanoparticle, biosensors and magnetic particle imaging (MPI)
- ocular imaging, segmentation
- novel physiological imaging agents/probes: quantum dots, nanoparticles, radiopharmaceuticals
- novel molecular and functional imaging technologies
- nuclear medicine: PET, SPECT, molecular breast imaging (MBI), molecular brain imaging, scintigraphy, Cerenkov luminescence imaging
- optical imaging, optical coherence tomography (OCT), diffuse optical tomography, NIRS
- soft tissue imaging: deformation, quantification, segmentation, detection, analysis
- preclinical and clinical imaging, small animal imaging, molecular imaging, fluorescence tomography, bioluminescence tomography, x-ray phase contrast tomography, photoacoustic tomography, Cerenkov luminescence imaging, X-ray fluorescence computed tomography (XFCT), X-ray luminescence computed tomography (XLCT), physiologic imaging with CT, physiologic imaging with US
- physiologic modeling applied to imaging: metabolism, receptor-ligand binding
- pharmacokinetic models applied to imaging
- vessel and airway imaging: detection, segmentation, modeling, trees, reactivity, blood flow, perfusion.

POSTER AWARD

The Biomedical Applications in Molecular, Structural, and Functional Imaging conference will feature a cum laude poster award. All posters displayed at the meeting for this conference are eligible. Posters will be evaluated at the meeting by the awards committee. The winners will be announced during the conference and the presenting author will be recognized and awarded a certificate.

Imaging Informatics for Healthcare, Research, and Applications (MI107)

Conference Chairs: Brian J. Park, Oregon Health & Science Univ. (United States); Hiroki Yoshida, Massachusetts General Hospital (United States); Harvard Medical School (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), Hannover Medical School (Germany); Jessica Fried, Univ. of Michigan (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 Le, Univ. at Buffalo (United States); Heinz U. Lemke, Computer Assisted Radiology and Surgery (Germany); Brent J. Liu, The Univ. of Southern California (United States); Umber Shafique, Indiana Univ. School of Medicine (United States); Elliot L. Siegel, Univ. of Maryland Medical Ctr. (United States); Wyatt M. Tellis, Univ. of California, San Francisco (United States); Shandong Wu, Univ. of Pittsburgh (United States)

Born as Digital Radiology conference, we proudly celebrate the 41st anniversary of picture archiving and communication (PACS) Conference, as part of SPIE Medical Imaging symposium, which 50 years ago was called Application of Optical Instrumentation in Medicine. Today, Imaging Informatics has turned into a multidisciplinary field targeting not only radiologists, but also patients, healthy subjects, caregivers, and other health professionals. To improve healthcare outcomes, current research and applications emphasize the development of new and efficient means of managing the ever-increasing volumes of imaging data. In the era of advanced modalities, there is a need for interoperability of data workflow, sophisticated visualizations, and accurate as well as reliable analytics. Also, the growing demand for personalized, precision medicine requires the integration of clinical information, molecular and genomic data, imaging results, and pathology. Imaging Informatics supports new technical solutions that can accommodate the needs of all imaging-rich clinical specialties, not just radiology, while keeping patient data both accessible to health professionals and safe from malicious agents. This track focuses on new methods for obtaining, transferring, managing, analyzing, and visualizing data for healthcare, biomedical, and electronic applications. The conference will include but is not limited to the following themes:

- PACS-INTEGRATION OF MULTIMEDIA DATA
- Data generated in cardiology, pathology, ophthalmology, dermatology, and surgery has been widely used in screening, diagnosis, treatment, and rehabilitation. It often becomes part of the electronic medical record. Compared to radiology-centric imaging practices, the data acquisition methods, workflow operations and management of these non-radiological images are quite different.
- PACS integration and standardization
- migration of imaging databases and big data
- data security and block-chains
- multimedia data in clinical practices
- social media for medical imaging.

DATA MANAGEMENT FOR PRECISION MEDICINE

Precision medicine involves using detailed, patient-specific molecular, genetic and imaging information to diagnose and categorize disease, then guide treatment to improve clinical outcome. The combination of medical imaging, genomics, and molecular markers presents a new opportunity to link observations made at the cellular or molecular levels to macroscopic phenotypes but also requires novel strategies for data management.

- imaging informatics for translational research
- correlative analytics of genomics, imaging, and clinical phenotypes
- molecular diagnostic and biomarkers
- combined quantitative and functional imaging
- application of translational research.

BIG DATA AND ANALYTICS

The cloud and “big data” technologies have made image data management, modeling, sharing, and collaboration possible at scale. Advances in artificial intelligence (AI) are poised to change health care profoundly. However, integrating AI into the clinical environment requires active communications with traditional PACS and the wider electronic health records (EHR) of the health system.

- FAIR data management
- crowd-sourced, cloud-based, or collaborative image use
- container-based image retrieval and indexing
- non-imaging applications of AI in healthcare informatics
- integration of AI with PACS and EHR.

ADVANCED VISUALIZATION AND 3D PRINTING

Three-dimensional (3D) image data can be visualized and handled in actual 3D space. Technology in augmented reality (AR) juxtaposes medical imaging data with the real world, while virtual reality (VR) can create entirely immersive environments. 3D printing provides new ways to simulate procedures or prototype personalized medical devices. New technical milestones in clinical applications involving the use of 3D objects, either physical or virtual, are welcome.

- 3D model generation and printing
- virtual reality for simulation and training
- augmented reality visualization
- device assessment
- integration of advanced visualization technologies.

DIGITAL OPERATING THEATRES

The DICOM standard has broadened its scope of interoperability to include use cases within radiation oncology, optical imaging, and digital pathology. Furthermore, imaging has made the digital operating room possible via surgical PACS. Research aims at bridging the gaps between diagnostic and interventional imaging.

- intelligent surgical instruments and robotics
- situation-aware robotic devices for therapeutics
- surgical cockpit systems
- telemonitoring and control
- intelligent infrastructure and processes.

Submit your abstract today: www.spie.org/mi23call

CONTINUED NEXT PAGE
IMAGING IN MEDICAL EDUCATION

The new generation of learning professional work through interconnected, immersive, and self-directed environments, have been made possible through technology. Additionally, modern patients reviewing their own medical imaging and diagnostic reports can take a more active role in their medical decisions with proper technology providing timely and clear explanations. This theme welcomes research and technical breakthroughs about the education of students, patients, and other healthcare professionals.

- context-sensitive reference tool
- massive-online classroom
- simulations and immersive learning environment
- educational multimedia database and repository
- reference tools.

MOBILE IMAGING AND IMAGE-BASED VITAL DATA

Medical imaging becomes mobile. Small devices integrate ultrasound, endoscopy, fundoscopy and other imaging modalities. The use of smart phones for medical imaging is rapidly increasing. However, mobile data is different from clinic-based diagnostics with respect to type, data quality and management. Furthermore, vital signs are computed from mobile acquired photographs and videos. This data needs management, integration, and evaluation.

- mobile and handheld imaging
- image-based vital sign monitoring
- management of mobile data
- references and ground truth for mobile data
- integrating mobile and stationary imaging.

POSTER AWARD

The Imaging Informatics for Healthcare, Research, and Applications conference will feature a cum laude poster award. All posters displayed at the meeting for this conference are eligible. Posters will be evaluated at the meeting by the awards committee. The winners will be announced during the conference and the presenting author will be recognized and awarded a certificate.

Ultrasound Imaging and Tomography (MI108)

Conference Chairs: Christian Boehm, ETH Zurich (Switzerland); Nick Bottenus, Univ. of Colorado Boulder (United States)

Conference Co-Chair: Nicole V. Ruiter, Karlsruhe Institut für Technologie (Germany)

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);
- 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, Univ. of Rochester (United States);
- Mohammad Mehrmohammadi, Wayne State Univ. (United States);
- Svetoslav I. Nikolov, BK Medical (Denmark);
- Olivier Roy, Barbara Ann Karmanos Cancer Institute (United States);
- Francois Varray, CREATIS (France);
- James W. Wiskin, QT Ultrasound LLC (United States).

This conference provides a forum for in-depth discussions related to medical ultrasound engineering, imaging and clinical applications. We are soliciting original contributions related to the following topics:

- physics of ultrasound wave propagation
- image reconstruction techniques
- hardware and system design
- novel transducer technologies
- ultrasound image analysis strategies
- ultrasound functional imaging
- contrast agents and biological and biomedical applications of new ultrasound imaging modalities.

Additional topics for this conference:

- physics and computer simulations
- transducer technologies
- ultrasound hardware development and evaluation
- beamforming techniques
- ultrasound tomography and reconstruction
- tissue characterization
- elastography
- motion and deformation imaging
- blood flow imaging
- contrast imaging
- US assisted drug delivery
- ultrafast imaging
- shear-wave imaging
- high frequency imaging
- ultrasound image processing and analysis
- photoacoustic imaging
- acoustic microscopy
- ultrasound therapeutics
- high intensity focused ultrasound methods and applications
- ultrasound procedure guidance
- clinical applications of ultrasound and US tomography
- new applications of ultrasound in medicine and biology.

POSTER AWARD

The Ultrasonic Imaging and Tomography conference will feature a cum laude poster award. All posters displayed at the meeting for this conference are eligible. Posters will be evaluated at the meeting by the awards committee. The winners will be announced during the conference and the presenting author will be recognized and awarded a certificate.

Submit your abstract today: www.spie.org/mi23call
Digital and Computational Pathology (MI109)

Conference Chairs: 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. Balls, Univ. of Michigan Health System (United States); Rohit Bhargava, Univ. of Illinois at Urbana-Champaign (United States); Ulf-Dietrich Braumann, Fraunhofer-Institut für Zelltherapie und Immunologie (Germany); Martin J. Yaffe, Technische Univ. Eindhoven (Netherlands); Bahram Parvin, Univ. at Buffalo (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 Khadem, Ryerson Univ. (Canada); Tom R. L. Kimpe, Barco NV. (Belgium); Elizabeth A. Krupinski, Emory Univ. School of Medicine (United States); 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, Case Western Reserve Univ. (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, IBM Research (United States); 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. at Buffalo (United States); Chukka Srinivas, Amazon Lab126 (United States); Darren Treanor, Univ. of Leeds (United Kingdom); Jeroen van der Laak, Radboud Univ. Nijmegen Medical Ctr. (Netherlands); Mitko Veta, Technische Univ. Eindhoven (Netherlands); Martin J. Yaffe, Sunnybrook Research Institute (Canada); Bülent Yener, Rensselaer Polytechnic Institute (United States)

This conference will address digital and computational pathology, from acquisition of pathology data to its management, analysis, and interpretation by observers. With the recent advances in whole slide scanners and novel instrumentation for multispectral, multiparametric tissue imaging the use of digital pathology data is growing in importance. Both the pre-clinical and clinical modeling of disease states are addressed by the developing field of computational pathology. The evolving concepts of human intelligence-artificial intelligence interactions in our understanding of image data are foundational in computational pathology. There is evidence that digital and computational pathology can improve diagnosis and grading of cancer and other pathology tasks, but there are still limitations and challenges that must be addressed before it can be fully incorporated into the clinical workflow.

Although there has been great progress in the development and application of computational pathology methods over recent years, there are several significant computational challenges specific to pathology imaging that distinguish it from its radiological counterpart. There are also unique challenges in terms of how digitized pathology specimens and correlated data are presented, modified and interpreted by clinicians and computers.

We invite submissions that address specific problems related to image acquisition, display, interpretation, computer-aided diagnosis, and quantitative analysis of pathology specimens. We particularly welcome contributions that identify and address challenges encountered in digital pathology imaging as well as in new approaches for image capture and analysis. Suggested topics include:

**IMAGE ACQUISITION, STORAGE, AND DISPLAY**
- acquisition, storage, display and processing of digital microscopy images
- image mosaicking of nontraditional near-real-time microscopy (OCT, confocal)
- multispectral imaging
- high-dimensional multiplexed staining and imaging of tissues
- multi-focus volume imaging
- compression
- methodologies for the objective technical assessment of digital pathology systems including color calibration
- whole slide imaging
- strategies for data storage and remote processing

**QUANTITATIVE IMAGE ANALYSIS**
- computer-aided diagnosis, prognosis and predictive analysis
- automated quantification of tissue biomarkers
- grading and classification of pathology images
- segmentation of cellular and tissue structures
- shape analysis and morphology in pathology imaging
- architectural feature extraction and quantification
- multispectral- and volume-based segmentation
- content-based image retrieval
- high-performance computing for whole-slide tissue image analysis
- multi-stain and multiplexed image analysis
- correlational microscopy
- understanding of image data across scale.
- machine learning trends in digital pathology: handcrafted features versus deep learning

Submit your abstract today: [www.spie.org/mi23call](http://www.spie.org/mi23call)
Submit your paper to the SPIE Journal of Medical Imaging

Launched in 2014, the Journal of Medical Imaging (JMI) covers fundamental and translational research and applications focused on medical imaging, which continue to yield physical and biomedical advancements in early detection, diagnostics, and therapy of disease, as well as in the understanding of normal.

SPIE journals are part of the SPIE Digital Library, the world’s largest collection of optics and photonics research.

SPIEDigitalLibrary.org/journals

SPIE Medical Imaging 2023
Town and Country Resort & Convention Center
500 Hotel Circle North, San Diego, CA 92108
The perfect setting for business or pleasure, the conference hotel has been a landmark destination in Mission Valley, San Diego for close to 60 years and offers a premier location near many popular San Diego attractions and activities. The newly remodeled Town and Country is a modern expression of the 1960s Southern California vibe, relaxed, playful, and where everyone feels welcome.

Housing opens this fall.

Access information online for one of the West Coast’s favorite oceanside cities, San Diego. With 70 miles of beautiful beaches, near-perfect weather year round, and a variety of magnificent settings countywide, San Diego offers a fun and inexpensive getaway for kids and adults, any time of year. You will find tips for traveling to and around the city, as well as information about the conference hotel to make your travel and onsite logistics the best possible experience.

REGISTRATION
Registration will open this coming fall
Keep up to date on information and registration details. Stay connected and sign up to be notified when registration opens.

TRAVEL TO SAN DIEGO
Information will be provided for:
- airport
- shuttle service
- public transit services
- car rental
- driving directions and parking
- tourist attractions
Check website for updates:
www.spie.org/mi23call

SPIE, the international society for optics and photonics, brings engineers, scientists, students, and business professionals together to advance light-based science and technology. The Society, founded in 1955, connects and engages with our global constituency through industry-leading conferences and exhibitions; publications of conference proceedings, books, and journals in the SPIE Digital Library; and career-building opportunities. Over the past five years, SPIE has contributed more than $22 million to the international optics community through our advocacy and support, including scholarships, educational resources, travel grants, endowed gifts, and public-policy development.
Present your research at SPIE Medical Imaging

Below are abstract submission instructions, the accompanying submission agreement, conference presentation guidelines, and guidelines for publishing in the Proceedings of SPIE on the SPIE Digital Library. Submissions subject to chair approval.

Important dates

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstracts due</td>
<td>10 August 2022</td>
</tr>
<tr>
<td>Registration opens</td>
<td>24 October 2022</td>
</tr>
<tr>
<td>Authors notified and posts online</td>
<td>31 October 2022</td>
</tr>
<tr>
<td>Applications open for RFW and conference awards</td>
<td>1 November 2022</td>
</tr>
<tr>
<td>Applications close for RFW and conference awards</td>
<td>12 December 2022</td>
</tr>
<tr>
<td>Submission system opens for manuscripts and poster PDFs*</td>
<td>19 December 2022</td>
</tr>
<tr>
<td>Poster PDFs due for spie.org preview and publication</td>
<td>25 January 2023</td>
</tr>
<tr>
<td>Manuscripts due</td>
<td>1 February 2023</td>
</tr>
<tr>
<td>Advance upload deadline for oral presentation slides**</td>
<td>17 February 2023</td>
</tr>
</tbody>
</table>

*Contact author or speaker must register prior to uploading
**After this date slides must be uploaded onsite at Speaker Check-in

What you will need to submit

- Title
- Author(s) information
- Speaker biography
- 250-word abstract for technical review
- 100-word summary for the program
- Keywords used in search for your paper (optional)
- Two- to four-page supplemental file, prepared as a PDF that includes:
  - Paper title
  - Authors
  - Supplemental information:
    - Description of purpose
    - Method(s)
    - Results
    - New or breakthrough work to be presented
    - Conclusions
    - Whether the work is being, or has been, submitted for publication or presentation elsewhere, and, if so, indicate how the submissions differ
  - This file may contain supporting images/tables/figures

Note: Only original material should be submitted. Commercial papers, papers with no new research/development content, and papers with proprietary restrictions will not be accepted for presentation.

How to submit your abstract

- Visit the conference page: www.spie.org/mi23call
- You may submit more than one abstract but submit each abstract only once.
- Click the “Submit An Abstract” button on the conference page.
- Sign in to your SPIE account or create an account if you do not already have one.
- Follow the steps in the submission wizard until the submission process is completed.

Submission agreement

All presenting authors, including keynote, invited, oral, and poster presenters, agree to the following conditions by submitting an abstract:

- Register and pay the author registration fee
- Oral presenters: recording and publication of your onsite presentation (slides synched with voice) for publication in the Proceedings of SPIE in the SPIE Digital Library
- Poster presenters: submit a poster PDF and optional preview video, by the advertised due dates, for publication in the Proceedings of SPIE in the SPIE Digital Library; poster PDFs may also be published and viewable in the spie.org program during and immediately after the event
- Submit a 4-page-minimum manuscript, by the advertised due date, for publication in the Proceedings of SPIE in the SPIE Digital Library
- Obtain funding for registration fees, travel, and accommodations
- Ensure that all clearances, including government and company clearance, have been obtained to present and publish. If you are a DoD contractor in the USA, allow at least 60 days for clearance
- Attend the meeting
- Present at the scheduled time

Review and program placement

- To ensure a high-quality conference, all submissions will be assessed by the conference chair/editor for technical merit and suitability of content
- Conference chairs/editors reserve the right to reject for presentation any paper that does not meet content or presentation expectations
- Final placement in an oral or poster session is subject to chair discretion

Publication of Proceedings in the SPIE Digital Library

Increase your professional visibility and publish in the world’s largest collection of optics and photonics research. Your peers access approximately 18 million papers, presentations, and posters from the SPIE Digital Library each year.

- Only manuscripts, presentations, and posters presented at the conference and received according to publication guidelines and due dates will be published in the Proceedings of SPIE in the SPIE Digital Library
- Manuscripts, presentations, and posters will be officially published after the event in the SPIE Digital Library
- Conference chairs/editors may require revision before approving publication and reserve the right to reject for publication any manuscript or presentation that does not meet acceptable standards for a scientific publication
- Conference chair/editor decision to accept or reject a manuscript, presentation, or poster for publication is final
- Authors must be authorized to provide a suitable publication license to SPIE; Authors retain copyright of all scientific material
- SPIE retains rights to distribute and market the official SPIE recording of the presentation and/or submitted video/poster
- PIE partners with relevant scientific databases and indexes to enable researchers to easily find papers published in the Proceedings of SPIE. The databases that abstract and index these papers include Astrophysical Data System (ADS), EI Compendex, CrossRef, Google Scholar, Inspec, Scopus, and Web of Science.
- More publication information available on the SPIE Digital Library
SPIE. DIGITAL LIBRARY

Access the 2022 research and recordings

SPIE Medical Imaging 2022 conference proceedings papers and presentation recordings are published in the SPIE Digital Library. Review the research that has been shared as you prepare to submit your work for 2023.

www.SPIEDigitalLibrary.org