PROGRAM

*as of Jan 21, 2024

Hyatt Regency San Francisco Airport · Burlingame, California

Monday January 22, 2024

Conference: 3D Imaging and Applications
Session: 3D/4D Scanning and Motion Estimation I
8:45 AM - 10:10 AM / Room: Grand Peninsula F
Session Chair: *Tyler Bell, Univesity of Iowa (US)*

8:45 AM Welcome

8:50 AM **JIST-first: Camera Motion Estimation Method Using Depth-Normalized Criterion** (3DIA-100)
Seok Lee, KOREATECH (Republic of Korea)

9:10 AM **A VGA Light-Tracing Time-of-Flight CMOS Image Sensor with Multi-Tap Pixel for Long-Range Outdoor Operations** (3DIA-101)
Kamel Mars[1], Yugo Nakatani[1], Seiya Ageishi[1], Masashi Hakamata[1], Tomoaki Sakita[2], Daisuke Iguchi[2], Junichiro Hayakawa[2], Takashi Kondo[2], Keita Yasutomi[1], Keiichiro Kagawa[1], and Shoji Kawahito[1]; [1]Shizuoka University and [2]FUJIFILM (Japan)

9:30 AM **Extending Lidar Depth Range Using Stereo Estimation on Intensity Data** (3DIA-102)
Filip Taneski[1], Tarek Al Abbas[2], and Robert Henderson[1]; [1]University of Edinburgh and [2]Ouster, Inc. (UK)

9:50 AM **A Deep Learning Based Light Field Image Compression as Pseudo Video Sequences with Additional in-loop Filtering** (3DIA-103)
Soheib Takhtardeshir[1], Roger Olsson[1], Christine Guillemot[1,2], and Mårten Sjöström[1]; [1]Mid Sweden University (Sweden) and [2]INRIA (France)

Conference: Computational Imaging
Session: Generative Plug-and-Play
8:45 AM - 10:20 AM / Room: Grand Peninsula C
Session Chair: *Charles A. Bouman, Purdue University (US)*

8:45 AM Welcome

8:50 AM **KEYNOTE: Image Restoration Through Inversion by Direct Iteration (InDI)** (COIMG-117)
Mauricio Delbracio and Peyman Milanfar, Google Research (US)

9:20 AM **Provable Probabilistic Imaging Using Score-Based Generative Priors** (COIMG-118)
Yu Sun[1], Zihui Wu[1], Yifan Chen[2], Berthy T. Feng[1], and Katherine L. Bouman[1]; [1]California Institute of Technology and [2]Courant Institute (US)

9:40 AM **Transformers for Microscopy Slide Image Segmentation of Invasive Melanoma** (COIMG-119)
Franklin Wang[1], Michael Wang[2], Avideh Zakhor[1], and Timothy McCalmont[2]; [1]University of California Berkeley and [2]University of California San Francisco (US)

10:00 AM **Generative Plug-and-Play: Posterior Sampling for Inverse Problems** (COIMG-120)
Gregery T. Buzzard and Charles A. Bouman, Purdue University (US)

Conferences: Image Quality and System Performance & Autonomous Vehicles and Machines
Joint Session: Image Quality in Machine Vision
8:45 AM - 10:10 AM / Room: Grand Peninsula D
Session Chair: *Robin Jenkin, NVIDIA (US), and Patrick Denny, University of Limerick (Ireland)*

8:45 AM Welcome

8:50 AM **KEYNOTE: Image Information Metrics from Slanted Edges: a Toolkit of Metrics to Aid Object Recognition, Machine Vision, and Artificial Intelligence Systems** (IQSP-256)
Norman Koren, Imatest LLC (US)

9:50 AM **ISP Tuning for Improved Image Quality in Machine Vision** (IQSP-257)
Diarmaid Geever[1], Tim Brophy[1], Dara Molloy[2], Eddie Jones[1], Martin Glavin[1], and Brian Deegan; [1]University of Galway and [2]Valeo Vision Systems (Ireland)

Conference: Machine Learning for Scientific Imaging
Session: Machine Learning for Scientific Imaging I
8:45 AM - 10:30 AM / Room: Grand Peninsula A
Session Chairs: *Marc Louis Klasky, Los Alamos National Laboratory (US), and Jong Chul Ye, Korea Advanced Institute of Science & Technology (KAIST) (Republic of Korea)*

8:45 AM Welcome

8:50 AM **Probabilistic and Deterministic Inversions of Radiographic Data** (MLSI-293)
Balu Nadiga, Mark Louis Klasky, and Oleg Korobkin, LANL (US)

9:10 AM **Neural Network-based Analysis of Polychromatic PSFs for Wavelength-Specific Extraction** (MLSI-294)
Jeongyong Shin, Seonghyeon Kang, and Sangmin Kim, Samsung Electronics (Republic of Korea)

9:30 AM **Density Reconstruction from Noisy Radiographs Using an Attention-based Transformer Network** (MLSI-295)
Daniel A. Serino, Mark Louis Klasky, Balu Nadiga, Joshua Burby, and Jennifer Schei, Los Alamos National Laboratory (US)

9:50 AM **Parameter Estimation Using Physics-based Statistical Machine Learning for Radiography** (MLSI-296)
Soumi De, Marc Klasky, and Oleg Korobkin, Los Alamos National Laboratory/Triad (US)

10:10 AM **Scatter Removal in Dynamic X-Ray Tomography Using Robust Features** (MLSI-297)
Siddhant Gautam[1], Mark Louis Klasky [2], and Saiprasad Ravishankar[1]; [1]Michigan State University and [2]Los Alamos National Laboratory (US)

Conference: Media Watermarking, Security, and Forensics
Session: Watermarking
8:45 AM - 10:05 AM / Room: Grand Peninsula G
Session Chair: *Adnan Alattar, Digimarc Corporation (US)*

8:45 AM Welcome

8:50 AM DeepSync: **Affine Transform Recovery via Convolutional Neural Networks for Watermark Synchronization** (MWSF-329)
Dimitris G. Chachlakis, Mohamed Yousuf, and Tomas Filler, Digimarc Corporation (US)

9:15 AM **Captchas on Darknet Marketplaces: Overview and Automated Solvers** (MWSF-330)
York Yannikos and Julian Heeger, Fraunhofer SIT (Germany)

9:40 AM **Novel Watermarking and Scrambling for Convolution Neural Network Weights** (MWSF-331)
Deepak Poddar, Mihir Mody, Shyam Jagannathan, Kumar Desappan, and Swami Pramod, Texas Instruments (India), and Jesse Villarreal and JuneChul Roh, Texas Instruments (US)

Conference: Stereoscopic Displays and Applications
Session: Stereoscopic Displays
8:45 AM – 10:05 AM / Room: Grand Peninsula E
Session Chair: *Nicolas Holliman, King's College London (UK)*

8:45 AM **SD&A - Welcome and Introduction**
Andrew J. Woods, Curtin University HIVE (Australia)

9:05 AM **Optical Aberration Analysis of Light Field Displays: A Calibration Approach for Enhanced Performance** (SDA-344)
Qi Zhang, Yuta Miyanishi, Erdem Sahin, and Atanas Gotchev, Tampere University (Finland)

9:25 AM **Vergence-accommodation Conflict: Accommodation-enabled vs. Accommodation-invariant Near-eye Displays** (SDA-345)
Erdem Sahin, Ugur Akpinar, and Atanas Gotchev, Tampere University (Finland)

9:45 AM **Can Aliens See in 3D?** (SDA-366)
Andrew J. Woods, Curtin University HIVE (Australia)

All Conferences
Coffee Break 10:10–10:40

Conference: 3D Imaging and Applications
Session: 3D/4D Scanning and Motion Estimation II
10:40 AM – 11:20 AM / Room: Grand Peninsula F
Session Chair: *William Puech, Laboratory d'Informatique de Robotique et de Microelectronique de Montpellier (France)*

10:40 AM **Data Augmentation Based on Depth Information for Neural Radiance Fields** (3DIA-104)
Hamed Razavi Khosroshahi[1], Jaime Sncho[2], Gun Bang[3], Gauthier Lafruit[1], Eduardo, Juarez[2], and Mehrdad, Teratani[1]; [1]Université libre de Bruxelles, [2]Polytechnic University of Madrid (Spain), and [3]Electronics and Telecommunications Research Institute (ETRI) (Republic of Korea)

11:00 AM **N-DEPTH: Neural Depth Encoding for Compression-Resilient 3D Transmission** (3DIA-105)
Stephen Siemonsma and Tyler Bell University of Iowa (US)

Conferences: Autonomous Vehicles and Machines & Image Quality and System Performance
Joint Session: Quality Measurement of Automotive Sensors
10:40 AM - 12:30 PM / Room: Grand Peninsula D
Session Chair: Elaine Jin, Rivian (US) and Patrick Denny, University of Limerick (Ireland)

10:40 AM **Evaluation of Signal and Noise Metrics of High Dynamic Range Image Sensors by IEEE P2020 Methodology** (AVM-107)
Orit Skorka[1], Paul Romanczyk[2], Norman Koren[2], Jonathan Phillips[2] andRadu Ispasoiu[1]; [1]onsemi and [2]Imatest (US)

11:10 AM **Measurement of Noise Equivalent Quanta (NEQ) Using the Deadleaves Technique** (AVM-108)
Robin Jenkin, NVIDIA Corp (US), and Uwe Artmann, Image Engineering GmbH & Co. KG (Germany)

11:30 AM **Measuring Natural Scenes SFR of Automotive Fisheye Cameras** (AVM-109)
Daniel Jakab[1], Eoin Martino Grua[1], Brian Michael Deegan[2], Anthony Scanlan[1], Pepijn Van De Ven[1], and Ciarán Eising[1]; [1]University of Limerick and [2]University of Galway (Ireland)

11:50 AM **An Integrated and Fully Automated Test Solution for Automotive Cameras of Ultrawide Angle of View** (AVM-110)
Xingbo Wang, RD Buy (China), and Sangkyu Yang, Cizen Tech (Republic of Korea)

12:10 PM **Resolution and Noise Trade-off Analysis in Single-Photon Pulse LiDAR** (IQSP-258)
Weijian Zhang, Hashan Weerasooriya, and Stanley H. Chan, Purdue University (US)

Conference: Computational Imaging
Session: Generative Artificial Intelligence for Remote Sensing
10:40 AM - 12:30 PM / Room: Grand Peninsula C
Session Chair: *Andre Van Rynbach, Air Force Research Laboratory (US)*

10:40 AM **KEYNOTE: Efficient Neural Scene Representation, Rendering, and Generation** (COIMG-121)
Gordon Wetzstein, Stanford University (US)

11:10 AM **Dark Secrets of Computational Imaging** (COIMG-122)
Laura Waller, UC Berkeley (US)

11:30 AM **Super Resolution in Heterogeneous Array Cameras under Coherent and Partially Coherent Illumination: A Generative AI Approach** (COIMG-123)
Kevin Figueroa, Greg Nero, Gordon Hageman, and David J. Brady, University of Arizona (US)

11:50 AM **Diffractive Processing of Visual Information** (COIMG-124)
Aydogan Ozcan, and Jingxi Li, UCLA (US)

12:10 PM **Physics-informed Generative Models for Imaging and Photonic Design** (COIMG-125)
Muhammad Tayyab, Zheyuan Zhu, and Shuo Pang, University of Central Florida (CREOL) (US)

Conference: Human Vision and Electronic Imaging
Session: Art: Perception and Cognition I
10:40 AM - 12:05 PM / Room: Grand Peninsula B
Session Chair: *Lora Likova, Smith-Kettlewell Eye Research Institute (US)*

10:40 AM **KEYNOTE: S(t)imulating Art and Science: György Kepes and the Concept of "Interseeing"** (HVEI-200)
Márton Orosz, Museum of Fine Arts (Hungary)

11:40 AM **Beyond Space and Time: Analysis of the Arcane Perceptual & Cognitive Effects in Ivan Vukadinov's Art at the Vatican Museums** (HVEI-201)
Lora Likova[1], and Christopher Tyler[1,2]; [1]Smith-Kettlewell Eye Research Institute (US) and [2]City University of London (UK)

Conference: Machine Learning for Scientific Imaging
Session: Machine Learning for Scientific Imaging II
10:40 AM - 12:00 PM / Room: Grand Peninsula A
Session Chairs: *Jong Chul Ye, Korea Advanced Institute of Science & Technology (KAIST) (Republic of Korea), and Marc Louis Klasky, Los Alamos National Laboratory (US)*

10:40 AM **Supervised Reconstruction for Silhouette Tomography** (MLSI-298)
Evan Bell, Michigan State University, and Michael McCann and Marc Louis Klasky, Los Alamos National Laboratory (US)

11:00 AM **Breast Ultrasound Report Generation using LangChain** (MLSI-299)
Jaeyoung Huh and Jong Chul Ye, Korea Advanced Institute of Science and Technology (KAIST), and Hyun Jeong Park, Chung-Ang University Hospital (Republic of Korea)

11:20 AM **Swap-Net: A Memory-Efficient 2.5D Cascade Network for 3D Image Reconstruction** (MLSI-300)
Xiaojian Xu[1], Marc Louis Klasky[2], Michael Thompson McCann[2], Jeffrey Fessler[1]; [1]University of Michigan and [2]Los Alamos National Laboratory (US)

11:40 AM **WITHDRAWN: Neural Networks for Compact Representation of Features with Singular Points in Projections of Surfaces on Radiographic Plane** (MLSI-301)
Oleg Korobkin, Los Alamos National Laboratory (US)

Session: Deepfake Detection
10:40 AM - 12:20 PM / Room: Grand Peninsula G
Session Chair: *Gaurav Sharma, University of Rochester (US)*
10:40 AM **One Detector to Rule Them All? On the Robustness and Generalizability of Current State-of-the-Art Deepfake Detection Methods** (MWSF-332)
Raphael Antonius Frick and Martin Steinebach, Fraunhofer SIT (Germany)
11:05 AM **Improving Video Deepfake Detection: A DCT-Based Approach with Patch-Level Analysis** (MWSF-333)
Luca Guarnera, Salvatore Manganello, and Sebastiano Battiato, University of Catania (Italy)
11:30 AM **WITHDRAWN: Contribution of Residual Signals to the Detection of Face Swapping in Deepfake Videos** (MWSF-334)
Paul Tesse, Christophe Charrier, and Emmanuel Giguet, Université de Caen Normandie (France)
11:55 AM **Efficient Temporally-Aware Deepfake Detection using H.264 Motion Vectors** (MWSF-335)
Peter Grönquist, Yufan Ren, Qingyi He, Alessio Verardo, and Sabine Süsstrunk, École Polytechnique Fédérale de Lausanne (Switzerland)

Conference: Stereoscopic Displays and Applications
Session: Stereoscopic Camera Systems
10:40 AM - 11:20 AM / Room: Grand Peninsula E
Session Chair: *Andrew J. Woods, Curtin University HIVE (Australia)*
10:40 AM **4k Stereoscopic Visualization of Robotic Microsurgery in Vascularized Free Tissue Transfer for Head and Neck Reconstruction** (SDA-346)
Justus Ilgner, Stephan Hackenberg, and Thien An Duong Dinh, Universitätsklinikum Aachen (Germany)
11:00 AM **Manipulating Viewing Distance and Camera Toe-in in a Stereoscopic Remote Vision System** (SDA-347)
Eleanor O'Keef, KBR[1] and Eric Seemiller, Marc Winterbottom, and Steven Hadley, Air Force Research Laboratory (US)

Conference: Stereoscopic Displays and Applications
Session: SD&A Keynote
11:20 AM - 12:00 PM / Room: Grand Peninsula E
Session Chair: *Andrew J. Woods, Curtin University HIVE (Australia)*
11:20 AM **KEYNOTE: The Waking Dream: Next Steps Toward Immersion Entertainment** (SDA-348)
Aaron Parry, SDFX Studios (US)

All Conferences
Lunch on Own

All Conferences
2:00 PM - 3:00 PM / Room: Grand Peninsula D
PLENARY: Seeing and Feeling in Robot-Assisted Surgery
Allison Okamura, Richard W. Weiland Professor of Engineering, Stanford University (US)

All Conferences
Coffee Break 3:00–3:30

All Conferences
3:30 PM - 5:00 PM / Room: Grand Peninsula D
Highlights 2024
Join us for a session that highlights the breadth of EI with short papers selected by their Chairs from EI conferences. The full papers are given at other times in the program. Note that COIMG and HVEI will run papers concurrent with this session.

Papers are being confirmed and will be posted shortly.

Conference: Computational Imaging
Session: Intersection of Computational Imaging and Materials Science I
3:30 PM - 4:50 PM / Room: Grand Peninsula C
Session Chair: *Jeff Simmons, Air Force Research Laboratory (US)*
3:30 PM **Considerations for Materials Design from the Latent Space** (COIMG-126)
Jeff Simmons and Megna Shah, Air Force Research Laboratory, and Veera Sundararaghavan, University of Michigan (US)
3:50 PM **Methodology for Estimation of Intrinsic Dimensions and State Variables of Microstructures** (COIMG-127)
Megna Shah and Jeff Simmons, Air Force Research Laboratory, and Veera Sundararaghavan, University of Michigan (US)

4:10 PM **Persistent Homology for Microstructure Manifold Construction** (COIMG-128)

Simon A. Mason[1], Jeff Simmons[2], Megna Shah[2], and Stephen Niezgoda[1]; [1]Ohio State University and [2]Air Force Research Laboratory (US)

4:30 PM **Dissipative Lagrangian Neural Networks for Materials Imaging and Simulation** (COIMG-129)

Veera Sundararaghavan, University of Michigan, and Megna Shah and Jeff Simmons, Air Force Research Laboratory (US)

Conference: *Human Vision and Electronic Imaging*
Session: Art: Perception and Cognition II
3:30 PM - 5:00 PM / Room: Grand Peninsula B
Session Chair: *Lora Likova, Smith-Kettlewell Eye Research Institute (US)*

3:30 PM **Michelangelo's Cryptic Self-Portraiture in the Sistine Chapel** (HVEI-202)

Christopher Tyler, Smith-Kettlewell Eye Research Institute (US) and City University of London (UK)

3:55 PM **Categorizing Art Viewing Behavior Using Fuzzy Logic** (HVEI-203)

Elena Fedorovskaya and Samuel Morillas Gómez, Rochester Institute of Technology (US)

4:20 PM **You're in the Picture: Revisiting the Robustness of Perspective** (HVEI-204)

Michael Kubovy, University of Virginia (US)

4:40 PM **Surreal Artist as Visual Neuroscientist: Analysis of Selected Works by Rene Magritte** (HVEI-205)

Russell D. Hamer, Smith-Kettlewell Eye Research Institute (US)

All Conferences
5:00 PM - 6:30 PM / Room: The Grove
Symposium Reception

6:00 PM - 8:30 PM / Room: Grand Peninsula D
FILM: *Interthinking Art + Science*
a feature-length documentary on painter, photographer, designer, educator, and art theorist György Kepes and his pioneering installations in light and motion. The film is directed by EI 2024 keynote speaker Márton Orocz, director of the Vasarely Museum in Budapest, Hungary.

Tuesday January 23, 2024

Workshop: *Imaging for XR*
Session: *Presentations I*
8:30 AM - 11:15 AM / Room: Grand Peninsula D
Session Chair: *Susan Lakin, Rochester Institute of Technology (US)*

8:30 AM Welcome

Bennett Wilburn, Google (US)

8:45 AM ***AI-mediated 3D Video Conferencing with Real-time 2D-to-3D Face Lifting***

Koki Nagano, NVIDIA (US)

9:15 AM ***Privacy-preserving Visual Sensing with Applications in XR***

Vrendan David-John, Virginia Tech (US)

9:45 AM ***The Perfect 3D Shot: AI-driven Techniques for Stereoscopic Image Capture and Conversion***

David Fattal, Leia (US)

10:15 AM ***Break***

10:45 AM ***Volumetric Video Technology in Sports and Entertainment: Current Applications and Future Prospects***

Tsuyoshi Wakozono, Canon USA (US)

Conference: *Autonomous Vehicles and Machines*
Session: Multi-Modal Imaging and Neural Methods for Safe Driving
8:45 AM - 9:50 AM / Room: Grand Peninsula E
Session Chairs: *Peter van Beek, Intel (US), and Patrick Denny, University of Limerick (Ireland)*

8:45 AM Welcome

8:50 AM **Multi-Modal Pedestrian Detection via Dual-Regressor and Object-Based Training for One-Stage Object Detection Network** (AVM-111)

Napat Wanchaitanawong[1], Masayuki Tanaka[1], Takashi Shibata[2], and Masatoshi Okutomi[1]; [1]Tokyo Institute of Technology and [2]NTT Corporation (Japan)

9:10 AM **Exploring Object Detection and Image Classification Tasks for Niche Use Case in Naturalistic Driving Studies** (AVM-112)

Ryan Peruski, Deniz Aykac, Lauren Torkelson, and Thomas Karnowski, Oak Ridge National Laboratory (US)

9:30 AM **Efficient Fault Tolerant Architecture for Neural Network Compute** (AVM-113)

Shyam Jagannathan[1], Mihir Mody[1], Prithvi Shankar[1], Jesse Villarreal[2], JuneChul Roh[2], Kumar Desappan[1], Deepak Poddar[1], and Pramod Swami[1]; [1]Texas Instruments (India) and [2]Texas Instruments (US)

9:50 AM **Urban Scene Reconstruction Based on Neural Rendering** (AVM-365)

Shihao Shen[1], Louis Kerofsky[1], Senthil Yogamani[2], and Varun Ravii[1]; [1]Qualcomm Technologies, Inc. (US) and [2]QT Technologies Ireland Limited (UK)

Conference: *Computational Imaging*
Session: Intersection of Computational Imaging and Materials Science II
8:45 AM - 10:10 AM / Room: Grand Peninsula C
Session Chair: *Jeff Simmons, Air Force Research Laboratory (US)*
8:45 AM Welcome
8:50 AM **Mathematical Nuances of Gaussian-Process-Driven Autonomous Experimentation** (COIMG-130)
Marcus Michael Noack, Lawrence Berkeley National Laboratory (US)
9:10 AM **Reinforcement Learning for Metals Powder Bed Fusion** (COIMG-131)
Ojash Neopane, Carnegie Mellon University, and Michael Keith Ballard, Andrew Gillman, and Sean Donegan, Air Force Research Laboratory (US)
9:30 AM **Evaluation of Information Content in 2D and 3D Microstructural Characterization of Brush Particle-Based Hybrid Materials** (COIMG-132)
Ayesha Abdullah[1], Lawrence Drummy[2], Levent Burak Kara[1], Michael R. Bockstaller[1]; [1]Carnegie Mellon University and [2]Air Force Research Laboratory (US)
9:50 AM **Semantic Segmentation and Anomaly Identification of Binder Jet Powder Bed Images** (COIMG-133)
Alexander Gourley[1],; Jonathan Kaufman[2], Edwin Schwalbach[1], Lisa Rueschhoff[3], Jack Beuth[2], Reeja Jayan[1]; [1]Carnegie Mellon University, [2]Air Force Research Laboratory, and [3]UES (US)

Conference: *High Performance Computing for Imaging*
Session: High Performance Computing for Imaging Keynote Talk I
8:45 AM - 9:30 AM / Room: Grand Peninsula F
Session Chairs: *Xiao Wang, Oak Ridge National Laboratory (US), and Yuankai Huo, Vanderbilt University (US)*
8:45 AM Welcome
8:50 AM **KEYNOTE High Performance Imaging Applications: At the Intersection of HPC and AI** (HPCI-183)
Mohamed Wahib, RIKEN Center for Computational Science (Japan)

Conference: *Human Vision and Electronic Imaging*
Session: Perceptual Experiments and Models
8:45 AM - 10:10 AM / Room: Grand Peninsula A
Session Chair: *Rafal Mantiuk, University of Cambridge (UK), and Damon Chandler, Ritsumeikan University (Japan)*
8:45 AM Welcome
8:50 AM **Entropy Ordered Shapes as Bivariate Glyphs** (HVEI-206)
Nicolas S. Holliman, Arzu Çöltekin, Sara J. Fernstad, Lucy McLaughlin, Michael D. Simpson, and Andrew J. Woods, King's College London (UK)
9:10 AM **Withdrawn**
9:30 AM **Perception of Tactile Attributes of Colored Texture Images** (HVEI-208)
Alireza Rabbanifar and Elena Fedorovskaya, Rochester Institute of Technology (US)
9:50 AM **Spatiotemporal Contrast Sensitivity Functions: Predictions for the Critical Flicker Frequency** (HVEI-209)
Ali Bozorgian, Norwegian University of Science and Technology (Norway), and Maliha Ashraf and Rafal Mantiuk, University of Cambridge (UK)

Conference: *Image Processing: Algorithms and Systems*
Session: Image Denoising and Restoration
8:45 AM - 9:50 AM / Room: Harbour B
Session Chair: *Atanas Gotchev, Tampere University (Finland)*
8:45 AM Welcome
8:50 AM **X-ray Image Denoising for Baggage Screening Using Learning Based Methods** (IPAS-244)
Vempuluru Vendata Poorna Sekhar and PP Deepthi, National Institute of Technology (India), and Renu Rameshan, Vehant Technologies (India)
9:10 AM **Image Restoration via Collaborative Filtering and Deep Learning** (IPAS-245)
Wenzhu Xing, Igor Shevkunov, Vladimir Katkovnik, and Karen Egiazarian, Tampere University (Finland)
9:30 AM **Towards Realistic Landmark-Guided Facial Video Inpainting Based on GANs** (IPAS-246)
Fatemeh Ghorbani Lohesara, Technische Universität Berlin Group (Germany); Karen Egiazarian, Tampere University (Finland); and Sebastian Knorr, University of Applied Sciences Jena (Germany)

Conference: *Image Quality and System Performance*
Session: Camera Quality Assessment I
8:45 AM - 10:20 AM / Room: Grand Peninsula B
Session Chair: *Susan Farnand, Rochester Institute of Technology (US)*
8:45 AM Welcome
8:50 AM **Focal Talk: Project Paris Insight: Methodology** (IQSP-262)
Hervé Macudzinski, DXOMARK (France)
9:20 AM **Benchmarking Motion Blur of Video-Frame-Interpolated Hybrid EVS+CIS against conventional CIS** (IQSP-259)

Kamal Rana, Sean Fausz, Zhiyao Yang, Fangwen Tu, Qinyi Wang, Boyd Fowler, Andreas Suess, and Bo Mu, OmniVision Technologies (US)

9:40 AM **Evaluating Camera Performance in Face-Present Scenes with Diverse Skin Tones**(IQSP-260)
Megan Elizabeth Borek, Sarah Kerr, and Amelia Spooner, Imatest (US)

10:00 AM **From Video Conferences to DSLRs: An In-depth Texture Evaluation with Realistic Mannequins** (IQSP-261)
Daniela Carfora Ventura, Gabriel Pacianotto Gouveia, Ana Calarasanu, Valentine Tosel, Nicolas Chahine, and Sira Ferradans, DXOMARK (France)

Conference: *Media Watermarking, Security, and Forensics*
Session: Steganography & Steganalysis
8:45 AM - 10:05 AM / Room: Grand Peninsula G
Session Chair: *Jessica Fridrich, Binghamton University (US)*

8:45 AM Welcome

8:50 AM **Analyzing Quantitative Detectors for Content-Adaptive Steganography** (MWSF-336)
Edgar Kaziakhmedov, Eli Dworetzky, and Jessica Fridrich, Binghamton University (US)

9:15 AM **Secure Payload Scaling for Source Adaptive Payload Allocation** (MWSF-337)
Eli Dworetzky, Edgar Kaziakhmedov, and Jessica Fridrich, Binghamton University (US)

9:40 AM **Prompting Steganography: A New Paradigm** (MWSF-338)
Hanzhou Wu, Shanghai University (China)

All Conferences
Coffee Break 10:10–10:40

Conferences: *Computational Imaging and Machine Learning for Scientific Imaging*
Joint Session: Intersection of Computational Imaging and Materials Science III
10:40 AM - 12:30 PM / Room: Grand Peninsula C
Session Chair: *Jeff Simmons, Air Force Research Laboratory (US)*

10:40 AM **KEYNOTE: Quantitative Secondary Electron Yield Mapping in Ion-beam Microscopy** (COIMG-134)
Vivek Goyal[1], Akshay Agarwal[1], Leila Kasaei[2], Xinglin He[1], Leonard Feldman[2]; [1]Boston University and [2]Rutgers University (US)

11:10 AM **Local Entropy Key Points for Materials Science Image Collation** (MLSI-302)
Zachary Varley, Marc DeGraef, and Gregory Rohrer, Carnegie Mellon University (US)

11:30 AM **Combining Multimodal Fatigue Fracture Surface Image for Analysis with a CNN** (MLSI-303)
Katelyn Jones, Carnegie Mellon University; William Musinski, University of Wisconsin; Paul Shade and Reji John, Air Force Research Laboratory; Elizabeth Holm, University of Michigan, and Anthony Rollett, Carnegie Mellon University (US)

11:50 AM **A Lightweight Transformer for Faster and Robust EBSD Data Collection** (MLSI-304)
Harry Dong[1], Sean Donegan[2], Megna Shah[2], and Yuejie Chi[1]; [1]Carnegie Mellon University and [2]Air Force Research Laboratory (US)

12:10 PM **Biomedical Ultrasound Computed Tomography Using Neural Full Waveform Inversion** (COIMG-135)
Zhijun Zeng, Yihang Zheng, Youjia Zheng, and Zuoqiang Shi, Tsinghua University; Yubing Li, Institute of Acoustics; and He Sun, Peking University (China)

Conference: *High Performance Computing for Imaging*
Session: High Performance Pathology Imaging
10:40 AM - 11:40 AM / Room: Grand Peninsula F
Session Chair: *Yuankai Huo, Vanderbilt University (US)*

10:40 AM **High-performance Data Management for Computational Pathology** (HPCI-184)
Haoju Leng[1,2], Lipeng Wan[3], and Yuankai Huo[1]; [1]Vanderbilt University, [2]Vanderbilt University Medical Center, and [3]Georgia State University (US)

11:00 AM **Alleviating Tiling Effect by Random Walk Sliding Window in High-resolution Histological Whole Slide Image Synthesis** (HPCI-185)
Shunxing Bao and Yuankai Huo, Vanderbilt University (US)

11:20 AM **Scalable Analysis of Giga-pixel WSI Images** (HPCI-186)
Sajal Dash, Oak Ridge National Laboratory (US)

Conference: *Human Vision and Electronic Imaging*
Session: HDR: Imaging and Perceptual Modeling
10:40 AM - 12:00 PM / Room: Grand Peninsula A
Session Chairs: *Rafal Mantiuk, University of Cambridge (UK), and Damon Chandler, Ritsumeikan University (Japan)*

10:40 AM **KEYNOTE: Design and Reality of the HDR Imaging Ecosystem** (HVEI-210)
Robin Atkins, Dolby Laboratories (Canada)

11:20 AM **JPI-first: The Impact of Adaptation Time in High Dynamic Range Luminance Transitions** (HVEI-211)
Jake Zuena and Jaclyn Pytlarz, Dolby Laboratories (US)

11:40 AM **Modeling Lightness and Color Perception of High Dynamic Range Stimuli** (HVEI-212)
Michael E. Rudd, University of Nevada (US)

Conference: *Image Processing: Algorithms and Systems*
Session: Machine Learning for Image Processing
10:40 AM - 11:40 AM / Room: Harbour B
Session Chair: *Karen Egiazarian, Tampere University (Finland)*
10:40 AM **Withdrawn**
11:00 AM **Examining the Effects of Compression on Deep Learning Remote Photoplethysmography** (IPAS-248)
Benjamin Sporrer, Nathan Vance, Jeremy Speth, and Patrick Flynn, University of Notre Dame (US)
11:20 AM **Coverage Optimization for Training Data Enhancement of Ill-performing Classes** (IPAS-249)
Raegeun Park and Chulhee Lee, Yonsei University (Republic of Korea)

Conference: *Image Quality and System Performance*
Session: Camera Quality Assessment II
10:40 AM - 12:00 PM / Room: Grand Peninsula B
Session Chair: *Jonathan Phillips, Imatest (US)*
10:40 AM **A Novel Deep Learning-Based Anomaly Detection Pipeline Optimized for Dark Blemish Pattern of Image Sensor** (IQSP-263)
Dayun Lee, Yubin Lee, Dagyeom Hong, Kundong Kim, Sung-Su Kim, and Yitae Kim, Samsung Electronics (Republic of Korea)
11:00 AM **No-Reference Color Dot Artifact Assessment for Remosaiced Images** (IQSP-265)
Subin Han, Seungwan Jeon, Sara Lee, Yu Gyeong Lee, Hee-shin Kim, Kichul Park, Sung-Su Kim, and Yitae Kim, Samsung Electronics (Republic of Korea)
11:20 AM **Focal Talk: Android Camera Apps: Designing in a Sea of Thousands of Cameras** (IQSP-266)
Clemenz Portmann, Google (US)

Conferences: *Imaging and Multimedia Analytics at the Edge & Mobile Devices and Multimedia: Enabling Technologies, Algorithms & Applications*
Joint Session: Imaging
10:40 AM - 12:20 PM / Room: Grand Peninsula E
Session Chair: *Qian Lin, HP Inc.*
10:40 AM **ACES Workflows in Epic Unreal 5** (MOBMU-311)
Eberhard Hasche and Reiner Creutzburg, Technische Hochschule Brandenburg (Germany)
11:00 AM **Color Calibration for Multicolored Barcodes Using Smartphones** (MOBMU-312)
Simon Bugert, Waldemar Berchtold, and Julian Heeger, Fraunhofer SIT (Germany)
11:20 AM **Adapt to Distill or Distill to Adapt** (IMAGE-238)
Georgi Thomas and Andreas Savakis, Rochester Institute of Technology (US)
11:40 AM **WITHDRAWN: Deep Learning-Based Defect Detection and Segmentation for Wood Plank Surfaces with Real-Time Tracking** (IMAGE-239)
Mazhar Mohsin, Qamar Uddin, Keijo Haataja, and Pekka Toivanen University of Eastern Finland (Finland)
12:00 PM **Motion-based Domain Randomization for Detecting Honeybees Inside a Hive** (IMAGE-240)
Chih-Hsing Ho[1], I.R. Gilchrist[1], Keirstyn A. Amponsah[1], Amanda Stoltz[2], Brock A. Harper[2], Steve Cantley[1], and Amy R. Reibman[1]; [1]Purdue University and [2]Broodminder (US)

Conference: *Media Watermarking, Security, and Forensics*
Session: Robust Hash
10:40 AM - 11:30 AM / Room: Grand Peninsula G
Session Chair: *Sebastiano Battiato, Università degli Studi di Catania (Italy)*
10:40 AM **Prediction of Flipped Bits in Robust Image Hashes by Machine Learning** (MWSF-339)
Niklas Bunzel[1], Martin Steinebach[1], Marius Leon Hammann[2], and Huajian Liu[1]; [1]Fraunhofer SIT/ATHENE/TU-Darmstadt and [2]TU-Darmstadt (Germany)
11:05 AM **Efficient Hash Lookup for PhotoDNA** (MWSF-340)
Martin Steinebach, Fraunhofer SIT (Germany)

Workshop: *Imaging for XR*
Session: *Interacting with XR*
11:15 AM – 12:30 PM / Room: Grand Peninsula D and Regency
Session Chair: *Bennett Wilburn, Google (US)*
11:15 AM *Informal discussions led by our speakers, including the use of 3D displays and AR/VR headsets to experience the showcased technologies.*

Conference: *High Performance Computing for Imaging*
Session: High Performance Image Reconstruction
11:40 AM - 12:20 PM / Room: Grand Peninsula F
Session Chair: *Peng Chen, National Institute of Advanced Industrial Science and Technology (AIST) (Japan)*

11:40 AM **Back-Projection Optimization: The Key to Tomographic Imaging** (HPCI-187)

Peng Chen, National Institute of Advanced Industrial Science and Technology, and Takaaki Miyajima, Meiji University (Japan)

12:00 PM **Accelerated Laminographic Image Reconstruction Using GPUs** (HPCI-188)

Bin Ma[1], Viktor Nikitin[2], Dong Li[1], and Tekin Bicer[2]; [1]University of California Merced and [2]Argonne National Laboratory (US)

Conference: *Image Processing: Algorithms and Systems*
Session: Image Formation
11:20 AM - 12:20 PM / Room: Harbour B
Session Chair: *Atanas Gotchev, Tampere University (Finland)*

11:20 AM **WITHDRAWN: Lensless Phase Microscopy Imaging** (IPAS-250)

Igor Shevkunov, Tampere University (Finland)

11:40 AM **Spectral Rendering: From Input to Rendering Process** (IPAS-251)

Ayoung Kim and Atanas Gotchev, Tampere University (Finland)

12:00 PM **Depth-of-Field Guided Rendering for Light-Field Displays** (IPAS-367) *Kamran Akbar, Robert Bregovic, Tampere University (Finland)*

All Conferences
Lunch on Own

All Conferences
2:00 PM - 3:00 PM / Room: Grand Peninsula D
PLENARY: Neural Radiance Fields

Jon Barron, senior staff research scientist, Google Research (US)

All Conferences
Coffee Break 3:00–3:30

Conference: *Autonomous Vehicles and Machines*
Session: Leveraging Bird's Eye View Imagery for Safe Driving
3:30 PM - 4:30 PM / Room: Grand Peninsula B
Session Chairs: *Patrick Denny, University of Limerick (Ireland), and Peter van Beek, Intel (US)*

3:30 PM **Fusing Segmentation and Domain-knowledge Model to Extract Intersection Topologies from Aerial/terrestrial Orthographic Images** (AVM-114)

Julien A. Vijverberg and Bart Beers, Cyclomedia Technology, and Peter H.N. de With, Eindhoven University of Technology (The Netherlands)

3:50 PM **Optimizing Ego Vehicle Trajectory Prediction: The Graph Enhancement Approach** (AVM-115)

Sushil Sharma, Aryan Singh, Ganesh Sistu, Mark Halton, and Ciarán Eising, University of Limerick (Ireland)

4:10 PM **An Approach to Recreate Large Virtual Environments for Use in Road Traffic Research** (AVM-116)

Jack Miller and Eliot Winer, Iowa State University (US)

Conference: *Computational Imaging*
Session: Additive Manufacturing: In- and Ex-Situ Imaging for Monitoring and Non-Destructive Characterization I
3:30 PM - 5:20 PM / Room: Grand Peninsula C
Session Chairs: *Amir Ziabari, Oak Ridge National Laboratory, and Alireza Saraf, Divergent (US)*

3:30 PM **Automated, High-Throughput X-ray CT Characterization of Additively Manufactured Parts Using Deep Learning Based Algorithms** (COIMG-136)

Amir Koushyar Ziabari, Obaidullah Rahman, Zackary Snow, Singanallur V. Venkatakrishnan, Ryan Dehoff, and Vincent Paquit, Oak Ridge National Laboratory (US)

3:50 PM **KEYNOTE: Understanding Microstructural Evolution in Additively Manufactured Materials by 3D X-ray Imaging** (COIMG-137)

Daniel Sinclair[1], Eshan Ganju[1], Hamid T. Sarraf[2], and Nikhilesh Chawla[1]; [1]Purdue University and [2]Lam Research (US)

4:20 PM **Engineering Temporally Integrated Images for In Situ Monitoring and Analysis of Laser-Based Powder Bed Fusion Additive Manufacturing** (COIMG-139)

Zackary Keller Snow, Luke Scime, and Vincent Paquit, Oak Ridge National Lab, and Shuchi Khurana and Petros Apostolou, Addiguru (US)

4:40 PM **Benefit of X-ray Imaging to Improve Additive Manufacturing** (COIMG-140)

Anne-Françoise Obaton, Laboratoire National de Métrologie et d'Essais (LNE) (France), and Massimiliano Ferrucci, Brian Giera, Andrew Harris, and Jeff Haslam, Lawrence Livermore National Laboratory (LLNL) (US)

5:00 PM **Model-based Deep Learning with a CNN Prior for Sparse-view Cone-beam CT Reconstruction of Additively Manufactured Objects** (COIMG-141)

Aniket Pramanik, Obaidullah Rahman, Singanallur V. Venkatakrishnan, and Amir Koushyar Ziabari, Oak Ridge National Laboratory (US)

Conference: *Computer Vision and Image Analysis of Art*
Session: Computer Vision and Image Analysis of Art
3:30 PM - 5:30 PM / Room: Harbour B
Session Chair: *David Stork, Stanford University (US)*

3:30 PM **Computational Estimation of Head Pose and Gender Through Large Corpora of Fine-art Portraits** (CVAA-174)
Ali Unlu, Bilkent University (Turkey), and Jean-Peic Chou and David Stork, Stanford University (US)

3:50 PM **TextAlles: Color Manipulations in the Latent Space of StyleGAN3** (CVAA-175)
Ludovica Schaerf and Dario Negueruela del Castillo, Max Planck Society (Germany), and Leonardo Impett, University of Cambridge (UK)

4:10 PM **Distant Viewing Light Analysis of Figurative Paintings Using Spherical Harmonics** (CVAA-176)
Pepe Ballesteros, Zapata University of Zurich (Switzerland); Dario Negueruela del Castillo, University of Zurich (Switzerland); and Leonardo Impett, University of Cambridge (UK)

4:30 PM **Towards Artist Recognition Based on Material Rendering. A Case Study for Recognition of Rembrandt and Van Dyck** (CVAA-177)
Jing Huang, New York University, and Ahmed Elgammal, Rutgers University (US)

4:50 PM **The Use of Transfer Learning for the Analysis of Paintings by Raphael** (CVAA-178)
Hassan Ugail[1]; David Stork[2]; Howell Edwards[1], Steven Seward[3], and Christopher Brooke[4]; [1] University of Bradford (UK), [2]Stanford University (US); [3]independent portrait artist (US); and [4]University of Nottingham (UK)

5:10 PM **Vision Transformers and Synthetic Image Augmentation in Art Authentication** (CVAA-179)
Ludovica Schaerf, University of Zurich, and Marco Latella and Carina Popovici, Art Recognition AG (Switzerland)

Conference: *High Performance Computing for Imaging*
Session: Special Session on High Performance Imaging
3:30 PM - 5:10 PM / Room: Grand Peninsula F
Session Chair: *Yuhao Zhu, University of Rochester (US)*

3:30 PM **Focal Talk: A Visual Cortex for Array Cameras** (HPCI-189)
David Jones Brady, Wyant College of Optical Sciences (US)

4:10 PM **Focal Talk: The Image Systems Engineering Toolbox** (HPCI-190)
Brian Wandell, Stanford University (US)

4:50 PM **Taking Pictures of Planetary Interiors Using Powerful Computers** (HPCI-191)
Tolulope M. Olugboji, Cetin Mujdat, and Canberk Eckmecki, University of Rochester (US)

Conferences: *Human Vision and Electronic Imaging & Image Quality and System Performance*
Joint Session: Perception of AR/VR/MR
3:30 PM - 4:50 PM / Room: Grand Peninsula A
Session Chairs: *Alexandre Chapiro, Meta (US), and Chaker Larabi, University of Poitiers (France)*

3:30 PM **Perception in Mixed Reality Environments** (HVEI-213)
Bernice E. Rogowitz, Visual Perspectives (US)

3:50 PM **Egocentric Boundaries on Distinguishing Colliding and Non-Colliding Pedestrians while Walking in a Virtual Environment** (HVEI-214)
Alex D. Hwang, Jae-Hyun Jung, Alex Bowers, and Eli Peli, Schepens Eye Research Institute of Massachusetts Eye and Ear and Harvard Medical School (US)

4:10 PM **Digital Rear-view Mirrors with Augmented Reality in Comparison with Traditional Rear-View Mirrors** (HVEI-215)
Miao Zhang[1], Bin Gao[1], Gustav Kumlin Groth[2], David Hermann[2], and Kjell Brunnström[1]; [1]RISE Research Institutes of Sweden AB and [2]Volvo Car Corporation (Sweden)

4:30 PM **Quality of Experience of Virtual Reality-Based Communication Applications** (IQSP-267)
Mylene Farias, Texas State University (US)

Conference: *Machine Learning for Scientific Imaging*
Session: Machine Learning for Scientific Imaging III
3:30 PM - 5:10 PM / Room: Grand Peninsula E
Session Chairs: *Marc Louis Klasky, Los Alamos National Laboratory (US) and Jong Chul Ye, Korea Advanced Institute of Science & Technology (KAIST) (Republic of Korea)*

3:30 PM **Recovering a Molecule's 3D Dynamics from Liquid-phase Electron Microscopy Movies** (MLSI-305)
Enze Ye[1], Yuhang Wang[2], Hong Zhang[1], Yiqin Gao[1], Huan Wang[1], and He Sun[1]; [1]Peking University and [2]DP Technology, Ltd. (China)

3:50 PM **A Fully Differentiable Hydrodynamics Framework: Challenging Traditional ML for Optimization in Hydrodynamics** (MLSI-306)
Hyun Lim, Marc Louis Louis Klasky, Andrew Trettel, and Ben Southworth, Los Alamos National Laboratory (US)

4:10 PM **Unpaired Deep Learning for Pharmacokinetic Parameter Estimation from Dynamic Contrast-Enhanced MRI** (MLSI-307)
Gyutaek Oh, Won-Jin Moon, and Jong Chul Ye Kim, Korea Advanced Institute of Science and Technology (KAIST) (Republic of Korea)

4:30 PM **Applying Machine Learning to Detect Anomalies in Additive Manufacturing** (MLSI-308)
Sean Tyler Tronsen, Colt James Montgomery, and Nathan DeBardeleben, Los Alamos National Laboratory (US)

4:50 PM **What's Wrong with End-to-end Deep Learning Methods for Phase Retrieval?** (MLSI-309)
Wenjie Zhang, Yuxiang Wan, Zhong Zhuang, and Ju Sun, University of Minnesota (US)

Conference: *Media Watermarking, Security, and Forensics*
Session: Verification & Identification
3:30 PM - 4:45 PM / Room: Grand Peninsula G
Session Chair: *Nasir Memon, New York University (US)*

3:30 PM **A Novel Dataset for Non-Destructive Inspection of Handwritten Documents** (MWSF-341)
Eleonora Breci, Luca Guarnera, and Sebastiano Battiato, University of Catania (Italy)

3:55 PM **DeepMammo: Deep Learning Algorithm for Digital Mammogram Source Identification** (MWSF-342)
Farid Ghareh Mohammadi and Ronnie Sebro, Mayo Clinic (US)

4:20 PM **Sovereign Document Verification by Smartphones** (MWSF-343)
Waldemar Berchtold, Julian Heeger, Simon Bugert, Lukas Biermann, and Huajian Liu, Fraunhofer SIT, and Nikolas Thenee and Thomas Schnattinger, German Federal Office for Information Security (Germany)

Conference: *Mobile Devices and Multimedia: Enabling Technologies, Algorithms & Applications*
Session: Multimedia Applications
3:30 PM - 5:10 PM / Room: Harbour A
Session Chair: *Reiner Creutzburg, TH Brandenburg (Germany)*

3:30 PM **Generating Rich Media Posters for Interactive Hiking Trails to Promote Sustainable Tourism** (MOBMU-313)
Eberhard Hasche[1], Michel Tueini[2], and Reiner Creutzburg[1]; [1]Technische Hochschule Brandenburg and [2]Hotel Park Soltau (Germany)

3:50 PM **Driver Monitoring System Using Deep Learning Techniques** (MOBMU-314)
Moustafa Elhassan Ibrahim, and Gerrit Tamm, SRH Berlin University of Applied Sciences, and Reiner Creutzburg, TH Brandenburg (Germany)

4:10 PM **WITHDRAWN: Impact of Elon Musk and Bill Gates Tweets on Tesla and Microsoft Stock Prices** (MOBMU-315)
Maiia Kochneva, Evgenii Renzhin, and Klaus Schwarz, SRH Berlin University of Applied Sciences, and Reiner Creutzburg, TH Brandenburg (Germany)

4:30 PM **Prototypical Implementation of an Accessible Vocabulary Trainer** (MOBMU-316)
Susanne Knobelsdorf, Berliner Hochschule für Technik (BHT), and Reiner Creutzburg, TH Brandenburg (Germany)

4:50 PM **JIST-first: Development and Implementation of an Augmented Reality Thunderstorm Simulation for General Aviation Weather Theory Training** (MOBMU-317)
Kexin Wang[1], Jack Miller[1], Philippe Meister[1], Michael C. Dorneich[1], Lori Brown[22], Geoff Whitehurst[2], and Eliot Winer[1]; [1]Iowa State University and [2]Western Michigan University (US)

Workshop: *Imaging for XR*
Session: Presentations II
3:30 PM – 5:00 PM / Room: Grand Peninsula D
Session Chair: *Nicolas Bonnier, Apple (US)*

3:30 PM ***The Time for Immersive 6DoF Content is Now***
Victor Lempitsky, Cinemersive Labs (UK)

4:00 PM ***Shipwreck Imaging for XR Applications***
Andrew J. Woods, Curtin Univeristy HIVE (Australia)

4:30 PM ***Perspective-Correct VR Passthrough***
Grace Kuo, Meta Reality Labs (US)

Conferences: *Human Vision and Electronic Imaging*
Session: Poster Previews
4:50 PM - 5:30 PM / Room: Grand Peninsula A
Session Chairs: *Rafal Mantiuk, University of Cambridge (UK), and Damon Chandler, Ritsumeikan University (Japan)*
Short talks from the authors of HVEI Interactive Poster Papers:

Perceptual Experiment for Searching the Spatial Frequency Threshold Depending on Pixel Design (HVEI-234)
Dong-yeol Yeom, In-hye Heo, and Yong-woo Yi, Samsung Display (Republic of Korea)

Effect of Brightness and Size on Display Flicker Perception: Comparison with Flicker Indices (HVEI-235)
Hyosun Kim, Eunjung Lee, Youra Kim, Hyungsuk Hwang, Dongyeol Yeom, and Yongjo Kim, Samsung Display (Republic of Korea)

Heaven on Earth Map: "As Above, So Below." (HVEI-236)
Bradly Couch, independent researcher (US)

User Performance and Quality of Experience for a Remote-controlled Lab-based Moving Platform (HVEI-237)
Kawthar El Ouardi, Shirin Rafiei, Chetna Singal, and Kjell Brunnström, RISE (Sweden)

Workshop: *Imaging for XR*
Session: Group Discussion— Imaging for XR 2025
5:00 PM - 5:30 PM / Room: Grand Peninsula D
Session Chair: *Bennett Wilburn, Google (US)*

All Conferences
5:30 PM - 7:30 PM / Room: Regency
Interactive Paper Poster Session, Demonstration Session, and Exhibit Happy Hour

POSTERS BY CONFERENCE

Conference: *Computational Imaging*

Detection of Multiple Fluorescent Dyes Using Liquid Crystal Variable Retarder and Sparse Modeling (COIMG-161)

Kazuma Fujiwara[1], Takuya Funatomi[1, 2], Kazuya Kitano[1], Yuki Fujimura[1], Yasuhiro Mukaigawa[1], and Hiroshi Ochiai[3]; [1]Nara Institute of Science and Technology, [2]JST PRESTO, and [3]Kyushu University (Japan)

Open Set Domain Adaptation for Image Classification with Multiple Unknown Labels Using Unsupervised Clustering in a Target Domain (COIMG-162)

Daichi Nishihara[1], Yoshihiro Midoh[1], Youyang Ng[2], Osamu Yamane[2], Maasa Takahashi[2], Shuhei Iijima[2], Jun Shiomi[1], Goh Itoh[2], and Noriyuki Miura[1]; [1]Osaka University and [2]Kioxia Corporation (Japan)

Conference: *Human Vision and Electronic Imaging*

Perceptual Experiment for Searching the Spatial Frequency Threshold Depending on Pixel Design (HVEI-234)

Dongyeol Yeom, Inhye Heo, and Yongwoo Yi, Samsung (Republic of Korea)

Effect of Brightness and Size on Display Flicker Perception: Comparison with Flicker Indices (HVEI-235)

Hyosun Kim, Eunjung Lee, Youra Kim, Hyungsuk Hwang, Dongyeol Yeom, and Yongjo Kim, Samsung Display (Rep. of Korea)

Heaven on Earth Map: "As Above, So Below." (HVEI-236)

Bradly Couch, Independent Research (US)

User Performance and Quality of Experience for a Remote-controlled Lab-based Moving Platform (HVEI-237)

Kawthar El Ouardi, Shirin Rafiei, Chetna Singal, and Kjell Brunnström, RISE (Sweden)

Conference: *Image Processing: Algorithms and Systems*

Automatic Reading Order Sequencing: A Novel Reading Order Generator for Text-Based Documents (IPAS-252)

Md. Manzoor Murshed, Steven J. Simske, and Arturo N. Villanueva, Jr., Colorado State University (US)

Data and Label Graph Fusion for Semi-supervised Learning: Application to Image Categorization (IPAS-253)

A. Baradaaji[1], F. Dornaika[1,2], and I. Arganda-Carreras[1,2,3,4]; [1]University of the Basque Country UPV/EHU, [2]IKERBASQUE, Basque Foundation of Science, [3]DIPC, and [4]Biofisika Institute (Spain)

Novel Image Super-Resolution and Denoising Using Implicit Tensor-Product B-Spline (IPAS-254)

János Horváth and Guan-Ming Su, Dolby Laboratories (US)

Scalable and Efficient Orchestration of Machine Learning Workloads on DSPs with Multi-level Memory Architecture (IPAS-255)

Aaron Sequeira, Febin Sam, Anshu Jain, and Pramod Swami, Texas Instruments (India)

Conference: *Imaging and Multimedia Analytics at the Edge*

Self-Attention Enhanced Recognition: A Unified Model for Handwriting and Scene-Text Recognition with Improved Inference (IMAGE-241)

Gaurav Patel[1], Taewook Kim[1], Qian Lin[2], Jan P. Allebach[1], and Qiang Qiu[1]; [1]Purdue University and [2]HP Inc. (US)

Generalizing Handwriting and Scene-Text Detection in Images (IMAGE-242)

Taewook Kim[1], Gaurav Patel[1], Qian Lin[2], Jan P. Allebach[1], and Qiang Qiu; [1]Purdue University and [2]HP Inc. (US)

Neuro-Symbolic Ensembles for Assistance at the Edge (IMAGE-243)

Bob Price, Yan-ming Chiou, Dick Crouch, Michael Youngblood, Jiaying Chen, and Charlie Ortiz, SRI International (US)

Conference: *Imaging Sensors and Systems*

Magic Lantern as a Platform for Digital Photography Research (ISS-292)

Paul Selegue Eberhart and Henry Dietz, University of Kentucky (US)

Conference: *Machine Learning for Scientific Imaging*

Segmentation of Starch Granules in Microscopic Images Using a U-Net Model (MLSI-310)

Ye Jin, Pengyuan Cui, and Jinshan Tang, George Mason University (US)

Conference: *Mobile Devices and Multimedia: Enabling Technologies, Algorithms, and Applications*

AI-based Cybersecurity Management Consulting - A New Disruptive Technology for the Future (MOBMU-325)

Klaus Dieter Schwarz and Knud Brandis, EY Cybersecurity and Reiner Creutzburg, TH Brandenburg (Germany)

Vulnerability Management Using Open-Source Tools (MOBMU-326)

Navaneeth Shivananjappa, SRH Berlin University of Applied Sciences (Germany), and Reiner Creutzburg, TH Brandenburg (Germany)

Contribution of Machine Learning in the Field of Renewable Energy (MOBMU-327)

Daria Posashkova, Nour Elsayed, Onur Mühurdar, and Klaus Dieter Schwarz, SRH Berlin University of Applied Sciences, and Reiner Creutzburg, TH Brandenburg (Germany)

OSINT-Based Email Investigation (MOBMU-328)

Samrudha Mhatre, Franziska Schwarz, and Klaus Dieter Schwarz, SRH Berlin University of Applied Sciences, and Reiner Creutzburg, TH Brandenburg (Germany)

Conference: *Visualization and Data Analysis*

Interactive High-dimensional Audiovisual Feature Analysis of Live Song Concert Videos (VDA-363)

Alexandra Diehl, Melike Çiloğlu, and Renato Pajarola, University of Zurich (Switzerland)

Data Analysis and Visualization of Crime Data (VDA-364)

Sharad Sharma and Sri Chandra Dronavalli, University of North Texas (US)

Equalization of Appearance Using Individualized Unique Hues (COLOR-168)
Che Shen, Rochester Institute of Technology (US)
Bias Setting Optimizations for Neuromorphic Cameras in Rainy Conditions
Ethan Delany, University of Galway (Ireland)
Sensing the Unseen: Hyperspectral Technology Redefining Material Recognition for On-Car Applications
Jiarong Li, University of Galway (Ireland)

Wednesday January 24, 2024

Conference: Color Imaging: Displaying, Processing, Hardcopy, and Applications
Session: Color Imaging I
8:45 AM - 10:10 AM / Room: Grand Peninsula A
Session Chair: *John J. McCann, McCann* Imaging
8:45 AM Welcome
8:50 AM **Experimental Study on Reducing Wavelength Dependency of Spatial Resolution Characteristics of a Digital Camera by MTF Correction** (COLOR-163)
Tsubasa Ando, Midori Tanaka, and Takahiko Horiuchi, Chiba University (Japan)
9:10 AM **Double Binnable LMS and RGBW Color Filter Arrays** (COLOR-164)
Mritunjay Singh and Tripurari Singh, Image Algorithmics (US)
9:30 AM **Camera Color Correction Using Splines** (COLOR-165)
Joni Mikael Suominen, Axon, and Karen Egiazarian, Tampere University (Finland)
9:50 AM **Color Calibration Methods for OLED Displays** (COLOR-166)
Maliha Ashraf, Alejandro Sztrajman, Dounia Hammou, and Rafal Mantiuk, University of Cambridge (UK)

Conference: Computational Imaging
Session: Methods in Computational Imaging
9:10 AM – 10:10 AM / Room: Grand Peninsula C
Session Chair: *Charles A. Bouman, Purdue University (US)*
9:10 AM **Leveraging Pixel Value Certainty in Pixel-Shift and Other Multi-Shot Super-Resolution Processing** (COIMG-142)
Henry G. Dietz, University of Kentucky (US)
9:30 AM **Multimodal Deep Learning Approach for Dynamic Sampling with Automatic Feature Selection in Matrix-Assisted Laser Desorption/Ionization Mass Spectrometry Imaging** (COIMG-143)
David Helminiak, Marquette University (US); Tobias Boskamp, Bruker Corporation (Germany); and Dong Hye Ye, Georgia State University (US)
9:50 AM **Gradient-Based Image Visualization for Noisy LWIR Image** (COIMG-144)
Taichi Nakano, Masayuki Tanaka, and Masatoshi Okutomi, Tokyo Institute of Technology (Japan)

Conference: High Performance Computing for Imaging
Session: High Performance Computing for Imaging Keynote Talk II
8:45 AM – 9:30 AM / Room: Grand Peninsula F
Session Chair: *Xiao Wang, Oak Ridge National Laboratory (US)*
8:45 AM Welcome
8:50 AM **KEYNOTE: Scientific Machine Learning for Computational Wave Imaging Problems: from Carbon Zero Emissions to Breast Cancer Detection** (HPCI-192)
Youzuo Lin, Los Alamos National Laboratory (US)

Conference: Human Vision and Electronic Imaging
Session: Perceptual Video Quality
8:45 AM - 10:05 AM / Room: Grand Peninsula D
Session Chairs: *Nicko Caluya, Ritsumeikan University (Japan) and Damon Chandler, Ritsumeikan University (Japan)*
8:45 AM Welcome
8:50 AM **Study on the Relationship Between Quality and Acceptability Annoyance (AccAnn) of UGC Videos** (HVEI-216)
Pierre David and Pierre Lebreton, CAPACITES SAS (France); Neil Birkbeck, Yilin Wang, and Balu Adsumilli Google (US); and Patrick Le Callet, Nantes Universite (France)
9:10 AM **Comparison of Subjective Methodologies for Local Perception of Distortion in Videos and Impact on Objective Metrics Resolving Power** (HVEI-217)
Andréas Pastor[1], Lukáš Krasula[2], Xiaoqing Zhu[1], Zhi Li[2], and Patrick Le Callet[1]; [1]Nantes Universite (France) and [2]Netflix (US)
9:30 AM **Advancing Video-Wise Just Noticeable Difference (VW-JND): Innovative Strategies for Dataset Collection, Procedure Optimization, and Comparative Analysis of Video Quality Metrics** (HVEI-218)
Jingwen Zhu[1], Ali Ak[1], Hadi Amirpour[2], and Patrick Le Callet[1]; [1]Nantes Université (France) and [2]Christian Doppler Laboratory ATHENA (Austria)
9:50 AM **Metric Thresholds for Acceptance and Annoyance of User Generated Video Content** (HVEI-219)

Ali Ak[1], Abhishek Gera[2], Denise Noyes[2], Francois Blouin[2], Hassene Tmar[2], Ioannis Katsavounidis[2], and Patrick Le Callet[1]; [1]Nantes Universite (France) and [2]Meta (US)

Conference: *Imaging Sensors and Systems*
Session: Image Sensor Design and Analysis
8:45 AM - 10:05 AM / Room: Grand Peninsula B
Session Chair: *Hari Tagat, Samsung Semiconductor (US), and Min-Woong Seo, Samsung Electronics (Republic of Korea)*
8:45 AM Welcome
8:50 AM **Comparison of SFR and Edge Artifacts Between Single Photodiode and Split Photodiode Pixels in HDR Image Sensors** (ISS-280)
Xunzhi Li, Bob Gravelle, Rujul Desai, and Radu Ispasoiu, onsemi (US)
9:10 AM **Modeling and Reducing Energy Consumption of Computational Image Sensors: A Case Study on Gaze Tracking** (ISS-281)
Yuhao Zhu, University of Rochester (US)
9:30 AM **Single Slope Single Ramp Column ADC with Digital CDS for CMOS Image Sensors** (ISS-282)
Pedro Nuno T. Santos, Idham Hafizh, Jeffrey Prinzie, Paul Leroux, and Guy Meynants, KU Leuven (Belgium)
9:50 AM **Intracell Capacitances in Pixel-Level Hybrid Bond Image Sensor Cells** (ISS-283)
Valery Axelrad, SEQUOIA Design Systems, and Ognjen Milic, formerly OMNIVISION (US)

Conference: *Mobile Devices and Multimedia: Enabling Technologies, Algorithms & Applications*
Session: Multimedia Security
8:45 AM - 10:05 AM / Room: Grand Peninsula G
Session Chairs: *Reiner Creutzburg, TH Brandenburg (Germany)*
8:45 AM Welcome
8:50 AM **OSINT for Critical Infrastructure Protection – Electricity Sector** (MOBMU-318)
Mert Ilhan Ecevit, Muhammad Hasban Pervez, Ayhan Gucuyener, and Hasan Dag, Kadir Ha University (Turkey), and Reiner Creutzburg, TH Brandenburg (Germany)
9:10 AM **Automated Tools for Cloud Security Testing** (MOBMU-319)
Hamid Ghazizadeh and Gerrit Tamm, SRH Berlin University of Applied Sciences, and Reiner Creutzburg, TH Brandenburg (Germany)
9:30 AM **WITHDRAWN: Sanitization Tool for Compromised Social Media Account after Recovery and Its Aftermath** (MOBMU-320)
Hardik Tapara, Kunal Choudhary, Taneesha Tapara, and Parag Shukla, National Forensic Sciences University (India)
9:50 AM **WITHDRAWN: Financial Security Management: A Comprehensive Study of Cryptocurrency Forensics** (MOBMU-321)
Parth Gandhi, Akanshu Shukla, Sourav Kunal, Ronak Soutariya, and Naveen Chaudhury, National Forensic Sciences University (India)

Conference: *Stereoscopic Displays and Applications*
Session: Human Factors and 3D Content Solutions
8:45 AM - 10:05 AM / Room: Grand Peninsula E
Session Chair: *Takashi Kawai, Waseda University (Japan)*
8:45 AM Welcome
8:50 AM **The Effect of Stereoscopic Depth Distortion on the Near Oculomotor Response** (SDA-349)
Eric Seemiller[1], Eleanor O'Keefe[2], and Marc Winterbottom[1]; [1]Air Force Research Laboratory and [2]KBR (US)
9:10 AM **Automatic Stereograph Feature Detection** (SDA-350)
Nicholas Routhier, CubicSpace (Canada)
9:30 AM **Successful One Man, Low Cost, 3D CGI Feature Film Conversion** (SDA-351)
Enrique Criado, 3d Experiences Iberia (Spain)
9:50 AM **What Do We Know About Apple's New Spatial Video Format?** (SDA-352)
Andrew J. Woods and Michael Wiebrands, Curtin University HIVE (Australia)

Conference: *Visualization and Data Analysis*
Session: Visualization and Data Analysis Keynote & Multivariate Data
8:45 AM – 9:45 AM / Room: Harbour A
Session Chair: *Yi-Jen Chiang, New York University (US)*
8:45 AM Welcome
8:50 AM **KEYNOTE: Toward the Use of Immersive Technologies for Interactive Visualization** (VDA-356)
Thomas Wischgoll Wright State University (US)
9:30 AM **JIST-first: Kiviat Defense: An Empirical Evaluation of Visual Encoding Effectiveness in Multivariate Data Similarity Detection** (VDA-357)
Mirko Mantovani, Andrew Wentzel, Juan Trelles Trabucco, Joseph Michaelis, and G. Elisabeta Marai, University of Illinois Chicago (US)

Conference: High Performance Computing for Imaging
Session: High Performance Convolutional Neural Network
9:30 AM – 10:10 AM / Room: Grand Peninsula F
Session Chair: *Yuankai Huo, Vanderbilt University (US)*
9:30 AM **Automatic Optimization for Fast Convolution for SIMD Architecture** (HPCI-193)
Jiang Chen[1], Honglin Zhu[2], Du Wu[3], Wenxi Zhu[2], Jintao Meng[3], Minwen Deng[2], Peng Chen[4], and Yanjie Wei[3]; [1]Southern University of Science and Technology, [2]Tencent, [3]Shenzhen Institute of Advanced Technology Chinese Academy of Sciences (China); and [4]Tokyo Institute of Technology (Japan)
9:50 AM **JIST-first: Digital Modeling on Large Kernel Metamaterial Neural Network** (HPCI-194)
Quan Liu[1], Hanyu Zheng[1], Brandon T. Swartz[1], Ho Hin Lee[1], Zuhayr Asad[1], Ivan Kravchenko[2], Jason G. Valentine[1], and Yuankai Huo[1]; [1]Vanderbilt University and [2]Oak Ridge National Laboratory (US)

All Conferences
Coffee Break 10:00–10:40

Conference: Color Imaging: Displaying, Processing, Hardcopy, and Applications
Session: Color Imaging II
10:40 AM - 12:30 PM / Room: Grand Peninsula A
Session Chair: *John J. McCann, McCann Imaging*
10:40 AM **WITHDRAWN: Characterisation of Color Enhancing Screen Printing Technique with RGBW Interference Pigments** (COLOR-167)
Alina Pranovich[1], Sergiy Valyukh[1], Sasan Gooran[1], Jeppe Revall Frisvad[2], Daniel Nyström[1]; [1]Linköping University (Sweden) and [2]Technical University of Denmark (Denmark)
11:00 AM **Investigating Consistency of Color Appearance Using Different Reproduction Approaches** (COLOR-170)
Apurva Zunjarrao and Elena Fedorovskaya, Rochester Institute of Technology (US)
11:20 AM **Equalization of Appearance Using Individualized Unique Hues** (COLOR-168)
Che Shen and Mark D. Fairchild, Rochester Institute of Technology (US)
11:40 AM **A Method for Estimating Spectral Reflectance from Camera Responses Using Local Optimal Dataset and Neural Network** (COLOR-169)
Shoji Tominaga, Norwegian University of Science and Technology (Norway), and; Hideaki Sakai, Kyoto University (Japan)
12:00 PM **Group Discussion with Authors**

Conference: Computational Imaging
Session: Additive Manufacturing: In- and Ex-Situ Imaging for Monitoring and Non-Destructive Characterization II
10:40 AM - 12:50 PM / Room: Grand Peninsula C
Session Chair: *Amir Ziabari, Oak Ridge National Laboratory (US)*
10:40 AM **CANCELED**
11:10 AM **Multimodal Registration and Fusion of In Situ and Ex Situ Process Monitoring Data: A Case Study in Laser Powder Bed Fusion** (COIMG-138)
Sean P. Donegan and Edwin J. Schwalbach, Air Force Research Lab, and Michael A. Groeber, Ohio State University (US)
11:30 AM **Generative Denoising Models for Material Science Applications** (COIMG-147)
Patxi Fernandez-Zelaia, Jiahao Cheng, Jason Mayeur, Amir K. Ziabari, Michael M. Kirka, Saket Thapliyal, Rangasayee Kanan, and Peeyush Nandwana, Oak Ridge National Laboratory (US)
11:50 AM **On the Development of Acoustic Melt Pool Monitoring Techniques Assisted by High-speed Synchrotron X-rays** (COIMG-148)
David Stobbe[1], Nathan Kizer[2], Lovejoy Mutswatiwa[2], Lauren Katch[2], Tao Sun[3], Jordan Lum[1], Samuel Clark[4], Kamel Fezzaa[4], and Chris Kube[2]; [1]Lawrence Livermore National Laboratory, [2]Penn State University, [3]University of Virginia, and [4]Argonne National Laboratory (US)
12:10 PM **Classification of Melt Pool Boundaries and Defects through Dual-energy X-ray CT of Crept Additively Manufactured Parts** (COIMG-149)
Obaidullah Rahman[1], Sumit Bahl[1], Curtis Frederick[2], Amit Shyam[1], Ryan Dehoff[1], Alex Plotkowski[1], and Amir Koushyar Ziabari[1]; [1]Oak Ridge National Laboratory and [2]Carl Zeiss Industrial Metrology (US)
12:30 PM **3D Printing Images Defect Detection and Classification Supported by Generative AI Models** (COIMG-368)
Amra Peles, Holden Hyer, Amir Ziabari, Ryan DeHoff, and Vincent Paquit, Oak Ridge National Laboratory (US)

Conference: High Performance Computing for Imaging
Session: High Performance Image Transfer and Preprocessing
10:40 AM – 11:40 AM / Room: Grand Peninsula F
Session Chair: *Tekin Bicer, Argonne National Laboratory (US)*

10:40 AM **Facilitating Efficient Scientific Data Streams through High-End Data Transfer Nodes** (HPCI-195)
Tekin Bicer, Argonne National Laboratory (US)
11:00 AM **High-performance Data Loader for Large-scale Data Processing** (HPCI-196)
Edgar Josafat Martinez-Noriega and Peng Chen, AIST, and Rio Yokota, Tokyo Institute of Technology (Japan)
11:20 AM **Asynchronous Tensor Decomposition Applied in High Performance Image Processing** (HPCI-197)
Zhen Zhou and Zheng Miao, Hangzhou Dianzi University (China), and Takaaki Miyajima, Meiji University (Japan)

Conferences: Human Vision and Electronic Imaging & Image Quality and System Performance
Joint Session: Visual Quality Across Displays and Viewing Conditions I
10:40 AM - 12:20 PM / Room: Grand Peninsula D
Session Chairs: *Rafal Mantiuk, University of Cambridge (UK), and Mylene Farias, Texas State University (US)*
10:40 AM **KEYNOTE: Quality Assessment in Context: The QoE Way Towards Sustainable Media Consumption** (HVEI-220)
Patrick Le Callet, Ecole Polytechnique de L'Université de Nantes (France)
11:20 AM **Color Perception-Driven Energy Optimization for Virtual Reality: Displays and Image Encoding** (HVEI-221)
Yuhao Zhu, University of Rochester (US)
11:40 AM **Study on Effect of Display Layout for Web Conferencing Services on Subjective Evaluation Stability** (HVEI-222)
Kimiko Kawashima, Yuichiro Urata, Noritsugu Egi, and Kazuhisa Yamagishi, Nippon Telegraph and Telephone Corporation (Japan)
12:00 PM **Background- and Ambient-aware Image Visibility Enhancement for Transparent Displays** (HVEI-223)
Seungchul Ryu, Hyunjin Yoo, and Tara Akhavan, Faurecia Irystec (Canada)

Conference: Imaging Sensors and Systems
Session: Applications and Processing
10:40 AM - 12:00 PM / Room: Grand Peninsula B
Session Chair: *Francisco Imai, Apple, and Sergio Goma, Qualcomm (US)*
10:40 AM **KEYNOTE: Passing the Visual Turing Test with Holographic Displays** (ISS-284)
Grace Kuo, Meta (US)
11:20 AM **Adaptive Bit Depth Control for Neural Network Quantization** (ISS-285)
Youngil Seo, Dongpan Lim, Jeongguk Lee, and Seongwook Song, Samsung Electronics (Republic of Korea)
11:40 AM **Joint Design of Camera Spectral Sensitivity and Color Correction Matrix with Noise Consideration** (ISS-286)
Xinyue Yu, Masayuki Tanaka, Yusuke Monno, and Masatoshi Okutomi, Tokyo Institute of Technology (Japan)

Conference: Intelligent Robotics and Industrial Applications Using Computer Vision & Autonomous Vehicles and Machines
Joint Session: Vision Systems for Industrial Applications
10:40 AM - 12:00 PM / Room: Grand Peninsula G
Session Chairs: *Kurt Niel, University of Applied Sciences Upper (Austria), and Juha Röning, University of Oulu (Finland)*
10:40 AM **Synthetic Data Generation for AI-based Machine Vision Applications** (IRIACV-276)
Frederik Seiler, Verena Eichinger, and Ira Effenberger, Fraunhofer IPA (Germany)
11:00 AM **Unsupervised PCB Anomaly Segmentation with Foundational Models** (IRIACV-277)
Chih-Hui Ho[1], SungBal Seo[2], NaYeon Kim[2], Pin-Ying Wu[1], and YouSuk Bae[2], Nuno Vasconcelos[1]; [1]University of California San Diego (US) and [2]Tech University of Korea (Republic of Korea)
11:20 AM **Real-time Cattle Intake Monitoring Using Stereo Vision** (IRIACV-278)
Prajwal Rao, McKinley N. Flinders, Dennis Buckmaster, Amy R. Reibman, and Jacquelyn P. Boerman, Purdue University (US)
11:40 AM **Mobile 3D Mapping of Erdstall Facilities** (IRIACV-279)
Raimund Edlinger and Kurt Niel, University of Applied Sciences Upper Austria, and Josef Weichenberger, Erdstallforschung (Austria)

Conference: Stereoscopic Displays and Applications
Session: Discussion Forum: 3D Video Streaming - Solutions and Opportunities
10:40 AM - 11:40 AM / Room: Grand Peninsula E
Session Chair: *Andrew J. Woods, Curtin University HIVE (Australia)*
10:40 AM **SD&A Discussion Forum: 3D Video Streaming—Solutions and Opportunities**
Andrew J. Woods, Curtin University HIVE (Australia)

Conferences: Stereoscopic Displays and Applications & Engineering Reality of Virtual Reality
Joint Session: Virtual Reality I
11:40 AM - 12:00 PM / Room: Grand Peninsula E
Session Chairs: *Bjorn Sommer, Royal College of Art (UK), and Sharad Sharma, University of North Texas (US)*
11:40 AM **Comparative Analysis of User Experience in Virtual Reality (VR) and Mixed Reality (MR) Systems Using Eye-Tracking Measurements** (SDA-353)
Yoshihiro Banchi, Yusuke Ohira, Mahiro Ito, and Takashi Kawai, Waseda University (Japan)
12:00 PM **Virtual Reality (VR) Space for Radiation Oncology Education and Collaborative Learning** (SDA-354)
Kulbir Singh Sandhu and Marie Vans, Colorado State University (US)

Conference: *Visualization and Data Analysis*
Session: Machine Learning
10:40 AM - 11:40 AM / Room: Harbour A
Session Chair: *Yi-Jen Chiang, New York University (US)*

10:40 AM **One Model that Fits Them All: Psychometrics with Generalized Linear Mixed Effects Models** (VDA-358)
Wangqian Ju[1], Susan R. Vanderplas[2], and Heike Hofmann[1]; [1]Iowa State University and [2]University of Nebraska-Lincoln (US)

11:00 AM **Creating Visual Persona Profiles in Telegram Using NLP** (VDA-359)
Jeong-Eun Choi, Martin Steinebach, and Karla Schäfer, Fraunhofer SIT - ATHENE (Germany)

11:20 AM **Evaluating the Recommendations of LLMs to Teach a Visualization Technique Using Bloom's Taxonomy** (VDA-360)
Alark Joshi and Chandana Srinivas, University of San Francisco (US); Elif E. Firat, Cukurova University (Turkey); and Robert S. Laramee, University of Nottingham (UK)

Conference: *Visualization and Data Analysis*
Session: Information Visualization
11:40 AM - 12:20 PM / Room: Harbour A
Session Chair: *Thomas Wischgoll, Wright State University (US)*

11:20 AM **Interactive Media Planning Data Visualization** (VDA-361)
Marina Ljubojevic and Mihai Mitrea, Institut Mines-Telecom (France)

12:00 PM **RAIV: Researchable Archives for Interactive Visualizations** (VDA-362)
Hunter Price[1], John Duggan[1], Robert Sisneros[2], Tanner Hobson[1], James Hammer[1], James Osborne[1], and Jian Huang[1]; [1]University of Tennessee and [2]University of Illinois (US)

All Conferences
Lunch on Own

All Conferences
2:00 PM - 3:00 PM / Room: Grand Peninsula D
PLENARY: Imaging the Universe: NASA Space Telescopes from James Webb to Nancy Grace Roman and Beyond
Joseph M. Howard, optical designer, NASA (US)

All Conferences
Coffee Break 3:00–3:30

Conference: *Color Imaging: Displaying, Processing, Hardcopy, and Applications*
Session: Color Imaging III
3:30 PM - 5:00 PM / Room: Grand Peninsula A
Session Chair: *John J. McCann, McCann Imaging*

3:30 PM **JIST-first: Spectral Estimation: Its Behaviour as a SAT and Implementation in Colour Management** (COLOR-173)
Tanzima Habib, Phil Green, and Peter Nussbaum, Norwegian University of Science and Technology (Norway)

3:50 PM **JIST-first: Spatio-Temporal Retinex-Inspired Envelopes with Anisotropic Diffusion** (COLOR-172)
Peter Sagvold, Ivar Farup, and Marius Pedersen, Norwegian University of Science and Technology (Norway)

4:10 PM **Visual Assimilation Illusions: Perceptions or Optics?** (COLOR-171)
John J. McCann, McCann Imaging (US)

4:30 PM **Group Discussion with Authors**

Conference: *Computational Imaging*
Session: Imaging at the Edge
3:30 PM - 5:30 PM / Room: Grand Peninsula C
Session Chairs: *Mel White, Rice University (US), and Stanley H. Chan, Purdue University (US)*

3:30 PM **JIST-first: Computational Image Formation: Simulators in the Deep Learning Era** (COIMG-150)
Stanley H. Chan, Purdue University (US)

3:50 PM **Mobile Aware Computational Imaging** (COIMG-155)
Jing Li, Samsung (Republic of Korea)

4:10 PM **PSF Engineering for Edge Sensing** (COIMG-152)
Nicholas Antipa, University of California San Diego (US)

4:30 PM **Reconstruction of Phase and Temperature Maps from Energy-resolved Neutron Imaging** (COIMG-153)
Anton S. Tremsin, Space Sciences Laboratory (US); Adrian Losko, Forschungs-Neutronenquelle Heinz Maier-Leibnitz (Germany); Sven Vogel, Los Alamos National Laboratory (US); Winfried Kockelmann and Daniel Pooley, STFC (UK); and Takenao Shionhara and Kenichi Oikawa, Japan Atomic Energy Agency (Japan)

4:50 PM **Bio-Inspired Methods for Efficient Visual Sensing** (COIMG-154)
Emma Alexander, Northwestern University (US)

5:10 PM **Beyond RISC - Next-generation Compute Architecture for Computational Imaging** (COIMG-151)

Sergio Goma, Qualcomm (US)

Conferences: Human Vision and Electronic Imaging & Image Quality and System Performance
Joint Session: Visual Quality Across Displays and Viewing Conditions II
3:30 PM – 4:50 PM / Room: Grand Peninsula D
Session Chairs: *Scott Daly, Dolby (US), and Chaker Larabi, University of Poitiers (France)*

3:30 PM **Evaluation of Subjective Video Quality of Television Displays** (IQSP-268)
Eddie Pei[1], Hosub Lee[2], Elena Fedorovskaya[1], and Susan Farnand[1]; [1]Rochester Institute of Technology and [2]Samsung Research America (US)

3:50 PM **Quantified Impact of Key System Parameters on the Diffraction Quality in Displays** (IQSP-269)
Soyoung Kwon, Wooyoung Cheon, and Sumi Lee, Samsung (Republic of Korea)

4:10 PM **Adapting Pretrained Networks for Image Quality Assessment on High Dynamic Range Displays** (HVEI-224)
Andrei Chubarau[1], Hyunjin Yoo[2], Tara Akhavan[2], and James Clark[1]; [1]McGill University and [2]Faurecia IRYStec (Canada)

4:30 PM **Image Quality Assessment across Viewing Distances: A Comparison Study of CSF-based and Rescaling-based Metrics** (HVEI-225)
Dounia Hammou[1], Lukáš Krasula[2], Christos G. Bampis[2], Zhi Li[2], and [1]Rafal Mantiuk; [1]University of Cambridge (UK) and [2] Netflix (US)

Conference: Imaging Sensors and Systems
Session: Quanta, Event, and Time of Flight Sensors
3:30 PM – 4:50 PM / Room: Grand Peninsula B
Session Chair: *Radka Tezaur, Intel Corporation (US), and Min-Woong Seo, Samsung Electronics (Republic of Korea)*

3:30 PM **Simulation of Indirect Time of Flight Pixel Using High-frequency Operation Low-voltage Trench Gates** (ISS-287)
Bruno Henrique Lopes, Pascal Fontenau, Boris Rodrigues Goncalves, Matteo Vignetti, Gabriel Mugny, STMicroelectronics, and Maryline Bawedin and Anne Kaminski, University of Grenoble Alpes (France)

3:50 PM **A Dynamic-Range Extension Technique with Linear-Logarithmic Response for Short-Pulse Time-of-Flight Image Sensors** (ISS-288)
Tomohiro Okuyama, Keita Yasutomi, Keiichiro Kagawa, and Shoji Kawahito, Shizuoka University (Japan)

4:10 PM **Joint Parameter Estimation for Event-based Vision Sensor Characterization** (ISS-289)
Xiaozheng Mou[1], Rui Jiang[2], Wei Zhang[1], Menghan Guo[1], Bo Mu[3], and Andreas Suess[3]; [1]OMNIVISION (China), [2]OMNIVISION (Singapore), and [3]OMNIVISION (US)

4:30 PM **Dynamic Low Bit-Depth Quanta Video Imaging with Recurrent Restoration** (ISS-290)
Prateek Chennuri[1], Yiheng Chi[1], Enze Jiang[1], Dilshan Godaliyadda[2], Abhiram Gnanasambandam[2], Istvan Gyongy[3], and Stanley H. Chan[1]; [1]Purdue University (US), [2]Samsung Research America (US), and [3]The University of Edinburgh (Scotland)

Conference: Mobile Devices and Multimedia: Enabling Technologies, Algorithms & Applications
Session: Machine Learning and AI
3:30 PM - 4:10 PM / Room: Grand Peninsula G
Session Chair: *Reiner Creutzburg, TH Brandenburg (Germany)*

3:30 PM **Automatic Deep Neural Network Model Surgery for Embedded Devices** (MOBMU-322)
Parakh Agarwal[1], Kunal Patel[1], Manu Mathew[1], Arthur Redfern[2], Debapriya Maji[1], Kumar Dessapan[1], Pramod Swami[1,] and Do-Kyoung Kwon[2]; [1]Texas Instruments (India) and [2] Texas Instruments (US)

3:50 PM **WITHDRAWN: Probabilistic Time Series Forecasting with Transformer Models** (MOBMU-323)
Maximilian A.F. Bornstädt and Klaus Dieter Schwarz, SRH Berlin University of Applied Sciences, and Reiner Creutzburg, TH Brandenburg (Germany)

Conferences: Stereoscopic Displays and Applications & Engineering Reality of Virtual Reality
Joint Session: Virtual Reality II
3:30 PM – 4:50 PM / Room: Grand Peninsula E
Session Chair: *Sharad Sharma, University of North Texas (US)*

3:30 PM **VR Visualization of Avian-Human Perspectives for Co-Design Practices supporting Empathy Building and Perspective Shifts** (SDA-355)
Tori Simpson[1], Harry Hosker[1], Tokushu Inamura[2], Melanie Sarantou[2], Yasuyuki Hirai[2], and Bjorn Sommer[1]; [1]Royal College of Art (UK) and [2]Kyushu University (Japan)

3:50 PM **JIST-first: Spatial Analysis and Visual Communication of Emergency Information through Augmented Reality** (ERVR-180)
Sharad Sharma and Rishitha Reddy Pesaladinne, University of North Texas (US)

4:10 PM **Real-time Stereoscopic Image-parallel Path Tracing** (ERVR-181)
Erwan Leria, Markku Mäkitalo, and Pekka Jääskeläinen, Tampere University (Finland)

4:30 PM **Interactive Aviation Maintenance Classroom** (ERVR-182)

L. Taylor Starr, Kelvin Shorts, and Marie Vans, Colorado State University (US)

Conference: *High Performance Computing for Imaging*
Session: High Performance Vision Transformer
3:30 PM – 4:10 PM / Room: Grand Peninsula F
Session Chair: *Xiao Wang, Oak Ridge National Laboratory (US)*
3:30 PM **Rapid and Scalable Training for Ultra-Long Sequence Vision Transformer for Imaging Applications** (HPCI-198)
Xiao Wang, Oak Ridge National Laboratory (US)
3:50 PM **Efficient Distributed Sequence Parallelism for Transformer-based Image Segmentation** (HPCI-199)
Isaac Lyngaas[1], Murali Gopalakrishnan Meena[1], Evan Calabrese[1], Mohamed Wahib[2], and Peng Chen[3], Jun Igarashi[4], and Xiao Wang[1]; [1]Oak Ridge National Laboratory (US), [2]Duke University (US), [3] RIKEN Center for Computational Science (Japan), and [4]AIST (Japan)

Conference: *Computational Imaging*
Session: Panel Discussion: The Future of Computational Imaging
5:40 PM – 7:10 PM / Room: Grand Peninsula C
Moderator: *Charles A. Bouman, Purdue University (US)*

PANELISTS:

Emma Alexander, Northwestern University   *Sergio Goma, QualComm*
Stanley H. Chan, Purdue University   *David Stork, Stanford University*
Dilshan Godaliyadda, Samsung   *Anton Tremsin, UC Berkeley Space Science Laboratory*

Thursday January 25, 2024

Conference: *Computational Imaging*
Session: Implicit Neural Representations for Inverse Imaging
9:20 AM - 10:20 AM / Room: Grand Peninsula C
Session Chairs: *K. Aditya Mohan and Hyojin Kim, Lawrence Livermore National Laboratory (US)*
9:20 AM **Accurate Efficient Multispectral Spatiotemporal Image Reconstruction Using Neural Field Representations** (COIMG-156)
Luke Lozenski[1], Alia Khaled[2], Mark Anastasio[3], Mark Pagel[2], and Umberto Villa[4]; [1]Washington University in St Louis, [2]Anderson Cancer Center (US); [3]University of Illinois at Urbana-Champaign, and [4]The University of Texas at Austin (US)
9:40 AM **Neural Deconvolution and Rendering for Synthetic Aperture Sonar** (COIMG-157)
Suren Jayasuriya, Arizona State University (US)
10:00 AM **Implicit Neural Representation for Tomographic Imaging** (COIMG-158)
Yu Sun, California Institute of Technology (US)

Conference: *Human Vision and Electronic Imaging*
Session: Visual Perception of Quality
9:00 AM - 10:20 AM / Room: Grand Peninsula A
Session Chairs: *Rafal Mantiuk, University of Cambridge (UK), and Damon Chandler, Ritsumeikan University (Japan)*
9:00 AM **KEYNOTE: From Neurons to Pixels, to Neurons Again** (HVEI-226)
Anjul Patney, NVIDIA (US)
9:40 AM **Focal Talk: Comprehensive Insights into Psychological Image Quality: Addressing Ecological Validity and Emotional Content** (HVEI-227)
Mikolaj Leszczuk, Lucjan Janowski, and Kamil Koniuch, AGH University of Krakow (Poland)
10:00 AM **One Number to Describe Them All** (HVEI-228)
Lucjan Janowski, Natalia Cieplińska, and Bogdan Ćmiel, AGH University of Krakow (Poland)

Conference: *Image Quality and System Performance*
Session: System Performance
9:20 AM - 10:20 AM / Room: Grand Peninsula B
Session Chair: *Peter Burns, Burns Digital Imaging (US)*
9:20 AM **Lens Flare Measurement for RGB Black-box Camera** (IQSP-270)
Laurent Chanas, DXOMARK Image Labs (France)
9:40 AM **Recommendations for the Detection and Analysis of the ISO 12233:2023 e-SFR Slanted Star** (IQSP-271)
Sarah Rose Kerr, Imatest (US)
10:00 AM **Advancing Hyperspectral Imaging Endoscopes (HySE): A Comprehensive Performance Evaluation Approach** (IQSP-272)

Siavash Mazdeyasna[1], Silas Leavesley[2], Joshua Pfefer[1], Andrew Fales[1], and Quanzeng[1]; [1]Food and Drug Administration and [2]University of South Alabama (US)

All Conferences
Coffee Break 10:20–10:40

Conference: *Computational Imaging*
Session: Implicit Neural Representations for Inverse Imaging continued
10:40 AM - 11:20 AM / Room: Grand Peninsula C
Session Chair: *K. Aditya Mohan, Lawrence Livermore National Laboratory (US)*

10:40 AM **Implicit Representation for Motion-Resolved Computed Tomography** (COIMG-159)
Kunal Gupta, Brendan Colvert, Zhennong Chen, Srirangan Madhavan, and Francisco Contijoch, University of California San Diego (US)

11:00 AM **Maximum Likelihood-based Phase-Retrieval Using Fresnel Propagation Forward Models with Optional Constraints** (COIMG-160)
K. Aditya Mohan, Jean-Baptiste Forien, Venkatesh Sridhar, and Jefferson Cuadra, Lawrence Livermore National Laboratory, and Dilworth Parkinson Lawrence Berkeley National Laboratory (US)

Conference: *Human Vision and Electronic Imaging*
Session: Vision and Imaging
10:40 AM - 12:20 PM / Room: Grand Peninsula A
Session Chairs: *Rafal Mantiuk, University of Cambridge (UK), and Damon Chandler, Ritsumeikan University (Japan)*

10:40 AM **Aesthetics and Entropy. IV. Image Composition and Content** (HVEI-229)
Melville R.V. Sahyun, consultant and photographer (US)

11:00 AM **Analysis of User Preferences for Film Grain Noise in Images and Video Sequences** (HVEI-230)
Xinyi Guo, Zhaojie Li, Daizong Tian, Kaixuan Zhang, and Thrasyvoulos N. Pappas, Northwestern University (US)

11:20 AM **JPI-first: Mid-level Characteristics of Drawings Made by Observers with Aphantasia** (HVEI-231)
Benjamin Balas, North Dakota State University (US)

11:40 AM **Towards Enhancing Ecological Validity in QoE User Studies** (HVEI-232)
Sruti Subramanian and Katrien De Moor, NTNU (Norway); Markus Fiedler. BTH (Sweden); and Kamil Koniuch and Lucjan Janowski, AGH (Sweden)

12:00 PM **How AI Image Synthesis Changes the Role of Vision Science in Imaging Applications** (HVEI-233)
Scott Daly, Dolby Laboratories (US)

Conference: *Image Quality and System Performance*
Session: High Dynamic Range Evaluation
10:40 AM - 11:40 PM / Room: Grand Peninsula B
Session Chair: *Nicolas Bonnier, Apple (US)*

10:40 AM **Luminance and Color Accuracy of Prosumer and Mobile Phone Cameras for High Dynamic Range Imaging in Cultural Heritage Documentation** (IQSP-273)
Leah Humenuck and Mekides Assefa Abebe, Rochester Institute of Technology (US)

11:00 AM **Assessment of Dynamic Range and Noise in a Natural-scene Image** (IQSP-274)
Seungwan Jeon, En-Ji Young, DongOh Kim, DongYoung Song, KiChul Park, Sung-Su Kim, and Yitae Kim, Samsung Electronics (Republic of Korea)

11:20 AM **Objective Color Characterization of HDR Videos Captured by Smartphones: Laboratory Setups and Analysis Framework** (IQSP-275)
Anna Tigranyan, Paul Mathieu, Corentin Nannini, François-Xavier Thomas, Mauro Patti, and Frederic Guichard, DXOMARK Image Labs (France)