IST 2021

August 24-26, 2021
New York, USA
Virtual Conference

IEEE International Conference on IMAGING SYSTEMS & TECHNIQUES

Bridging Quantum Cognitive Vision and Artificial Intelligence
in conjunction with the
IEEE International School of Imaging

CALL FOR PAPERS

IMPORTANT DATES
EXTENDED

July 10, 2021
Full Paper Submission Deadline

July 22, 2021
Notification of Acceptance

August 7, 2021
Full Paper Deadline

Manuscripts must be prepared in 4 to 6 pages in IEEE 8.5 x 11 format. The IST Proceedings are indexed in the WEB of Science and Scopus and will be submitted to IEEE Xplore for publication. Submitted papers may not have been previously published in or under consideration for publication in another journal or conference. Manuscripts should be submitted as PDF files via EDAS.

The authors of the accepted and presented conference papers are welcome to submit their technically extended papers for possible publication in a Special Issue of **IEEE TIM (IEEE Transactions on Instrumentation and Measurement, IF 3.067)** as well in other prestigious peer-reviewed journals. All the submitted papers are peer-reviewed follow the regular process.

Please visit:
ist2021.ieee-ims.org

The 2021 IEEE International Conference on Imaging Systems and Techniques is the premier forum for the presentation of technological advances and research results and will take place virtually, August 24-26, 2021.

The scope of the IEEE IST is to explore, advance, and generate new knowledge on quantum computing and cognitive vision systems Internet-of-Things (IoT) and computer vision; multifaceted imaging design principles, systems, and techniques, with applications in medical imaging, genomics and artificial intelligence, aimed at the exploring of novel pathophysiology and metabolic mechanisms and measure therapeutic efficacy; machine learning, deep learning, and data mining solutions utilizing medical imaging to assist clinicians and healthcare providers to bring big data to personalized medicine; imaging and cognitive machine vision systems, imaging informatics, image processing, cloud computing, computer vision, and mobile platforms, cybersecurity, aerospace, robotic vision systems, with applications in Industry 4, healthcare, intelligent autonomous driving and navigation, Internet of Things (IoT), space and resources exploration; emerging imaging trends that would lead ultimately to novel systems and technologies, standards and metrology, and systems with unsurpassable image quality, scalability, and miniaturization capabilities.

The 2021 IEEE International Conference on Imaging Systems and Techniques, is the premier conference of imaging aimed to provide a forum for prestigious specialists and scholars to share their experiences and demonstrate frontier research results in all respects of imaging technologies, systems, and techniques.

Engineers, and scientists from industry, government, academia, and healthcare who want to report novel scientific results, technological and clinical advances in the multidisciplinary areas of imaging systems, are invited to attend the IST Conference and interact with major worldwide experts.

IST 2021 OBJECTIVES

The objectives of IST 2021 are but not limited to:

Cognitive Vision and Artificial Intelligence

» Quantum cognitive imaging & neural networks
» Augmented intelligence & computer vision
» Image processing & pattern recognition
» Big data & machine learning
» Deep learning & cognitive vision
» Data mining
» Integration of imaging informatics & bioinformatics
» Neuromorphic engineering & vision systems

Robotic Vision and Industry 4

» Machine vision, inspection and artificial intelligence
» Cognitive vision systems
» Bioinspired robotic vision systems
» 2D, 3D and 4D imaging
» Light illumination architectures
» Medical surgical robotics
» Block chain & distributed robotic vision sensing
» Human visual system-based Imaging
» Mobile robotic vision
» Logistics & e-commerce

Medical Diagnostics & Imaging to Biology

» Big data analysis & imaging
» Immunohistochemical digital imaging
» Translational imaging & theranostics
» Molecular imaging & biology, omics, biomarkers and metabolites
» Virtual pathology
» Pharmaco-imaging in drugs & medicine, drug characterization
» Omics instrumentation & imaging
» Multifusion modalities

Medical Image Modalities

» Optical polarimetric reflectance spectroscopy
» Optical multispectral imaging
» Narrow band imaging
» Laser acoustics
» Raman scattering & laser acoustics
» High magnification bronchovideoscopy
» Fluorescence & autofluorescence
» Optical coherence tomography (OCT)
» MRI, PET, SPECT, CT
» Surgical guidance imaging

On Chip Signal and Image Processing

» Image sensors for 3D imaging
» Bio-inspired image sensors

Medical Image Analysis, Processing, & Image Visualization

» Image analysis
» Wavelets & fractals
» Big data
» Deep learning
» Image registration
» Image segmentation
» Pattern recognition
» Feature extraction
» Texture analysis
» Applications of medical image processing
» Exploratory data analysis & big data
» ET, MRI, CT, SPECT, PET and microscopy

Imaging Devices and Techniques

» Internet of Things (IoT) & Imaging
» Imaging sensors & detectors
» Cameras, microscopy, spectroscopy, displays and device miniaturization
» Computer graphics & imaging
» Imaging, machine learning and GPU processors
» Tomographic scanners: ECT, Inverse scattering and Industrial scanners
» Image processing & pattern recognition
» Emerging imaging trends
» Web-based remote diagnosis
» Cloud computing, imaging and mobile platforms
» Cybersecurity & imaging

High-end Image Sensors

» High speed
» Large format
» Ultra low power
» Ultra low noise
» Very high dynamic range
» On-chip processing for smarter sensors

Emerging Imaging Trends

» Web-based remote diagnosis
» Internet of the things (IoT) & imaging
» Cloud computing, imaging, and mobile platforms
» Cybersecurity & imaging
» Smart cities & imaging
» Aerial & underwater drones

IST 2021 OBJECTIVES (CONT.)

The objectives of IST 2021 are but not limited to:

Image Sensors Assessment and Novel Implementations or Applications

» Hyperspectral image sensors or camera
» Image sensors for computational imaging
» Image sensors for automotive applications
» Image sensors used in integrated networks (internet of things)
» Image sensors for drones & autonomous vehicles
» Sensor fusion

Aerospace & Space Applications

» Cognition & robotic vision
» Bioinspired robotic vision systems
» Remote sensing, ladars, and lidars
» Autonomous aerial & underwater imaging systems
» Advanced space instruments & satellite imaging
» Sensors for aerospace applications
» Image processing & Actificial Intelligence
» Spectral registration
» High dimensional data reduction in spectral bands
» Nanosatellietes & Imaging

Imaging Tools

» Texture analysis
» Image quality assessment
» Image restoration
» Super-resolution imaging
» Human visual system based Imaging
» Compressive sensing for imaging
» Image enhancement

Mobile Platforms, Wireless Image Transmission & Cybersecurity

» Beyond-5G/6G mission-critical applications
» Embedded imaging, mobile and communication applications
» Web-based remote diagnosis
» Exploration of space

Multimedia Retrieval in Spectral Imaging

» Content-based retrieval in hyper/ multi-spectral domain
» Summarization tools in hyper/multi-spectral domain
» Relevance feedback techniques to assist experts in taking complex decisions
» Behavioral analysis & actions recognition for complex engineering applications
» 4D/5D image reconstruction
» Semantic representation & content enrichment

Real life Imaging Applications & Challenges

» Homeland security, surveillance, inspection and monitoring
» Industrial Inspection & material characterization
» Semiconductor wafers, solar cells, nanomaterials, biomaterials and composites
» Pharmaceutical & food processing vision inspection system
» Urban planning, civil engineering monitoring & transportation
» Environmental monitoring & early detection of natural hazards
» Cultural heritage applications
» Terahertz Imaging

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