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 forum for the presentation of technological advances and research results and will take place virtually, August 24–26, 2021.

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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.

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Please visit: ist2021.ieee-ims.org
**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

**Robotics and Industry 4.0**
- Machine vision, inspection & artificial intelligence
- Bio-inspired robotic vision systems
- 2D, 3D & 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

**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 & 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 things (IoT) & imaging
- Cloud computing, imaging, and mobile platforms
- Cybersecurity & imaging
- Smart cities & imaging
- Aerial & underwater drones

**On Chip Signal and Image Processing**
- Image sensors for 3D imaging
- Bio-inspired image sensors
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, lidars, and lidars
- Autonomous aerial & underwater imaging systems
- Advanced space instruments & satellite imaging
- Sensors for aerospace applications
- Image processing & Artificial Intelligence
- Spectral registration
- High dimensional data reduction in spectral bands
- Nanosatellites & 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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