IST 2019

December 8-10, 2019
Abu Dhabi, UAE

IEEE International Conference on
IMAGING SYSTEMS & TECHNIQUES

CALL FOR PAPERS

IMPORTANT DATES

September 29, 2019
Full Paper Submission Deadline

October 10, 2019
Notification of Acceptance

October 30, 2019
Full Paper Deadline

Manuscripts must be limited to 6 pages in IEEE 8.5x11 format. The IST Proceedings are indexed in the WEB of Science and Scopus and will be published in IEEE Xplore. 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. High- quality Papers will be published in ISI Journals, following a peer-review process, as done in the past.

Please visit:

2019.ist.ieee-ims.org

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The 2019 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 jointly with the IEEE International School of Imaging in Abu Dhabi, UAE, December 8-10, 2019.

The conference is sponsored by The Institute of Electrical and Electronics Engineers (IEEE), which is the world's largest professional association, with nearly 500,000 members, dedicated to advancing technological innovation and excellence for the benefits of humanity.

The scope of the IST is to explore, advance, and generate new knowledge on multifaceted imaging design principles, systems, and techniques, with applications in medical imaging, genomics and artificial intelligence, aimed at the exploring of novel pathological and metabolic mechanisms and measure therapeutic efficacy; machine 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, robotic vision systems, with applications in

Industry 4, healthcare, 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 2019 IEEE International Conference on Imaging Systems and Techniques aims 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.

In a rapidly changing global economy, experiencing an unparalleled integration of science and technology, the multifaceted field of imaging requires drastic adaptation to the rapid changes of our society, economy, environment, and technological revolution; there is an urgent need to address and propose dynamic and innovative integrative solutions to vision and imaging problems which tend to be either complex or rapidly evolving with a large number of data and features. The complexity of the involved imaging scenarios, and demanding

design parameters, necessitates the development of multifunctional, scalable, and efficient imaging suite of sensors; integrating innovative physical systems with fast, robust, time-efficient processing algorithms, operating at reduced bandwidth, and minimal storage requirements, with unsurpassable detection, recognition, tracking, and classification capabilities. Artificial intelligence combined with cognitive detection principles and low-level image processing techniques promise the solution of challenging technical problems, under convoluted imaging scenarios, with applications in medical imaging, genomics, remote sensing, industrial automatization, aerospace, radars, defense, and homeland security applications.

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 2019 OBJECTIVES

The objectives of IST 2019 are but not limited to:

Imaging Informatics and Artificial Intelligence

» Image processing and pattern recognition
» Big Data Analytics
» Machine Learning
» Deep Learning
» Data Mining
» Integration of Imaging Informatics and Bioinformatics

Robotic Vision and Industry 4

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

Medical Diagnostics & Imaging to Biology

» Big Data Analysis and imaging
» Immunohistochemical digital imaging
» Translational imaging and theranostics
» Molecular imaging and biology, Omics, biomarkers, metabolites
» Virtual pathology
» Pharmaco-imaging in drugs and medicine, drug characterization
» Omics instrumentation and imaging

Medical Image Modalities

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

On chip signal or image processing

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

Medical Image Analysis, Processing, & Image Visualization

» Image analysis
» Wavelets and fractals
» Deep learning
» Image registration
» Image Segmentation
» Pattern Recognition
» Feature Extraction
» Texture Analysis
» Applications of medical image processing
» Exploratory data analysis and big data
» ET, MRI, CT, SPECT, microscopy.
» Optical coherence tomography (OCT)

Imaging Devices and Techniques

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

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 and autonomous vehicles

» Sensor fusion

Remote Sensing & Unmanned Autonomous Vehicles

» Remote sensing, ladars & lidars

» Autonomous aerial and underwater imaging systems

» Bioinspired robotic vision systems

» Electromagnetic scattering

» Advanced space instruments and satellite imaging

» Sensors for aerospace applications

» Image processing and pattern recognition

» Spectral registration

» High dimensional data reduction in spectral bands

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

» Embedded imaging, mobile and communication applications

» Web-based remote diagnosis

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 and actions recognition for complex engineering applications

» 4D/5D image reconstruction

» Semantic representation and content enrichment

Real life Imaging Applications & Challenges

» Homeland security, surveillance, inspection and monitoring

» Industrial Inspection and material characterization

» Semiconductor wafers, solar cells, nanomaterials, biomaterials and composites

» Pharmaceutical and food processing vision inspection system

» Image phenomenology and processing-active-passive sensors and illumination technologies

» Urban planning, civil engineering monitoring & transportation

» Environmental monitoring & early detection of natural hazards

» Cultural heritage applications

ABOUT ABU DHABI

Abu Dhabi is the capital and the second most populous city of the United Arab Emirates (the most populous being Dubai), and also capital of the Emirate of Abu Dhabi, the largest of the UAE's seven emirates. Abu Dhabi lies on a T-shaped island jutting into the Persian Gulf from the central western coast. the city is the country's centre of political and industrial activities, and a major cultural and commercial centre, due to its position as the capital. Abu Dhabi accounts for about two-thirds of the roughly $400-billion United Arab Emirates economy. One of the most important architectural landmarks is the Sheikh Zayed Mosque. This is one of the most important architectural treasures of contemporary UAE society—and one of the most opulent in the world. It was initiated by the late president of the United Arab Emirates, HH Sheikh Zayed bin Sultan Al Nahyan, fondly thought of as the father of the UAE.

IST 2019 SPONSORS

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