



IEEE International Conference on IMAGING SYSTEMS & TECHNIQUES

<http://ist2020.ieee-ims.org/>

IMPORTANT DATES

July 15, 2020

Full Paper Submission Deadline

August 1, 2020

Notification of Acceptance

August 20, 2020

Full Paper Deadline

Manuscripts must be prepared in 4 to 6 pages in IEEE 8.5x11 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). All the submitted papers are peer-reviewed follow the regular process.

Please visit:

2020.ist.ieee-ims.org

(Will be Available Soon)

The 2020 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 Tainan Taiwan, October 19-22, 2020.

The scope of the IEEE 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 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 2020 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.

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 2020 Technical Scope

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, Cloud Computing, Computer Vision & 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/multispectral 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 Tainan

Tainan, the ancient capital of Taiwan, is situated on the southwestern coastal plains of the island and enjoys a warm climate year-round. Tainan is the birthplace of Taiwan and the oldest city on the island. In 1661, the Ming loyalist Cheng Cheng-kung drove the Dutch from Taiwan and established his administration in Tainan. At the time, mainland Chinese immigrants were coming to Taiwan in droves, helping the young city to grow.

After the Qing pacification of Taiwan in 1683, the Taiwan Prefectural Capital was established in Tainan. In 1885, Taiwan became a province and Tainan's position changed to that of Tainan Prefectural Capital, from which its current name derives. Tainan remained the political, economic and cultural center of Taiwan up to the late nineteenth century. As a result, Tainan is home to many famous historic sites. It also is the city with the longest history and earliest cultural roots in Taiwan. Tainan became a major high-tech industrial hub after the establishment of Southern Taiwan Science Park in 1995. Optoelectronics, integrated circuits, green energy and biotechnology are the park's dominant industries.

In addition to its historic and cultural attractions, Tainan boasts a stunning natural landscape and well-known agricultural and fishery products and cuisine. In spring, the Taiwan International Orchid Show is held in Houbi Township's Taiwan Orchid Plantation, presenting the early spring orchids in all their beauty and charm. Every year on the 15th day of the first lunar month, the spectacular Yanshui Beehive Rockets Festival attracts throngs of visitors from across Taiwan and the world to Tainan. And for an educational family fun in the summer visitors can choose from firefly watching in Meiling, lotus watching in Baihe, and activities at Qigu Mangrove Tourist Park. With the arrival of the autumn cool, visitors can head to Dongshan to sample the fragrant locally-grown Arabica coffee. And in winter, you can sooth away those sore muscles at the Guanziling mud springs.



IST 2019 SPONSORS

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