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Welcome Message from the Chairman

On behalf of the Technical and Local Committee of the 2018 IEEE International Conference on Imaging Systems and Techniques (IST 2018) and IEEE International School on Imaging, I welcome you to Krakow, Poland.

This year, scientists and engineers from all over the world meet to explore the design principles, development and applications of new imaging technologies, image analysis and processing methodologies, computer vision systems, clinical diagnostic devices, and material inspection and monitoring measurements, systems, and techniques.

In a rapidly changing global economy, experiencing an unparalleled integration of science and technology towards the development of efficient, high-resolution, high-specificity imaging technologies: let us see this event as unique opportunity not only to exchange and disseminate knowledge but also bridge multidisciplinary areas like engineering with health science leading to the creation of new knowledge, and establish global collaborative multidisciplinary opportunities by tightening collaborations among industry, academia, and healthcare industry.

Historically, this is the fourteenth consecutive year, following the successful IST events held previously in Stresa, Italy, Niagara Falls, Canada, Minori, Italy, Krakow, Poland, Chania, Greece, Shenzhen, China, Thessaloniki, Greece, Penang Island, Malaysia, Manchester, UK, Beijing, China, Santorini, Greece, Macau, China, Chania, Greece, Beijing, China where experts from all over the world meet to trigger an in-depth discussion of imaging methodologies and its applications shaping the future, and identifying emerging imaging trends.

I would like to thank the organizer of the Conference, Professor Andrzej Skalski and the local Organizing Committee, the IST Organizing Committee, and the Technical Committee TC-19 on Imaging Systems and Techniques, for the outstanding organization of the event; all the young but promising engineers, specially, Suman Shrestha, ON Semiconductor, USA, Konstantina Kottari, University of Central Greece, Greece, Tannaz Farrahi, University of Virginia, USA, USA, George Livanos, Technical University of Crete, Greece, for their significant contributions towards the dissemination of this event worldwide and promotion of quality and standards. Special thanks are extended to Shelby Durden and Chris Dyer, Conference Catalysts, LLC, Administrators of the IST and the School of Imaging for their outstanding and dedicated efforts to successfully administrate these two major events. Special thanks to Michalis Zervakis, Technical University of Crete, Greece, Professor Lijun Xu, Beihang University, China, Professor Lihui Peng, Tsinghua University, China, Professor Wuqiang Yang, University of Manchester, UK, Professor Ayman El-baz, University of Louisville, USA, Professor Ahmed Hussein, Manhattan College, USA, and Professor Antonios Gasteratos, DUTH, Greece for their tireless efforts towards the organization of this event. Many thanks go to the dedicated reviewers which did an excellent job to preserve quality and promote academic excellence.

I hope you enjoy your stay in Krakow, Poland, and find the 2018 IEEE International Conference on Imaging Systems and Techniques (IST2018) and the IEEE International School on Imaging a rewarding opportunity for advancement of knowledge as well as a way to generate unique global collaborative opportunities among industry, academia, and healthcare professionals.

George C. Giakos, Fellow of the IEEE
General Chairman IEEE IST Conference
Director, IEEE International School on Imaging
New York, United States

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International School of Imaging: Lecture Series

Tuesday, October 16

- 9:00 - 9:45** **Lecture 1: Photon-counting Hexagonal Pixel Array CdTe Detector: Performance Characteristics for Medical Imaging Applications**
Room: Ballroom A
Suman Shrestha (Intelligent Sensing Group, ON Semiconductor, San Jose CA USA)
- 9:45 - 10:30** **Lecture 2: Supporting imaging methods for effective medical diagnosis in capsule endoscopy data**
Room: Ballroom A
M. Zervakis, E. Sergaki (Technical University of Crete, Chania, Greece)
A. Polydorou (Technical University of Crete, Chania, Greece)
- 10:30 - 11:15** **Lecture 3: Hybrid Cognitive Vision Architectures**
Room: Ballroom A
George Giakos (Manhattan College, NY, USA)
- 11:45 - 12:30** **Lecture 4: Deep learning design frameworks and techniques for mobile robot vision tasks**
Room: Ballroom A
Angelos Amanatiadis (Democritus University of Thrace, Greece)
- 12:40 - 13:25** **Lecture 5: Inverse problem and image reconstruction in electrical capacitance tomography**
Room: Ballroom A
Lijun Xu (Beihang University, China)

Wednesday, October 17

- 8:30 - 9:15** **Lecture 6: Computer Vision in Medical Imaging and Measurements: Making Sense of Visual Data**
Room: Ballroom A
Jacobs Scharcanski (UFRGS - Federal University of Rio Grande do Sul, Brazil)
- 9:15 - 10:00** **Lecture 7: Image-based place recognition**
Room: Ballroom A
Antonios Gasteratos (Democritus University of Thrace, Greece)
- 14:40 - 15:25** **Lecture 8: Medical applications of electrical tomography**
Room: Ballroom A
Wuqiang Yang (University of Manchester, Manchester, UK)
- 15:25 - 16:10** **Lecture 9: Tackling Multicore Programming and new Developments in Microprocessor Technology: DSPs, FPGAs and GPGPUs**
Room: Ballroom A
Naim Dahnoun (University of Bristol, UK)

Monday, October 15

18:30 - 21:00

Reception Dinner (Venue: Novotel Krakow City West Hotel)

Tuesday, October 16

07:30 - 08:30

Registration

08:30 - 08:40

Welcome Message from the General Chair

Room: Main Conference Ballroom

08:40 - 09:00

Welcome Message from the Local Chair

Room: Ballroom A

11:15 - 11:45

Coffee Break

12:30 - 13:30

Innovative Imaging Techniques

Room: Ballroom A

Chairs: Michalis Zervakis, Technical University of Crete, Greece

Mohamed Shehata, University of Louisville, USA

12:30

A Novel CAD System for Detecting Acute Rejection of Renal Allografts Based on Integrating Imaging-markers and Laboratory Biomarkers

Mohamed Shehata (University of Louisville, USA)

Mohammed Ghazal (University of Abu Dhabi, United Arab Emirates)

Fahmi Khalifa (University of Louisville, USA)

Mohamed Abou El-Ghar (Mansoura University, Egypt)

Ashraf Khalil (Abu Dhabi University, United Arab Emirates)

Amy Dwyer (University of Louisville, USA)

Ahmed El-giziri (University of Louisville, USA)

Moumen El-Melegy (Assiut University, Egypt)

Ayman Sabry El-Baz (University of Louisville, USA)

12:45

Monitoring and Detection of Combustible Gas Leakage by Using Infrared Imaging

Binglu Liu (Tsinghua University, P.R. China)

Haocheng Ma (Tsinghua University, P.R. China)

Xiaoping Zheng (Tsinghua University, P.R. China)

Anshan Xiao (Research Institute of Safety Engineering, P.R. China)

Lihui Peng (Tsinghua University, P.R. China)

13:00

EEG based method for the decoding of complex arm motor imagery tasks

Zhang Shuailei (Beihang University, P.R. China)

Wang Shuai (Beihang University, P.R. China)

Zheng Dezhi (Beihang University, P.R. China)

Ma Kang (Beihang University, P.R. China)

Zhu Kai (Beihang University, P.R. China)

Na Rui (Beihang University, P.R. China)

Li Dapeng (Beihang University, P.R. China)

13:15 Space Target Motion Salient Classification using Retina Vision Polarimetric Sensing Principles

Anthony Beninati (Manhattan College, USA)
Nicolas Douard (Manhattan College, USA)
Gloria Bauman (Manhattan College, USA)
Jonathan Hoogerhyde (Manhattan College, USA)
Zoe Giakos (Florida International University, USA)
Martin Nowak (Manhattan College, USA)
Hussam Eldin Mohamed (Manhattan College, USA)
Michalis Zervakis (Technical University of Crete, Greece)
George Livanos (Technical University of Crete, Greece)
George Giakos (Manhattan College, USA)

12:30 - 13:30

Image Analysis and Processing I

Room: Ballroom B

Chairs: Suman Shrestha, ON Semiconductor, USA

Katarzyna Heryan, AGH University of Science and Technology, Poland

12:30 A Deep Learning Approach for Analyzing Video and Skeletal Features in Sign Language Recognition

Dimitrios Konstantinidis (Centre for Research and Technology Hellas, Greece)
Kosmas Dimitropoulos (Centre for Research and Technology Hellas, Greece)
Petros Daras (Centre for Research and Technology Hellas, Greece)

12:45 Research on Denoising Algorithm of Thoracic Impedance Data for COPD Diagnosis

Yixin Ma (Shanghai Jiao Tong University, P.R. China)

13:00 Noise-filtering method for large-scale holographic 3D display

Hyun-Eui Kim (ETRI(Electronics and Telecommunications Research Institute), Korea)
Jeho Nam (ETRI, Korea)
Keehoon Hong (ETRI(Electronics and Telecommunications Research Institute), Korea)
Jinwoong Kim (ETRI, Korea)

13:15 Renal Vessels Segmentation for Preoperative Planning in Percutaneous Nephrolithotomy

Katarzyna Heryan (AGH University of Science and Technology, Poland)
Dominik Chorągwicki (Specialized Municipal Hospital G. Narutowicz, Poland)
Marek Sandheim (Specialized Municipal Hospital G. Narutowicz, Poland)
Jacek Jakubowski (Rydygier Memorial Hospital, Poland)
Tomasz Drewniak (Specialized Municipal Hospital G. Narutowicz, Poland)

12:30 - 13:30

Medical Diagnostic Techniques

Room: Ballroom C

*Chairs: Jacobs Scharcanski, UFRGS – Federal University of Rio Grande do Sul
Adrian Goral, AGH University of Science and Technology, Poland*

- 12:30 **An OCTA Based Diagnosis System Based on a Comprehensive Local Features Analysis for Early Diabetic Retinopathy Detection****
Nabila Eladawi (Faculty of Computers and Information, Mansoura University, Egypt)
Mohammed M. Elmogy (Faculty of Computers and Information & Mansoura University, Egypt)
Luay Fraiwan (Abu Dhabi University, USA)
Mohammed Ghazal (University of Abu Dhabi, United Arab Emirates)
Francesco Pichi (Cleveland Clinic, United Arab Emirates)
Ahmed Aboufotouh (Mansoura University, Egypt)
Alaa Riad (Faculty of Computers and Information, Mansoura University, Egypt)
Robert Keynton (University of Louisville, USA)
Shlomit Schaal (University of Massachusetts Medical School, USA)
Ayman Sabry El-Baz (University of Louisville, USA)
- 12:45 **Towards a comprehensive and configurable use of software tools that assist medical image recognition of malicious traces, in capsule endoscopy data collections****
Alexios Polydorou (TUC, Greece)
Eleftheria S Sergaki (TUC, Greece)
Adreas Polydorou (National and Kapodistrian University of Athens, Greece)
George C Giakos (Manhattan College, USA)
Michalis Zervakis (Technical University of Crete, Greece)
- 13:00 **A New Fast Framework for Early Detection of Prostate Cancer without Prostate Segmentation****
Islam Reda (Mansoura University, Egypt)
Ahmed Shalaby (University of Louisville, USA)
Mohammed M. Elmogy (Faculty of Computers and Information & Mansoura University, Egypt)
Mohammed Ghazal (University of Abu Dhabi, United Arab Emirates)
Ahmed Aboufotouh (Mansoura University, Egypt)
Mohamed Abou El-Ghar (Urology and Nephrology Center, University of Mansoura, USA)
Adel Elmaghraby (University of Louisville, USA)
Robert Keynton (University of Louisville, USA)
Ayman Sabry El-Baz (University of Louisville, USA)
- 13:15 **Challenges for Electronic Displays in Sterile Medical Devices****
Lukas Boehler (Aesculap AG, Germany & AGH University of Science and Technology, Poland)
Mateusz Daniol (AGH University of Science and Technology & Aesculap AG, Germany)
Anton Keller (Aesculap AG, Germany)
Ryszard Sroka (AGH University of Science and Technology, Poland)

13:30 - 14:30

Lunch Break

14:30 - 15:30

Image Segmentation and Reconstruction

Room: Ballroom A

Chairs: Yixin Ma, Shanghai Jiao Tong University, P.R. China

Wenji Wang, Beihang University, P.R. China

14:30 Real-Time Stereo Vision for Road Surface 3-D Reconstruction

Rui Fan (The Hong Kong University of Science and Technology, Hong Kong)
Yanan Liu (Bristol Robotics Laboratory, University of Bristol, United Kingdom (Great Britain))

Xingrui Yang (Visual Information Group, University of Bristol, United Kingdom (Great Britain))

Mohammad Junaid Bocus (University of Bristol, United Kingdom (Great Britain))

Naim Dahnoun (University of Bristol, United Kingdom (Great Britain))

Scott Tancock (University of Bristol, United Kingdom (Great Britain))

14:45 Real-Time 3D Reconstruction in Minimally Invasive Surgery with Quasi-Dense Matching

Georgios Zampokas (Centre for Research and Technology Hellas, Information Technologies Institute, Greece)

Konstantinos Tsiolis (Centre for Research and Technology Hellas - Information Technologies Institute, Greece)

Georgia Peleka (Centre for Research & Technology - Hellas, Greece)

Ioannis Mariolis (Centre for Research & Technology - Hellas, Greece)

Sotiris Malassiotis (Centre for Research and Technology Hellas, Greece)

Dimitrios Tzovaras (Information Technologies Institute, Greece)

15:00 Segmentation of Concealed Objects in Active Terahertz Images

Zhan Ou (Tsinghua University, P.R. China)

Xiao Ping Zheng (Tsinghua University, P.R. China)

Haocheng Ma (Tsinghua University, P.R. China)

15:15 Main Aortic Segmentation from CTA with Deep Feature Aggregation Network

Wenji Wang (Beihang University, P.R. China)

Haogang Zhu (Beihang University, P.R. China)

14:30 - 15:30

Medical Imaging Analysis, Processing and Visualization

Room: Ballroom B

Chairs: Ahmed Shalaby, University of Louisville, USA

Isa Yildirim, Istanbul Technical University & University of Illinois at Chicago, Turkey

14:30 Performance and power consumption evaluation in smartphone based image processing for medical applications

Mateusz Daniol (AGH University of Science and Technology & Aesculap AG, Germany)

Lukas Boehler (Aesculap AG, Germany & AGH University of Science and Technology, Poland)

Anton Keller (Aesculap AG, Germany)

Ryszard Sroka (AGH University of Science and Technology, Poland)

14:45 Efficient Reconstruction Algorithm for Low Dose CT Imaging

Isa Yildirim (Istanbul Technical University & University of Illinois at Chicago, Turkey)

Esra Sümer (Abdullah Gül University, Turkey)

- 15:10 Computer-Aided Diagnosis of Prostate Cancer on Diffusion Weighted Imaging: A Technical Review**
Ahmed Shalaby (University of Louisville, USA)
Hassan Hajjdiab (Abu Dhabi University, United Arab Emirates)
Mohammed Ghazal (University of Abu Dhabi, United Arab Emirates)
Islam Reda (Mansoura University, Egypt)
Mohammed M. Elmogy (Faculty of Computers and Information & Mansoura University, Egypt)
Ahmed Aboufotouh (Mansoura University, Egypt)
Ali Mahmoud (Alexandria University, Egypt)
Ahmed El-giziri (UofL, USA)
Adel Elmaghraby (University of Louisville, USA)
Ayman Sabry El-Baz (University of Louisville, USA)

14:30 - 15:30

Computational Imaging Techniques

Room: Ballroom C

Chairs: Andrzej Skalski, AGH University of Science and Technology, Poland

Tomasz Rymarczyk, Research and Development Center Netrix S.A./University of Economics and Innovation in Lublin, Poland

- 14:30 Analysis of Leaks in Flood Embankments Using Deterministic Methods and Computational Intelligence Algorithms**
Tomasz Rymarczyk (Research and Development Center Netrix S.A./University of Economics and Innovation in Lublin, Poland)
Grzegorz Kłosowski (Lublin University of Technology, Poland)
Paweł Tchórzewski (Research and Development Center Netrix S.A., Poland)
- 14:45 Generative deep deconvolutional neural network for increasing and diversifying training data**
Runnan Qin (Beihang University, P.R. China)
Rui Wang (Beihang University, P.R. China)
- 15:00 Artificial database expansion based on hand position variability for palm vein biometric system**
Andrzej Skalski (AGH University of Science and Technology, Poland)
Maciej Stanuch (AGH University of Science and Technology, Poland)
- 15:15 Mutual Structure Model for improving vessel quality in X-ray angiography**
Shaoyan Xia (Beihang University, P.R. China)
Haogang Zhu (Beihang University, P.R. China)

15:30 - 16:30

Image Classification and Feature Extraction

Room: Ballroom A

Chairs: Lijun Xu, Beihang University, P.R. China

Li Lei, Beihang University, P.R. China

15:30 A Cortical Based Diagnosis System for MCI Based on sMRI Features Fusion

Fatma El-Zahraa El-Gamal (Faculty of Computers and Information, Mansoura University, Mansoura, Egypt)

Mohammed M. Elmogy (Faculty of Computers and Information & Mansoura University, Egypt)

Hassan Hajjdiab (Abu Dhabi University, United Arab Emirates)

Mohammed Ghazal (University of Abu Dhabi, United Arab Emirates)

Hassan Soliman (Faculty of Computers and Information, Mansoura University, Egypt)

Ahmed Atwan (Faculty of Computers and Information, Mansoura University, Egypt)

Robert Keynton (University of Louisville, USA)

Ayman Sabry El-Baz (University of Louisville, USA)

Gregory Barnes (University of Louisville Autism Center, USA)

15:45 Weld Classification Using Gray Level Co-Occurrence Matrix and Local Binary Patterns

Philip Valentin (NNE, Denmark)

Tsampikos Kounalakis (Aalborg University, Denmark)

Lazaros Nalpantidis (Aalborg University Copenhagen, Denmark)

16:00 A deep residual networks classification algorithm of fetal heart CT images

Li Lei (Beihang University, P.R. China)

Haogan Zhu (Beihang University, P.R. China)

Yuxin Gong (Beihang University, P.R. China)

Qian Cheng (Beihang University, P.R. China)

16:15 Application of ANN and ANFIS for detection of a brain tumor from MRI using DWT and GLCM texture analysis

Eleftheria S Sergaki (TUC, Greece)

Georgios Spiliotis (TUC, Greece)

Ioannis O Vardiambasis (Technological Educational Institute of Crete & School of Applied Sciences, Greece)

Theodoros Kapetanakis (Technological Educational Institute of Crete & University of Peloponnese-Telecommunication Sciences and Technology, Greece)

Antonios Krasoudakis (General Hospital Agios Georgios Chania, Greece)

George C Giakos (Manhattan College, USA)

Michalis Zervakis (Technical University of Crete, Greece)

Alexios Polydorou (TUC, Greece)

15:30 - 16:30

Novel Imaging Systems

Room: Ballroom B

Chairs: Claudio Estatico, University of Genoa, Italy

Marcin Kopaczka, RWTH Aachen University, Germany

15:30 A combined modular system for face detection, head pose estimation, face tracking and emotion recognition in thermal infrared images

Marcin Kopaczka (RWTH Aachen University, Germany)

Justus Schock (RWTH Aachen University, Germany)

Jan Nestler (RWTH Aachen University, Germany)

Kevin Kielholz (RWTH Aachen University, Germany)

Dorit Merhof (RWTH Aachen University, Germany)

15:45 A low-cost multi-fingervein verification system

Raghavendra Ramachandra (Norwegian University of Science and Technology (NTNU), Norway)

Sushma Venkatesh (NTNU, Norway)

Kiran B. Raja (Norwegian University of Science and Technology (NTNU), Norway)

Christoph Busch (NTNU - Gjøvik, Norway)

16:00 Particle Measurement Volume and Light Intensity in a Shadowgraph Imaging System

Staffan Rydblom (Mid Sweden University, Sweden)

Benny Thörnberg (Mid Sweden University, Sweden)

16:15 A comprehensive virtual reality system for tunnel surface documentation and structural health monitoring

Leanne Attard (University of Malta, Malta)

Carl J. Debono (University of Malta, Malta)

Gianluca Valentino (University of Malta, Malta)

Mario Di Castro (CERN, Switzerland)

John Osborne (CERN, Switzerland)

Luigi Scibile (CERN, Switzerland)

Manuel Ferre (Universidad Politecnica de Madrid, Spain)

16:30 - 16:45

Coffee Break

16:45 - 17:45

Image Sensors Assessment and Applications

Room: Ballroom A

Chairs: Andrzej Skalski, AGH University of Science and Technology, Poland

Adrian Goral, AGH University of Science and Technology, Poland

16:45 Robust Estimation of Product Amount on Store Shelves from a Surveillance Camera for Improving On-Shelf Availability

Kyota Higa (NEC Corporation, Japan)

Kota Iwamoto (NEC Corporation, Japan)

17:00 A Temporal Tone Mapping Adaptation: An Application using Logarithmic Camera

Cedric Walbrecq (IMT mines d'Alès, France)

Baptiste Magnier (Ales School of Mines, France)

Isabelle Marc (IMT mines alès, France)

- 17:15 A Quick Algorithm to Detect LED Array from the Background in Image Sensor Based Visible Light Communication**
 Peng Liu (North China Electric Power University, P.R. China)
 Xin Chen (North China Electric Power University, P.R. China)
 Yue Li (North China Electric Power University, P.R. China)
 Jiang Liu (Waseda University, Japan)
- 17:30 Extraction of Disparity Information Using Pixels with Integrated Apertures**
 Byoung-Soo Choi (Kyungpook National University, Korea)
 Sang-Hwan Kim (Kyungpook National University, Korea)
 Jimin Lee (Kyungpook National University, Korea)
 Seunghyuk Chang (Center for Integrated Smart Sensors, Korea)
 JongHo Park (Center for Integrated Smart Sensors, Korea)
 Sang-Jin Lee (Center for Integrated Smart Sensors, Korea)
 Jang-Kyoo Shin (Kyungpook National University, Korea)

16:45 - 17:45

Imaging System: Design and Implementation

Room: Ballroom B

Chairs: Katarzyna Heryan, AGH University of Science and Technology, Poland

Tsampikos Kounalakis, Aalborg University, Denmark

- 16:45 A Robotic System Employing Deep Learning for Visual Recognition and Detection of Weeds in Grasslands**
 Tsampikos Kounalakis (Aalborg University, Denmark)
 Lazaros Nalpantidis (Aalborg University Copenhagen, Denmark)
 Georgios Triantafyllidis (Aalborg University Copenhagen, Denmark)
 Michal Jerzy Malinowski (Zurcher Hochschule fur Angewandte Wissenschaften (ZHAW), Switzerland)
 Leandro Chelini (Zurcher Hochschule fur Angewandte Wissenschaften (ZHAW), Switzerland)
- 17:00 Intelligent Navigation and Control of a Prototype Autonomous Underwater Vehicle for Automated Inspection of Aquaculture net pen cages**
 George Livanos (Technical University of Crete, Greece)
 Vaggelis Chalkiadakis (Hellenic Centre for Marine Research, Greece)
 Michalis Zervakis (Technical University of Crete, Greece)
 Konstantia Moirogiorgou (Technical University of Crete, Greece)
 George C Giakos (Manhattan College, USA)
 Nikos Papandroulakis (Hellenic Centre for Marine Research, Greece)
- 17:15 OpenCL Superpixel Implementation on a General Purpose Multi-core CPU**
 Hana Haseljic (University of Sarajevo, Bosnia and Herzegovina)
 Emir Cogo (University of Sarajevo, Bosnia and Herzegovina)
 Irfan Prazina (University of Sarajevo, Bosnia and Herzegovina)
 Razija Turcinhodzic (University of Sarajevo, Bosnia and Herzegovina)
 Emir Buza (University of Sarajevo, Bosnia and Herzegovina)
 Amila Akagic (University of Sarajevo, Bosnia and Herzegovina)
- 17:30 Design of Folded Cascode Amplifier for SCL 180 nm Technology Node for Low Power Applications**
 Rajiv Ranjan Thakur (National Institute of Technology Mizoram)
 Chaitali Koley (National Institute of Technology, Mizoram, India)
 Pragati Singh (National Institute of Technology, Mizoram, India)

Wednesday, October 17

10:00 - 11:00

Breast Imaging Techniques

Room: Ballroom A

Chairs: Suman Shrestha (ON Semiconductor, USA)

Kanchan Kashyap, VIT University Bhopal, India

10:00 DCE-MRI radiomics features for predicting breast cancer neoadjuvant therapy response

Eleftherios Kontopodis (FORTH, Greece)

Georgios C. Manikis (Foundation for Research and Technology, Greece)

Iraklis Skepasianos (Technological Educational Institute of Crete, Greece)

Konstantinos Tzagkarakis (Technological Educational Institute of Crete, Greece)

Katerina Nikiforaki (Foundation for Research and Technology – Hellas (FORTH), Greece)

Georgios Papadakis (Foundation for Research and Technology Hellas, Greece)

Thomas Maris (Medical School of Crete University Hospital, Greece)

Efrosini Papadaki (University of Crete, Greece)

Apostolos Karantanas (Medical School of Crete University Hospital, Greece)

Kostas Marias (FORTH, Greece)

10:15 The effect of sound-speed-image resolution on phase aberration correction for ultrasound computed tomography

Xiaolei Qu (Beihang University, P.R. China)

Shangchun Fan (Beihang University, P.R. China)

Takashi Azuma (The University of Tokyo, Japan)

Zisheng Yao (Beihang University, P.R. China)

Shuo Gao (Beihang University, P.R. China)

Jiangtao Sun (Beihang University, P.R. China)

Zhang Shuailei (Beihang University, P.R. China)

10:30 Classification of Breast Tissue Density

Kanchan Kashyap (VIT University Bhopal, India)

10:45 Fractional Order Savitzky-Golay Differentiator based Approach for Mammogram Enhancement

Koushendra Kumar Singh (PDPM IITDM Jabalpur, India)

Binod Singh (National Institute of Technology, India)

Manish Bajpai (IITDM Jabalpur, India)

10:00 - 11:00

Imaging Informatics and Artificial Intelligence

Room: Ballroom B

Chairs: Antonios Gasteratos, Democritus University of Thrace, Greece

Tomasz Rymarczyk, Research and Development Center Netrix S.A./University of Economics and Innovation in Lublin, Poland

10:00 Pose Invariant Face Recognition Using Principal Component Analysis

Akash Krishna Srivastava (National Institute of Technology Jamshedpur, India)

S Hariharan (National Institute of Technology Jamshedpur, India)

Diksha Sinha (National Institute of Technology Jamshedpur, India)

Koushendra Kumar Singh (PDPM IITDM Jabalpur, India)

Binod Singh (National Institute of Technology, India)

10:15 Vision-Based Product Tracking Method for Cyber-Physical Production Systems in Industry 4.0

Fotios Konstantinidis (Democritus University of Thrace, Greece)
Antonios Gasteratos (Democritus University of Thrace, Greece)
Spyridon G. Mouroutsos (Democritus University of Thrace, Greece)

10:30 Object Analysis Using Machine Learning to Solve Inverse Problem in Electrical Impedance Tomography

Tomasz Rymarczyk (Research and Development Center Netrix S.A./University of Economics and Innovation in Lublin, Poland)
Edward Kozłowski (Lublin University of Technology, Poland)
Grzegorz Klosowski (Lublin University of Technology, Poland)

10:45 DOSeqSLAM: Dynamic On-line Sequence Based Loop Closure Detection Algorithm for SLAM

Konstantinos A. Tsintotas (Democritus University of Thrace, Greece)
Loukas Bampis (Democritus University of Thrace, Greece)
Antonios Gasteratos (Democritus University of Thrace, Greece)

10:00 - 11:00

Robotic Vision Systems

Room: Ballroom C

Chairs: Andrzej Skalski, AGH University of Science and Technology, Poland

Zhan Yang, Shanghai Jiao Tong University, P.R. China

10:00 Interpolation Kernels in Fully Convolutional Networks and their Effect in Robot Vision Tasks

Angelos Amanatiadis (Democritus University of Thrace, Greece)
Vasileios Kaburlasos (Technological Educational Institute of Eastern Macedonia and Thrace, Greece)
Elias Kosmatopoulos (Democritus University of Thrace (DUTH) Center for Research and Technology Hellas (CERTH), Greece)

10:15 A Coaxial Vision Assembly Algorithm for Un-centripetal Holes on Large-scale stereo Workpiece Using Multiple-DOF Robot

Zhan Yang (Shanghai Jiao Tong University, P.R. China)
Weiwen Liu (Shanghai Jiao Tong University, P.R. China)
Hongbing Li (Shanghai Jiao Tong University, P.R. China)
Zheng Li (The Chinese University of Hong Kong, P.R. China)

10:30 Human-Machine Interface for Remote Training of Robot Tasks

Jordi Rhett Spranger (Aalborg University Copenhagen, Denmark)
Roxana Buzatoiu (Aalborg University Copenhagen, Denmark)
Athanasios Polydoros (University of Innsbruck, Austria)
Lazaros Nalpantidis (Aalborg University Copenhagen, Denmark)
Evangelos Boukas (A. C. Meyers Vænge 15 & Aalborg University Copenhagen, Denmark)

10:45 An RGB-D video-based wire detection tool to aid robotic arms during machine alignment measurement

Leanne Attard (University of Malta, Malta)
Carl J. Debono (University of Malta, Malta)
Gianluca Valentino (University of Malta, Malta)
Mario Di Castro (CERN, Switzerland)
Maria Laura Baiguera Tambutti (CERN, Switzerland)

11:00 - 11:20

Coffee Break

11:20 - 12:20

Novel Tomographic Imaging Techniques

Room: Ballroom A

*Chairs: Andrzej Skalski, AGH University of Science and Technology, Poland
Marek Wodzinski, AGH University of Science and Technology, Poland*

11:20 Development of an "iTomography" infrastructure for non-destructive documentation of cultural heritage objects

Georgios Karagiannis (ORMYLIA Foundation, Greece)
Theodosios Karamanos (ORMYLIA Foundation, Greece)
Emmanouil Athanasopoulos (FEAQUUS, Cyprus)
Konstantinos Panayiotou (ORMYLIA Foundation, Greece)
Stamatios A. Amanatiadis (ORMYLIA Foundation, Greece)
Georgios Apostolidis (ORMYLIA Foundation, Greece)

11:35 A novel method to explore intrarenal arterial tree using micro-CT

Katarzyna Heryan (AGH University of Science and Technology, Poland)
Janusz Skrzat (Jagiellonian University, Poland)
Jacek Tarasiuk (AGH University of Science and Technology, Poland)
Sebastian Wroński (AGH University of Science and Technology, Poland)

11:50 Dual-modality four-wire electrical capacitance and resistance tomography

Marco Antonio Rodriguez Frias (University of Manchester, United Kingdom (Great Britain))
Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

12:05 Artificial CT Data Generation Method with Known Ground-Truth for Image Registration with Missing Data

Marek Wodzinski (AGH University of Science and Technology, Poland)
Andrzej Skalski (AGH University of Science and Technology, Poland)

11:20 - 12:20

Efficient Imaging Detection Techniques

Room: Ballroom B

Chairs: Lijun Xu, Beihang University, P.R. China

Andreas Alk, AGH University of Science and Technology, Poland

11:20 Color ultrasound imaging and detection technique based on nonlinear spectra

Jianguo Ma (Beihang University, P.R. China)

Zhun Xie (Beihang University, P.R. China)

Min Wei (Beihang University, P.R. China)

Lijun Xu (Beihang University, P.R. China)

Boya Chen (Beijing Anzhen Hospital of Capital Medical University, P.R. China)

Yulin Li (Beijing Anzhen Hospital of Capital Medical University, P.R. China)

Jie Du (Beijing Anzhen Hospital of Capital Medical University, P.R. China)

Zijie Fang (Beihang University, P.R. China)

11:35 Multiple Lane Detection Algorithm Based on Optimised Dense Disparity Map Estimation

Han Ma (School of Mechanical Engineering, Tsinghua University, P.R. China)

Yixin Ma (Shanghai Jiao Tong University, P.R. China)

Jianhao Jiao (The Hong Kong University of Science and Technology, Hong Kong)

M Usman Maqbool Bhutta (The Hong Kong University of Science and Technology, Hong Kong)

Mohammad Junaid Bocus (University of Bristol, United Kingdom (Great Britain))

Lujia Wang (Chinese Academy of Sciences, P.R. China)

Ming Liu (The Hong Kong University of Science and Technology, Hong Kong)

Rui Fan (The Hong Kong University of Science and Technology, Hong Kong)

11:50 Application of Single Image Super-Resolution in Human Ear Recognition Using Eigenvalues

Matthew Zarachoff (Leeds Beckett University, United Kingdom (Great Britain))

Akbar Sheikh-Akbari (Leeds Beckett University, United Kingdom (Great Britain))

Dorothy Monekosso (Leeds Beckett University, United Kingdom (Great Britain))

12:05 Influence of External and Internal Parameters to Accuracy of a Mobile Tracking System Based on an iPhone 7

Andreas Alk (Aesculap AG, Germany & AGH University of Science and Technology, Poland)

Tobias Martin (Aesculap AG, Germany & AGH University of Science and Technology, Poland)

Josef Kozak (Aesculap AG, Germany)

11:20 - 12:20

Applications of Imaging in Medicine and Biology

Room: Ballroom C

Chairs: Lihui Peng, Tsinghua University, P.R. China

Anna Korzynska, Nalecz Institute of Biocybernetics and Biomedical Engineering Polish Academy of Sciences, Poland

- 11:20 Assessment of a Markerless Optical Tracking Technique for Computer-Assisted Hip Surgery**
Adrian Goral (AGH University of Science and Technology, Poland)
- 11:35 Novel Superparamagnetic Nanoparticles as Contrast Agents for Cancer Imaging**
Isa Yildirim (Istanbul Technical University & University of Illinois at Chicago, Turkey)
Esra Sümer (Abdullah Gül University, Turkey)
Celaletdin Ergun (Istanbul Technical University, Turkey)
- 11:50 Pre-operative AR-ultrasound application for determination of individual hip posture**
Tobias Martin (Aesculap AG, Germany & AGH University of Science and Technology, Poland)
Andreas Alk (Aesculap AG, Germany & AGH University of Science and Technology, Poland)
Josef Kozak (Aesculap AG, Germany)
- 12:05 The analysis of the movement of the genetically modified human skin fibroblasts in culture**
Anna Korzynska (Nalecz Institute of Biocybernetics and Biomedical Engineering Polish Academy of Sciences, Poland)
Krzysztof Siemion (Nalecz Institute of Biocybernetics and Biomedical Engineering PAS, Poland)
Jakub Zak (Nalecz Institute of Biocybernetics and Biomedical Engineering Polish Academy of Sciences, Poland)
Lukasz Roszkowiak (Nalecz IBBE PAS, Poland)
Agnieszka Wencel (Nalecz Institute of Biocybernetics and Biomedical Engineering PAS, Poland)
Krzysztof Pluta (Nalecz Institute of Biocybernetics and Biomedical Engineering PAS, Poland)
Dorota Pijanowska (Nalecz IBBE PAS, Poland)

12:20 - 13:20

Feature Extraction and Pattern Recognition

Room: Ballroom A

Chairs: Yixin Ma, Shanghai Jiao Tong University, P.R. China

Akbar Sheikh-Akbari, Leeds Beckett University, United Kingdom

12:20 Understanding Deep Convolutional Networks through Gestalt Theory

Angelos Amanatiadis (Democritus University of Thrace, Greece)

Vasileios Kaburlasos (Technological Educational Institute of Eastern Macedonia and Thrace, Greece)

Elias Kosmatopoulos (Democritus University of Thrace (DUTH) and Center for Research and Technology Hellas (CERTH), Greece)

12:35 Colour Constancy for Image of Non-Uniformly Lit Scenes

Md Akmol Hussain (Leeds Beckett University, United Kingdom (Great Britain))

Akbar Sheikh-Akbari (Leeds Beckett University, United Kingdom (Great Britain))

12:50 CMR motion artifact correction using generative adversarial nets

Ji-Jiang Yang (Tsinghua University, P.R. China)

Yunxuan Zhang (Research Institute of Information Technology, Tsinghua University, Beijing, P.R. China)

Xiuyu Chen (MRI Center, Fuwai Hospital, Chinese Academy of Medical Science, P.R. China)

Weiliang Zhang (Automation School, Beijing University of Posts and Telecommunications, P.R. China)

13:05 2D Multi-Band PCA and its Application for Ear Recognition

Matthew Zarachoff (Leeds Beckett University, United Kingdom (Great Britain))

Akbar Sheikh-Akbari (Leeds Beckett University, United Kingdom (Great Britain))

Dorothy Monekosso (Leeds Beckett University, United Kingdom (Great Britain))

12:20 - 13:20

Image Analysis and Processing II

Room: Ballroom B

Chairs: Jacobs Scharcanski, UFRGS - Federal University of Rio Grande do Sul

Kostas Marias, FORTH, Greece

12:20 Elitism in intensity-based image registration

Constantinos Spanakis (Technical University of Crete & Foundation for Research and Technology-Hellas, Greece)

Emmanuel Mathioudakis (Technical University of Crete, Greece)

Nikos Kampanis (Foundation for Research and Technology, Greece)

Manolis Tsiknakis (FORTH/ TEI CRETE, Greece)

Kostas Marias (FORTH, Greece)

12:35 Design Techniques for Incremental Non-Regular Image Sampling Patterns

Simon Grosche (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)

Jurgen Seiler (University of Erlangen-Nuremberg, Germany)

Andre Kaup (University of Erlangen-Nuremberg, Germany)

12:50 Image Restoration Method for Non-Uniform Blurred Images

Tomio Goto (Nagoya Institute of Technology, Japan)
Hiroki Senshiki (Nagoya Institute of Technology, Japan)
Masanao Sawada (Nagoya Institute of Technology, Japan)
Haifeng Chen (EIZO Corporation, Japan)
Reo Aoki (EIZO Corporation, Japan)

13:05 A Novel MRA-Based Framework For Detecting Correlation Between Cerebrovascular Changes and Mean Arterial Pressure

Heba Kandil (University of Louisville, USA)
Ahmed Soliman (University of Louisville, USA)
Mohammed Ghazal (University of Abu Dhabi, United Arab Emirates)
Ali Mahmoud (University of Louisville, USA)
Ahmed EITanboly (University of Louisville, USA)
Samineh Mesbah (University of Louisville, USA)
Ali Aslantas (University of Louisville, USA)
Ahmed Shalaby (University of Louisville, USA)
Guruprasad Giridharan (University of Louisville, USA)
Adel Elmaghraby (University of Louisville, USA)
Ayman Sabry El-Baz (University of Louisville, USA)

13:20 - 14:40

Lunch Break

16:10 - 16:30

Coffee Break

16:30 - 17:30

Electromagnetic Imaging Systems and Techniques

Room: Ballroom A

*Chairs: Claudio Estatico, University of Genoa, Italy
Emanuele Tavanti, University of Genoa, Italy*

16:30 An Imaging Technique for Brain Stroke Monitoring at Microwaves

Igor Bisio (University of Genoa, Italy)
Claudio Estatico (University of Genoa, Italy)
Alessandro Fedeli (University of Genoa, Italy)
Fabio Lavagetto (University of Genoa, Italy)
Matteo Pastorino (University of Genoa, Italy)
Andrea Randazzo (University of Genoa, Italy)
Andrea Sciarrone (University of Genoa, Italy)
Emanuele Tavanti (University of Genoa, Italy)

16:45 A Newton-Conjugate-Gradient Method in L_p Banach Spaces for Three-Dimensional Microwave Imaging

Claudio Estatico (University of Genoa, Italy)
Alessandro Fedeli (University of Genoa, Italy)
Matteo Pastorino (University of Genoa, Italy)
Andrea Randazzo (University of Genoa, Italy)
Emanuele Tavanti (University of Genoa, Italy)

17:00 Skin Cancer Detection through Microwaves: Validation on Phantom Measurements

Banafsheh Khalesi (London South Bank University, United Kingdom (Great Britain))

Gianluigi Tiberi (UBT - Umbria Bioengineering Technologies, Spin off of University of Perugia, Italy & London South Bank University, United Kingdom (Great Britain))

Navid Ghavami (UBT - Umbria Bioengineering Technologies, Spin off of University of Perugia, Italy)

Mohammad Ghavami (London South Bank University, United Kingdom (Great Britain))

Sandra Dudley (London South Bank University, United Kingdom (Great Britain))

16:30 - 17:30

Electrical Tomography

Room: Ballroom B

Chairs: Wuqiang Yang, The University of Manchester, United Kingdom (Great Britain)

Marek Wodzinski, AGH University of Science and Technology, Poland

16:30 Medical applications of electrical tomography

Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

Zhen Ren (University of Manchester, United Kingdom (Great Britain))

Masahiro Takei (Chiba University, Japan)

Jiafeng Yao (Chiba University, Japan)

16:45 Compensation for fringe effect of electrical resistance tomography sensor by multiple-plane sensor scheme

Wenbin Tian (Beihang University, P.R. China)

Jiangtao Sun (Beihang University, P.R. China)

Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

Shuo Gao (Beihang University, P.R. China)

Lijun Xu (Beihang University, P.R. China)

17:00 Level measurement of separator by using electrical tomography sensor

Shui Liu (Graduate School at Shenzhen, Tsinghua University, P.R. China)

Yi Li (Tsinghua University, P.R. China)

Haigang Wang (University of Manchester, United Kingdom (Great Britain))

17:15 An Integrated ECT and Electrostatic Sensor for Particulate Flow Measurement

Jun Long (Beijing Institute of Control Engineering, P.R. China)

Marco Antonio Rodriguez Frias (University of Manchester, United Kingdom (Great Britain))

Khursiah Zainal Mokhtar (The University of Manchester, United Kingdom (Great Britain))

Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

19:00 - 23:00

GALA DINNER

Novotel Krakow City West Hotel

Thursday, October 18

09:00 - 10:30

Advanced in Imaging

Room: Ballroom A

Chairs: Ahmed Shalaby, University of Louisville, USA

Haigang Wang, University of Manchester, United Kingdom

9:00 Power Transmission Lines Inspection using Properly Equipped Unmanned Aerial Vehicle (UAV)

Konstantia Moirogiorgou (Technical University of Crete, Greece)

Alexandros Zormpas (Technical University of Crete, Greece)

Kostas Kalaitzakis (Technical University of Crete, Greece)

George Plokamakis (Hellenic Electricity Distribution Network, Chania, Crete, Greece)

Panayotis Partsinevelos (Technical University of Crete, Greece)

George C Giakos (Manhattan College, USA)

Michalis Zervakis (Technical University of Crete, Greece)

9:15 Virtual Video Synthesis for Personalized Training

Konstantia Moirogiorgou (Technical University of Crete, Greece)

Filippos Markolefas (Technical University of Crete, Greece)

George C Giakos (Manhattan College, USA)

Michalis Zervakis (Technical University of Crete, Greece)

9:30 Intra-Operative 3D Registration of MIS Reconstructed Surfaces to Pre-Operative Models

Georgia Peleka (Centre for Research & Technology - Hellas, Greece)

Georgios Zampokas (Centre for Research and Technology Hellas, Information Technologies Institute, Greece)

Ioannis Mariolis (Centre for Research & Technology - Hellas, Greece)

Sotiris Malassiotis (Centre for Research and Technology Hellas, Greece)

Dimitrios Tzovaras (Information Technologies Institute, Greece)

9:45 A Fast Way to Get Sensitivity Map of Wire-Mesh

Kai Sun (Tsinghua University, P.R. China)

Haigang Wang (University of Manchester, United Kingdom (Great Britain))

Yi Li (Tsinghua University, P.R. China)

10:00 Measurement of External-Solids Circulation Flux in a Circulating Fluidized Bed by Electrical Capacitance Tomography and Microwave Doppler Radar

Haigang Wang (University of Manchester, United Kingdom (Great Britain))

Wuqiang Yang (The University of Manchester, United Kingdom (Great Britain))

Zhipeng Wu (University of Manchester, United Kingdom (Great Britain))

10:30 - 11:00
Student Awards and Closing Ceremony

11:00 - 12:00
Lunch