

2013 IEEE International Conference on Imaging Systems and Techniques

(IST 2013)

**Beijing, China
22-23 October 2013**



**IEEE Catalog Number: CFP13IMG-POD
ISBN: 978-1-4673-5789-0**

TABLE OF CONTENTS

TABLE OF CONTENTS	iii
MESSAGE FROM THE CHAIRMAN	xix
2013 IEEE IST ORGANIZERS	xxi

Tuesday, October 22

14:30 - 15:30

Parallel Sessions

Special Session 2A: Ladars, Lidars and Aerospace Imaging I

Room: Ballroom A

Session Chairs: *Matteo Pastorino (University of Genoa, Italy) & Jiying Zhao (University of Ottawa, Canada)*

Land Classification From LiDAR Full-waveforms Based on Multi-class Support Vector Machines 1

Xiaolu Li (Beihang University, China)

Lian Ma (Beihang University, China)

Lijun Xu (Beihang University, China)

Research on Detection and Correction of Defective Pixels of LASIS 7

Juanjuan Jing (Chinese Academy of Sciences, China)

Qunbo Lv (Chinese Academy of Sciences, China)

Dalian Shi (Chinese Academy of Sciences, China)

Synthetic Aperture Radar Autofocus Based on Time-Frequency Transform 11

Yinwei Li (Chinese Academy of Sciences, Canada)

Maosheng Xiang (Chinese Academy of Sciences, Canada)

Lideng Wei (Chinese Academy of Sciences, China)

Determination of Platform Attitude Through SURF Based Aerial Image Matching 15

Lili Jing (Beihang University, China)

Lijun Xu (Beihang University, China)

Xiaolu Li (Beihang University, China)

Xiangrui Tian (Beihang University, China)

14:30 - 15:30

Parallel Sessions

Special Session 2B: Electric Impedance Tomography I

Room: Ballroom B

Session Chairs: *Dimitrios A. Karras (Chalkis Institute of Technology, Greece) & Yixin Ma (Shanghai Jiao Tong University, China)*

Evaluation of Effect of Number of Electrodes in ERT Sensors on Image Quality 19

Jiamin Ye (Chinese Academy of Sciences, China)

Haigang Wang (The University of Manchester, United Kingdom)

Wuqiang Yang (The University of Manchester, United Kingdom)

Sparse Regularization for Small Objects Imaging with Electrical Resistance Tomography25

Jia Zhao (Tianjin University, China)

Feng Dong (Tianjin University, China)

Chao Tan (Tianjin University, China)

Yanbin Xu (Tianjin University, China)

Comparison of Electrical Capacitance Tomography Sensors with Internal-External Electrodes31

Ruihuan Ge (Chinese Academy of Sciences, China)

Jiamin Ye (Chinese Academy of Sciences, China)

Haigang Wang (Chinese Academy of Sciences, China)

An Image Reconstruction Algorithm for ECT Using Enhanced Model and Sparsity Regularization35

Yunjie Yang (Tsinghua University, China)

Lihui Peng (Tsinghua University, China)

14:30 - 15:30

Parallel Sessions

Special Session 1C: Pattern Recognition and Feature Extraction I

Room: Ballroom C

Session Chairs: *Ze Liu (Beijing Jiaotong University, China) & Andrea Randazzo (University of Genoa, Italy)*

Gas-Water Two-Phase Flow Pattern Characterization with Multivariate Multiscale Entropy40

Chao Tan (Tianjin University, China)

Jia Zhao (Tianjin University, China)

Feng Dong (Tianjin University, China)

Visual Odometry for Autonomous Robot Navigation Through Efficient Outlier Rejection45

Ioannis Kostavelis (Democritus University of Thrace, Greece)

Evangelos Boukas (Democritus University of Thrace, Greece)

Lazaros Nalpantidis (Aalborg University Copenhagen, Denmark)

Antonios Gasteratos (Democritus University of Thrace, Greece)

Bio-inspired Deep Learning Model for Object Recognition51

Konstantinos Charalampous (Democritus University of Thrace, Greece)

Antonios Gasteratos (Democritus University of Thrace, Greece)

Industrial Character Recognition Based on Grid Feature and Wavelet Moment56

Yong Zhang (Beihang University, China)

Sanxia Xie (Beihang University, China)

Shu Wei (Beihang University, China)

15:00 - 17:30

Poster Session

Room: Atrium

Session Chairs: *Andrea Randazzo (University of Genoa, Italy) & Jiying Zhao (University of Ottawa, Canada)*

A Federal UKF Algorithm in INS/GPS/aerial Image Integrated Attitude Determination System	60
<i>Lili Jing (Beihang University, China)</i>	
<i>Lijun Xu (Beihang University, China)</i>	
<i>Xiaolu Li (Beihang University, China)</i>	
<i>Xiangrui Tian (Beihang University, China)</i>	
Impact of Attitude Measurement Errors on Laser Footprints Positioning Accuracy	64
<i>Teng Xu (Beihang University, China)</i>	
<i>Lijun Xu (Beihang University, China)</i>	
<i>Xiaolu Li (Beihang University, China)</i>	
<i>Xiangrui Tian (Beihang University, China)</i>	
Weighted Infrared Face Recognition in Multiwavelet Domain	70
<i>Xie Zhihua (Jiangxi Sciences and Technology Normal College, China)</i>	
<i>Liu Guodong (Jiangxi Sciences and Technology Normal College, China)</i>	
A New Image Measurement Method for Wheel Hub.....	75
<i>Zhang Wei (Tsinghua University, China)</i>	
<i>Wang Wenjuan (Tsinghua University, China)</i>	
<i>Wang Jingchun (Tsinghua University, China)</i>	
<i>Xiong Zhihua (Tsinghua University, China)</i>	
Lung Cancer Pathology Discrimination Techniques Using Time Series Analysis.....	79
<i>George Giakos (The University of Akron, USA)</i>	
<i>Tannaz Farrahi (The University of Akron, USA)</i>	
<i>Tri Quang (The University of Akron, USA)</i>	
<i>Suman Shrestha (The University of Akron, USA)</i>	
<i>Aditi Deshpande (The University of Akron, USA)</i>	
<i>C. Narayan (The University of Akron, USA)</i>	
<i>Dimitrios A. Karras (Chalkis Institute of Technology, Greece)</i>	
Reconstruction of Dielectric and Velocity Profiles in Pipelines Through an Electromagnetic Inverse Scattering Technique	85
<i>Matteo Pastorino (University of Genoa, Italy)</i>	
<i>Mirco Raffetto (University of Genoa, Italy)</i>	
<i>Andrea Randazzo (University of Genoa, Italy)</i>	
Three-dimensional Temperature Profiling of Oxy-gas Burner Flames	91
<i>Md. Moinul Hossain (University of Kent, United Kingdom)</i>	
<i>Gang Lu (University of Kent, United Kingdom)</i>	
<i>Xinli Li (North China Electric Power University, China)</i>	
<i>Yong Yan (University of Kent, United Kingdom)</i>	
Image Coding Based on Image Segmentation and Shape Adaptive All Phase Biorthogonal Transform	95
<i>Baochen Jiang (Shandong University & Tianjin University, China)</i>	
<i>Aiping Yang (Tianjin University, China)</i>	
<i>Chengyou Wang (Shandong University, China)</i>	
<i>Zhengxin Hou (Tianjin University, China)</i>	

Color Image Watermarking Via Quaternion Radial Tchebichef Moments	101
<i>Efstratios D Tsougenis (Democritus University of Thrace, Greece)</i>	
<i>George A Papakostas (Kavala Institute of Technology, Greece)</i>	
<i>Dimitrios Koulouriotis (Democritus University of Thrace, Greece)</i>	
<i>Evangelos Karakasis (Democritus University of Thrace, Greece)</i>	
<i>Dimitrios A. Karras (Chalkis Institute of Technology, Greece)</i>	

16:00 - 17:00

Parallel Sessions

Special Session 3A: Immunohistochemistry, and Digital Pathology Imaging Techniques

Room: Ballroom A

Session Chair: *Michalis Zervakis (Technical University of Crete, Greece)*

Visualization and Modeling of Cancer Progression.....	106
<i>Maria Papadogiorgaki (Digital Image and Signal Processing Laboratory, Greece)</i>	
<i>Michalis Zervakis (Technical University of Crete, Greece)</i>	

Automated Analysis of Immunohistochemical Images Based on Curve Evolution Approaches	112
<i>George Livanos (Technical University of Crete, Greece)</i>	
<i>Michalis Zervakis (Technical University of Crete, Greece)</i>	
<i>George Giakos (The University of Akron, USA)</i>	

An Automated Digital Fluorescence Imaging System of Tumor Margins Using Clustering-based Image Thresholding	116
<i>George Giakos (The University of Akron, USA)</i>	
<i>Aditi Deshpande (The University of Akron, USA)</i>	
<i>Tri Quang (The University of Akron, USA)</i>	
<i>Tannaz Farrahi (The University of Akron, USA)</i>	
<i>C. Narayan (The University of Akron, USA)</i>	
<i>Suman Shrestha (The University of Akron, USA)</i>	
<i>Michael Zervakis (Technical University of Crete, Greece)</i>	
<i>George Livanos (Technical University of Crete, Greece)</i>	
<i>E. Bei (Technical University of Crete, Greece)</i>	

Statistical Analysis on Polarimetric Study of Lung Cancer Cells	121
<i>Suman Shrestha (The University of Akron, USA)</i>	
<i>George Giakos (The University of Akron, USA)</i>	
<i>Tannaz Farrahi (The University of Akron, USA)</i>	
<i>Chaya Narayan (The University of Akron, USA)</i>	
<i>George Livanos (Technical University of Crete, Greece)</i>	
<i>Michael Zervakis (Technical University of Crete, Greece)</i>	

16:00 - 17:00

Parallel Sessions

Special Session 3B: Image Analysis and Processing I

Room: Ballroom B

Session Chairs: *Yixin Ma (Shanghai Jiao Tong University, China) & Michalis Zervakis (Technical University of Crete, Greece)*

An Adaptive Total Variation Regularization Method for Electrical Resistance Tomography 127

Yanbin Xu (Tianjin University, China)

Xizi Song (Tianjin University, China)

Feng Dong (Tianjin University, China)

Huaxiang Wang (Tianjin University, China)

A Compression System for Colored Images Based on Color Characteristics 132

Syed Muhammad Ammar Sohail (National University of Computer and Emerging Sciences, Pakistan)

Ahmad Kazmi (National University of Computer and Emerging Sciences, Pakistan)

**Void Fraction Measurement of Gas-Liquid Two-Phase Flow in Mini-Pipe
Based on Image Sequence 138**

Haifeng Ji (Zhejiang University, China)

Bei Jiang (Zhejiang University, China)

Zhiyao Huang (Zhejiang University, China)

Baoliang Wang (Zhejiang University, China)

Haiqing Li (Zhejiang University, China)

Color Range Determination and Alpha Matting for Color Images 142

Zhenyi Luo (University of Ottawa, Canada)

Wenyi Wang (University of Ottawa, Canada)

Jiyong Zhao (University of Ottawa, Canada)

Yu Liu (Ross Video Limited, Canada)

16:00 - 17:15

Parallel Sessions

Special Session 2C: Imaging Systems and Techniques

Room: Ballroom C

Session Chair: *Hua Yan (ShenYang Technology University, China)*

A Fast Vein Display Device Based on the Camera-projector System..... 146

Xiaobin Dai (Beijing Institute of Technology, China)
Ya Zhou (Beijing Institute of Technology, China)
Xiaoming Hu (Beijing Institute of Technology, China)
Meiqing Liu (Beijing Institute of Technology, China)
Xia Zhu (Beijing Institute of Technology, China)
Zhaoguo Wu (Beijing Institute of Technology, China)

A 3D Acoustic Temperature Field Reconstruction Algorithm Using Adaptive Regularization Parameter 150

Hua Yan (Shenyang University of Technology, China)
ShanHui Wang (Shenyang University of Technology, China)
YingGang Zhou (Shenyang University of Technology, China)
Lijun Liu (Shenyang University of Technology, China)

Effective Image and Spectral Data Acquisition Method Used in Scanning Near-field Optical Microscopy by Bimorph-based Shear Force Sensor 155

Wei Cai (Beihang University, China)
Mu Yang (Beihang University, China)
Yingjie Wang (Beihang University, China)
Guangyi Shang (Beihang University, China)

Optimization of the Electromagnetic Wave Resistivity Tool in Logging While Drilling 160

Yumei Zhang (Beihang University, China)
Lijun Xu (Beihang University, China)
Zhang Cao (Beihang University, China)

Development of MPI Mini Scanner Prototype - Coils Design..... 164

Waldemar T Smolik (Warsaw University of Technology, Poland)
Przemysław Wróblewski (Warsaw University of Technology, Poland)
Jan Szyszko (Warsaw University of Technology, Poland)

17:00 - 18:00

Parallel Sessions

Special Session 4A: Tomographic Imaging

Room: Ballroom A

Session Chair: *Lihui Peng (Tsinghua University, China)*

CT Segmentation Based on MRI Images in Context of Prostate Radiotherapy Planning..... 169

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

Tomasz P. Zielinski (AGH University of Science and Technology, Poland)

Piotr Kędzierawski (HollyCross Cancer Center, Poland)

Tomasz Kuszewski (HollyCross Cancer Center, Poland)

An Application of Algebraic Method on MR T2 Imaging of Knee Articular Cartilage..... 174

Xu Dai (University of Calgary, Canada)

Gulshan B Sharma (University of Calgary, Canada)

Gregor Kuntze (University of Calgary, Canada)

Jessica Küpper (University of Calgary, Canada)

Richard Frayne (University of Calgary, Canada)

Janet Ronsky (University of Calgary, Canada)

Improved Compression of MRSI Images Involving the Discrete Wavelet Transform and an Integrated Two Level Restoration Methodology Comparing Different Textural and Optimization Schemes..... 178

Dimitrios A. Karras (Chalkis Institute of Technology, Athens, Greece)

Phase Detection for Conductivity Based on Electromagnetic Measurement System 184

Yan Fu (Tianjin University, China)

Feng Dong (Tianjin University, China)

Chao Tan (Tianjin University, China)

17:00 - 18:00

Parallel Sessions

Special Session 4B: Image Analysis and Processing II

Room: Ballroom B

Session Chair: *Zhang Cao (Beihang University, China)*

A Simple Index Based Quantitative Assessment of Flame Stability 190

Duo Sun (University of Kent, United Kingdom)
Gang Lu (University of Kent, United Kingdom)
Hao Zhou (Zhejiang University, China)
Xinli Li (North China Electric Power University, China)
Yong Yan (University of Kent, United Kingdom)

Building Detection in Digital Surface Model 194

Shuang Zhou (Harbin Institute of Technology, China)
Liang Mi (Worcester Polytechnic Institute, USA)
Hao Chen (Harbin Institute of Technology, China)
Yishuang Geng (Worcester Polytechnic Institute, MA, USA)

Using Visual Segments and Spatial Layouts for Unsupervised Object Co-segmentation200

Linjia Sun (Beihang University, China)
Xiaohui Liang (Beihang University, China)
Min Lliu (Beihang University, China)

Image Position Analysis of Motion Errors for Missile-borne SAR Based on Diving Model206

Sun Bing (Beihang University, China)
Wang Ye (Beihang University, China)
Chen Jie (Beihang University, China)
Wang Yan (Beihang University, China)
Li Bing (Beihang University, China)

Wednesday, October 23

09:00 - 10:00

Parallel Session

Special Session 5A: Ladars, Lidars and Aerospace Imaging II

Room: Ballroom A

Session Chairs: Antonios Gasteratos (*Democritus University of Thrace, Greece*) & Ze Liu (*Beijing Jiaotong University, China*)

Object Detection and Tracking Using Sensor Fusion and Particle Filter210

Berk Pelenk (*Galatasaray University, Turkey*)
Tankut Acarman (*Galatasaray University, Turkey*)

Optical Design of Spaceborne Multi-waveband Earth Observation System216

Bai Xueqiong (*Beijing Institute of Technology University, China*)
Li Lin (*Beijing Institute of Technology University, China*)

High-resolution Imaging of Aerial Rigid Targets From Sparse Angle Radar Data222

Feiyang He (*Beihang University, China*)
Xiaojian Xu (*Beihang University, China*)

Unified Redundant Patterns for Star Identification228

Feilong Ji (*Beijing University of Aeronautics & Astronautics, China*)
Jie Jiang (*Beijing University of Aeronautics & Astronautics, China*)
Xinguo Wei (*Beijing University of Aeronautics & Astronautics, China*)

09:00 - 09:45

Parallel Session

Special Session 5B: Medical Imaging and Non-Destructive Evaluation

Room: Ballroom B

Session Chairs: Dimitrios A. Karras (*Chalkis Institute of Technology, Greece*) & George Zentai (*Varian Medical Systems, USA*)

Universal MV-kV Imager for Radiotherapy234

George Zentai (*Varian Medical Systems, USA*)
Gary Virshup (*Varian Medical Systems, USA*)
Arundhuti Ganguly (*Varian Medical Systems, USA*)
Daniel Morf (*Varian Medical Systems, USA*)

Automated Detection of Optic Disk for the Analysis of Retina Using Color Fundus Image239

Muhammad Zubair (*NUST College of Electrical and Mechanical Engineering, Islamabad, Pakistan*)
Abubakar Yamin (*NUST College of Electrical and Mechanical Engineering, Islamabad, Pakistan*)
Shoab A. Khan (*NUST College of Electrical and Mechanical Engineering, Islamabad, Pakistan*)

The Impact of H.264/AVC on Compression and Non-Destructive Evaluation of Piston Data in Industrial Computed Tomography243

Alexander Ditter (*University of Erlangen-Nuremberg, Germany*)
Dietmar Fey (*University of Erlangen-Nuremberg, Germany*)
Tobias Schön (*Fraunhofer Institute for Integrated Circuits IIS, Germany*)
Maik Luxa (*Fraunhofer Institute for Integrated Circuits IIS, Germany*)
Roland Gruber (*Fraunhofer Institute for Integrated Circuits IIS, Germany*)

09:00 - 09:45

Parallel Session

Special Session 3C: Pattern Recognition

Room: Ballroom C

Session Chairs: *Yixin Ma (Shanghai Jiao Tong University, China) & Matteo Pastorino (University of Genoa, Italy)*

Handwritten Digits Recognition Using a High Level Network-Based Approach248

Thiago C Silva (University of São Paulo & Institute of Mathematics and Computer Science, Brazil)

Zhao Liang (University of Sao Paulo, Brazil)

A 3D Interpolation Method in Repairing Hand Vascular Tree for Vein Recognition.....254

Xia Zhu (Beijing Institute of Technology, China)

Xiaoming Hu (Beijing Institute of Technology, China)

Dayuan Yan (Beijing Institute of Technology, China)

Ya Zhou (Beijing Institute of Technology, China)

Ruobing Huang (Beijing Institute of Technology, China)

Meiqing Liu (Beijing Institute of Technology, China)

A Kernel Function Optimization and Selection Algorithm Based on Cost Function Maximization259

Bin Zhu (Electronic Engineering Institute, China)

Zhengdong Cheng (Electronic Engineering Institute, China)

Hui Wang (Chinese Academy of Sciences, China)

09:45 - 10:30

Parallel Session

Special Session 6B: Image Enhancement I

Room: Ballroom B

Session Chairs: *Moinul Hossain (Khulna University of Engineering and Technology, Bangladesh) & Zhaoguo Wu (Beijing Institute of Technology, China)*

A Comparison Framework for the Evaluation of Illumination Compensation Algorithms264

Vassilios Vonikakis (Advanced Digital Sciences Center, Singapore)

Rigas Kouskouridas (Democritus University of Thrace, Greece)

Antonios Gasteratos (Democritus University of Thrace, Greece)

A New Method for Image De-noising on the Basis of Chen-Mobius Transform269

ShunDa Lin (Quanzhou Normal University, China)

Approach to Metric and Discrimination of Blur Based on Its Invariant Features274

Saqib Yousaf (Beihang University, China)

Shiyin Qin (Beihang University, China)

09:45 - 10:45

Parallel Session

Special Session 4C: Image Recognition Techniques

Room: Ballroom C

Session Chairs: Moinul Hossain (*Khulna University of Engineering and Technology, Bangladesh*) & Yixin Ma (*Shanghai Jiao Tong University, China*)

Genetic Algorithms Solution to Automated Zone Design Based on Urban Population Map280

Hamidreza Rabiei Dastjerdi (Politecnico di Mialno, Italy)

Meisam Farrokhifar (Politecnico di Mialno, Italy)

Recognition of SAR Image Based on Combined Templates284

Kaiqi Liu (Beihang University, China)

WenGuang Wang (Beihang University, China)

Zuowei Sun (Beihang University, China)

A Practical Pan-Sharpener Method with Wavelet Transform and Sparse Representation288

Yu Liu (University of Science and Technology of China, China)

Zengfu Wang (University of Science and Technology of China & Chinese Academy of Sciences, China)

On Content Based MRSI Retrieval Integrating Fuzzy Descriptors in the Wavelet Domain294

Dimitrios A. Karras (Chalkis Institute of Technology, Athens, Greece)

10:00 - 10:45

Parallel Session

Special Session 6A: Image Analysis and Processing III

Room: Ballroom A

Session Chairs: Michalis Zervakis (*Technical University of Crete, Greece*) & Jiying Zhao (*University of Ottawa, Canada*)

Automated System of Hess Screen for Diagnosis of Paralytic Strabismus Using Computer Aided Diagnosis300

Abubakar Yamin (National University of Science and Technology, Pakistan)

Shoab A. Khan (National University of Science and Technology, Pakistan)

Ubaid-Ullah Yasin (National University of Science and Technology, Pakistan)

Investigation the Gas-Solid Flows in a Circulating Fluidised Bed with Multi-Cyclone Separators by Electrical Capacitance Tomography.....306

Haigang Wang (The University of Manchester, United Kingdom)

Guizhi Qiu (Institute of Engineering Thermophysics, China)

Wuqiang Yang (The University of Manchester, United Kingdom)

Block-based Compressive Low-light-level Imaging311

Jun Ke (Beijing Institute of Technology, China)

Ping Wei (Beijing Institute of Technology, China)

Xin Zhang (Chinese Academy of Sciences, China)

Edmund Y. Lam (University of Hong Kong, Hong Kong)

11:15 - 12:00

Parallel Session

Special Session 7A: Image Analysis and Processing IV

Room: Ballroom A

Session Chairs: *Dimitrios A. Karras (Chalkis Institute of Technology, Greece) & Jiyong Zhao (University of Ottawa, Canada)*

Error Analysis of Calibration Parameters Estimation for Binocular Stereo Vision System317

Yafan Xu (Beihang University, China)

Zhao Yan (Beihang University, China)

Falin Wu (Beihang University, China)

Kui Yang (Beihang University, China)

Fabrication of Independent Virtual Lines for Reconstruction of 2D Source Distribution with High Spatial Resolution Equal to That of Limited Projections321

Huawei Liu (Tsinghua University, China)

Wei Lv (Tsinghua University, China)

Huaichun Zhou (Tsinghua University, China)

Principle and Simulation of Correlation Steered Scanning for SPM to Overcome Thermal Drift327

Liansheng Zhang (University of Science and Technology of China, China)

Qian Long (University of Science and Technology of China, China)

Chengliang Pan (University of Science and Technology of China, China)

Zhihua Feng (University of Science and Technology of China, China)

11:15 – 11:45

Parallel Session

Special Session 7B: Image Enhancement II

Room: Ballroom B

Session Chair: *Moinul Hossain (Khulna University of Engineering and Technology, Bangladesh)*

A Vein Image Enhancement Algorithm for the Multi-Spectral Illumination332

Zhaoguo Wu (Beijing Institute of Technology, China)

Ya Zhou (Beijing Institute of Technology, China)

Xiaoming Hu (Beijing Institute of Technology, China)

Muqing Zhou (Beijing Institute of Technology, China)

Xiaobin Dai (Beijing Institute of Technology, China)

Xinzhou Li (Beijing Institute of Technology, China)

Danting Wang (Beijing Institute of Technology, China)

Blur Kernel Optimization with Contrast Levels and Effectual Patch Selection Using SURF Features337

Saqib Yousaf (Beihang University, China)

Shiyin Qin (Beihang University, China)

11:15 - 12:45

Parallel Session

Special Session 5C: Real-Time Imaging and Processing Techniques

Room: Ballroom C

Session Chairs: *Ze Liu (Beijing Jiaotong University, China) & Andrea Randazzo (University of Genoa, Italy)*

A Three-Dimensional Imaging System for Surface Profilometry of Moving Objects343

Fuqin Deng (University of Hong Kong, Hong Kong)
Jiayang Liu (City University of Hong Kong, Hong Kong)
Jiangwen Deng (ASM Pacific Technology Ltd, Hong Kong)
Kenneth Shunming Fung (ASM Pacific Technology Ltd, Hong Kong)
Edmund Y. Lam (University of Hong Kong, Hong Kong)

A High-resolution Imaging Method Based on Broadband Excitation and Warped Frequency Transform.....348

Shangchen Fu (PLA University of Science and Technology, China)
Lihua Shi (PLA University of Science and Technology, China)

Multi-View Video Codec with Fractal Coding354

Shiping Zhu (Beihang University, China)
Liyun Li (Beihang University, China)

Urban Construction Area Extraction Using Circular Polarimetric Correlation Coefficient359

Xiaoxia Lin (Beihang University, China)
WenGuang Wang (Beihang University, China)
Erfu Yang (University of Stirling, China)

Multi-frequency Least Squares Demodulation Method in Electromagnetic Rail Inspection363

Ran Zheng (Beijing Jiaotong University, China)
Ze Liu (Beijing Jiaotong University, China)
Yingfei Lu (Beijing Jiaotong University, China)
Lixiong Zhu (Beijing Jiaotong University, China)
Xiufang Sun (Beijing Union University, China)

Dimensionality Reduction with the k-Associated Optimal Graph Applied to Image Classification366

Thiago Cupertino (University of São Paulo, Brazil)
Murillo Carneiro (University of São Paulo, Brazil)
Zhao Liang (University of São Paulo, Brazil)

11:45 - 12:45

Parallel Session

Special Session 8B: Electric Impedance Tomography II

Room: Ballroom B

Session Chairs: *Zhang Cao (Beihang University, China) & Michalis Zervakis (Technical University of Crete, Greece)*

Refined Cartesian Mesh for Modeling in Electrical Capacitance Tomography372

Waldemar T Smolik (Warsaw University of Technology, Poland)

Jacek Kryszyn (Warsaw University of Technology, Poland)

Direct Image Reconstruction for ERT by Using Measurements on Partial Boundary377

Zhang Cao (Beihang University, China)

Lijun Xu (Beihang University, China)

A Gradient Method Used to Identify Object Boundary in EIT Image381

Ruofan Wang (Shanghai Jiao Tong University, China)

Liwen Miao (Shanghai Jiao Tong University, China)

Yixin Ma (Shanghai Jiao Tong University, China)

**Theoretical Analysis of the Dielectric Characteristics of Plasma Flame and Imaging Flame
Using Electrical Capacitance Tomography386**

Jia Yunhao (Beijing Jiaotong University, China)

Chen Qi (Beijing Jiaotong University, China)

15:00 - 17:15

Poster Session

Room: Atrium

Session Chairs: *Sandra Costanzo (University of Calabria, Italy) & Liyun Li (Beihang University, China)*

An Inverse Scattering Approach for Inspecting Dielectric Scatterers At Microwave Frequencies Without Phase Information.....	392
<i>Sandra Costanzo (University of Calabria, Italy)</i>	
<i>Giuseppe Di Massa (University of Calabria, Italy)</i>	
<i>Matteo Pastorino (University of Genoa, Italy)</i>	
<i>Andrea Randazzo (University of Genoa, Italy)</i>	
A Novel CMOS Image Sensor Using an Output Voltage Feedback with Variable Dynamic Range	398
<i>Myunghan Bae (Kyungpook National University, Korea)</i>	
<i>Sung-Hyun Jo (Kyungpook National University, Korea)</i>	
<i>Hee Ho Lee (Kyungpook National University, Korea)</i>	
<i>Minho Lee (Kyungpook National University, Korea)</i>	
<i>Ju-Yeong Kim (Kyungpook National University, Korea)</i>	
<i>Pyung Choi (Kyungpook National University, Korea)</i>	
<i>Jang-Kyoo Shin (Kyungpook National University, Korea)</i>	
<i>Seungmin Kim (Kyungpook National University, Korea)</i>	
<i>Jeongyeob Kim (Kyungpook National University, Korea)</i>	
Supporting the Recognition of Pathological Changes in CT Coronary Arteries Visualizations Based on Data Aggregation Approach.....	402
<i>Miroslaw Trzupiek (AGH University of Science and Technology, Poland)</i>	
<i>Marek R Ogiela (AGH University of Science and Technology, Poland)</i>	
Morphological Edge Detector Implemented in Quantum Cellular Automata	406
<i>Orestis Liolis (Democritus University of Thrace, Greece)</i>	
<i>Vicky Kalogeiton (Democritus University of Thrace, Greece)</i>	
<i>Dim Papadopoulos (Democritus University of Thrace, Greece)</i>	
<i>Georgios Sirakoulis (Democritus University of Thrace, Greece)</i>	
<i>Vasilios Mardiris (Technological Educational Institute of Kavala, Greece)</i>	
<i>Antonios Gasteratos (Democritus University of Thrace, Greece)</i>	
A Scorch Extraction Method for the Campbell-Stokes Sunshine Recorder Based on Multivariable Thresholding	410
<i>Qiaoyun Fan (Beihang University, China)</i>	
<i>Ying Zhang (Beihang University, China)</i>	
Three-dimensional Electrical Capacitance Tomography Measurement System Based on an Impedance Analyzer*	415
<i>YingGang Zhou (ShenYang Technology University, China)</i>	
<i>Delong Liu (ShenYang Technology University, China)</i>	
<i>Hua Yan (ShenYang Technology University, China)</i>	
A Lunar Landing Safety Estimation Methodology Using Lidar Acquired DEM.....	419
<i>Shaochen Zhang (Beihang University, China)</i>	
<i>Zhao Yan (Beihang University, China)</i>	
<i>Falin Wu (Beihang University, China)</i>	

A Novel Microwave Staring Imaging Method Based on Short-time Integral Stochastic Radiation Fields	425
<i>Yuanyue Guo (University of Science and Technology of China, China)</i>	
<i>Yuanpeng Ma (University of Science and Technology of China, China)</i>	
<i>Dongjin Wang (University of Science and Technology of China, China)</i>	
Intelligent Tracking Teaching System Based on Monocular Active Vision.....	431
<i>Rui Wang (Beihang University, China)</i>	
<i>Lei Mei (Beihang University, China)</i>	
A High-Speed Atomic and Friction Force Microscopic Imaging System Based on a Novel Optical Beam Deflection Design	437
<i>Haiyun Fan (Beihang University, China)</i>	
<i>Wei Cai (Beihang University, China)</i>	
<i>Jianyong Zhao (Beihang University, China)</i>	
<i>Guangyi Shang (Beihang University, China)</i>	
A Novel Layover and Shadow Detection Method for InSAR	441
<i>Wei Chen (Beihang University, China)</i>	
<i>Huaping Xu (Beihang University, China)</i>	
<i>Shuang Li (Beihang University, China)</i>	
Evaluation of the Accuracy of Three-dimensional Reconstruction of Edentulous Model Jaw Relation Based on Dental Articulator Positioning	446
<i>Yuchun Sun (Peking University School and Hospital of Stomatology, China)</i>	
<i>Hong Li (Peking University School of Stomatology Center of Digital Dentistry, China)</i>	
<i>Fusong Yuan (Peking University School of Stomatology Center of Digital Dentistry, China)</i>	
<i>Yijiao Zhao (Peking University School of Stomatology Center of Digital Dentistry, China)</i>	
<i>Peijun Lu (Peking University School of Stomatology Center of Digital Dentistry, China)</i>	
<i>Yong Wang (Peking University School of Stomatology Center of Digital Dentistry, China)</i>	
Camera-Based Portable System for Wind Turbine Blade Tip Clearance Measurement	451
<i>Lihan He (GE Global Research – Shanghai, China)</i>	
<i>Hai Qiu (GE Global Research – Shanghai, China)</i>	
<i>Xu Fu (GE Global Research – Shanghai, China)</i>	
<i>Zhilin Wu (GE Global Research – Shanghai, China)</i>	
Author Index.....	457