

Time	Abu Dhabi Hall	Al Ain Hall	Almas Hall	Session
Monday, December 7				
09:30 AM-12:30 PM			T2: Tutorial 2: Design and Implementation of Advanced Video Imaging Systems	
10:30 AM-05:00 PM		T1: Tutorial 1: Stochastic Modeling for Medical Image Analysis		
12:30 PM-01:30 PM				L: Lunch (For registered tutorial attendees with lunch option)
01:30 PM-04:30 PM			T3: Tutorial 3: Privacy-preserving signal processing	
Tuesday, December 8				
09:00 AM-10:30 AM	OS: Opening Ceremony			
10:30 AM-11:30 AM	KN1: Keynote Speech 1: The Next Frontier: Man-Machine Symbiosis			
11:35 AM-01:05 PM	IVMDSP1: Image, Video, and Multidimensional SP 1	SPCOMN1: Signal Processing for Communications & Networks 1	SLP: Speech and Language Processing	
01:05 PM-02:30 PM				Lunch
02:30 PM-03:30 PM	KN2: Recent Advances in Acoustic Signal Processing for Natural Human/Machine Interfaces			
03:30 PM-03:40 PM				CB: Coffee Break
03:40 PM-05:45 PM	IP/SWE: Information Processing and Software Engineering	RSP: Radar Signal Processing	CNW/MCA1: Computer Network and Mobile Computing & Applications 1	
07:00 PM-10:00 PM				BQ: Banquet
Wednesday, December 9				
09:00 AM-09:45 AM	IT1: Cyber Forensics: Challenges and Opportunities			
09:45 AM-10:00 AM				CB: Coffee Break
10:00 AM-10:45 AM	IT2: Invited Talk 2: Energy-Efficient Cooperative Spectrum Sensing for Cognitive Radio Networks			
10:45 AM-11:00 AM				CB: Coffee Break
11:00 AM-12:50 PM	AASP: Audio, Acoustic Signal Processing	SPCOMN2: Signal Processing for Communications & Networks 2	IVMDSP2: Image, Video, and Multidimensional SP 2	
12:50 PM-02:20 PM				L: Lunch
02:20 PM-04:10 PM	SPTM: Signal Processing Theory & Methods	DISPS: Design & Implementation of SP Systems	IBS: Image Based Systems	
04:10 PM				

PM-04:20 PM				CB: <i>Coffee Break</i>
04:20 PM-06:25 PM	BSIP: <i>Biological Signal and Image Processing</i>	SS: <i>Special Session</i>	CNW/MCA2: <i>Computer Network and Mobile Computing & Applications 2</i>	

Thursday, December 10

09:00 AM-09:10 AM				CB: <i>Coffee Break</i>
09:10 AM-11:00 AM	SPCOMN3: <i>Signal Processing for Communications & Networks 3</i>	IVMDSP3: <i>Image, Video, and Multidimensional Signal Processing 3</i>	SLP2/AASP2: <i>Speech and Language Processing and Audio, Acoustic Signal Processing 2</i>	
11:00 AM-11:10 AM				CB: <i>Coffee Break</i>
11:10 AM-12:40 PM	eH/BI&BE: <i>eHealth and Bio Informatics & Bio Engineering</i>	IP/BSIP2: <i>Information Processing and Biological Signal and Image Processing 2</i>	SPCOMN4: <i>Signal Processing for Communications & Networks 4</i>	
12:40 PM-02:10 PM	L/C: <i>Lunch and Closing</i>			

Monday, December 7

9:30 AM - 12:30 PM

T2: Tutorial 2: Design and Implementation of Advanced Video Imaging Systems

Dr. Abbes Amira (Qatar University, Qatar)

Room: Almas Hall

This tutorial will focus on the design and implementation of imaging systems on field programmable gate arrays (FPGAs). We will address different software and hardware issues related to the implementation of algorithms used in applications such as biometrics, medical imaging and video coding. Hardware compilation, partial dynamic reconfiguration and design partitioning for reconfigurable hardware will be also covered, looking at different aspects of: optimisation, code generation and configuration. The tutorial will review the latest FPGA technologies and development methods for imaging systems, including the Zynq System on Chip (SoC) platform, and will conclude with comprehensive case studies demonstrating the deployment of low power reconfigurable architectures for algorithms acceleration and performance evaluation methods for embedded imaging systems. Emphasis will be also on the latest video coding techniques. Different main blocks of H.265/MPEG-HEVC, referred to as High Efficiency Video Coding (HEVC) along with their complexities will be detailed. The potential of parallelism and complexities reduction methodologies will be explained. In addition, the video quality enhancement techniques will be explained in the context of Quality of experience.

10:30 AM - 5:00 PM

T1: Tutorial 1: Stochastic Modeling for Medical Image Analysis

Dr. Ayman El-Baz (University of Louisville, USA)

Room: Al Ain Hall

Stochastic modeling facilitates understanding of natural phenomena depicted in medical anatomical and functional (dynamic) MRI and CT images. Computer-assisted diagnostics calls for fast and accurate unsupervised learning of models from images. The tutorial details efficient stochastic modeling techniques, including (i) shape models of objects-of-interest; (ii) shape and visual appearance models based on analytic learning of 2nd- or higher-order non-parametric Markov-Gibbs random fields, and (iii) appearance models based on precise unsupervised learning of a mixture of pseudo-distributions approximating an empirical marginal probability distribution of pixel/voxel intensities. The pseudo-distribution, one per object associated with a prominent mode of the empirical distribution, is a linear combination of unimodal distributions, e.g. discrete Gaussians, with a dominant positive and several sign-alternate subordinate components. Integration of the models and learning techniques will be illustrated in application to early detection of lung and prostate cancer, kidney transplant rejection, and autism, as well as to cardiac functionality assessment.

12:30 PM - 1:30 PM

L: Lunch (For registered tutorial attendees with lunch option)

1:30 PM - 4:30 PM

T3: Tutorial 3: Privacy-preserving signal processing

Dr. Michail Maniatakos (New York University, UAE)

Room: Almas Hall

Outsourcing computation to the cloud has recently become a very attractive option for enterprises and consumers, due mostly to reduced cost and extensive scalability. At the same time, however, concerns about the privacy of the data entrusted to cloud providers keeps rising. Specific signal processing applications, such as biometric techniques or social network data aggregation, have explicit privacy requirements. Thus, in order to protect the privacy of the data entrusted to third-parties, user opt to employ privacy-preserving algorithms. In this tutorial, we will define privacy and present several applications where privacy is of paramount importance. Then, the discussion will focus on existing methodologies to enable privacy-preserving computation, along with challenges, overhead and implementation discussion. Several cryptography, security and privacy concepts will be presented in the context of signal processing. The tutorial will conclude with real world test cases of privacy-preserving signal processing.

Tuesday, December 8

9:00 AM - 10:30 AM

OS: Opening Ceremony

Room: Abu Dhabi Hall

10:30 AM - 11:30 AM

KN1: Keynote Speech 1: The Next Frontier: Man-Machine Symbiosis

Prof. Ahmed Tewfik, FIEEE, U. Texas, Austin, USA

Room: Abu Dhabi Hall

Decades of research indicate that humans are not rational decision-makers. Our decisions and assessments of situations we encounter and other individuals or groups are sometimes flawed because they are based on a limited acquisition and rational analysis of information, and strongly influenced by our past experiences. The outcomes of decisions negatively impacted by cognitive biases affect individuals, businesses and society. Their impacts can be temporary and mildly annoying, such as buying an unneeded or wrong tablet or triggering an unwarranted fight with a spouse, or long term and costly, such as marrying the wrong person, wrong product or business decision, or creating an environmental disaster. In this talk we review the evidence of cognitive biases in human decision making. We then discuss an emerging mathematical theory of man-machine symbiosis. Optimal man machine symbiosis produces better outcomes than those produced by man alone or machine alone. We highlight the challenges that must be solved for optimal man machine symbiosis, formulate solutions to these challenges and conclude with descriptions of initial successes.

11:35 AM - 1:05 PM

SLP: Speech and Language Processing

Room: Almas Hall

Phonated Speech Reconstruction Using Twin Mapping Models

Hamid Sharifzadeh and Amir HajiRassouliha (Unitec Institute of Technology, New Zealand); Ian McLoughlin (University of Kent, United Kingdom); Iman Ardekani (Unitec Institute of Technology, New Zealand); Jacqueline Allen (University of Auckland, New Zealand)

An HMM Approach for Synthesizing Amused Speech with a Controllable Intensity of Smile

Kevin El Haddad, Huseyin Cakmak, Alexis Moinet and Stephane Dupont (University of Mons, Belgium); Thierry Dutoit (FPMS, Belgium)

Towards a Level Assessment System of Amusement in Speech Signals: Amused Speech Components Classification

Kevin El Haddad, Huseyin Cakmak and Stephane Dupont (University of Mons, Belgium); Thierry Dutoit (FPMS, Belgium)

An Algorithm for Automatic Words Extraction From a Stream of Phones in Dictionary-Based Large Vocabulary Continuous Speech Recognition Systems

Giorgio Biagetti, Paolo Crippa, Laura Falaschetti, Simone Orcioni and Claudio Turchetti (Università Politecnica delle Marche, Italy)

Convolutional Maxout Neural Networks for Speech Separation

Like Hui (Tsinghua University, P.R. China); Meng Cai (Tsinghua National Laboratory for Information Science and Technology, P.R. China); Cong Guo, Liang He, Wei-Qiang Zhang and Jia Liu (Tsinghua University, P.R. China)

1:05 PM - 2:30 PM

Lunch

2:30 PM - 3:30 PM

KN2: Recent Advances in Acoustic Signal Processing for Natural Human/Machine Interfaces

Dr.-Ing. Walter Kellermann, FIEEE, Friedrich-Alexander- Universität Erlangen-Nürnberg, Germany

Room: Abu Dhabi Hall

Since the very beginning of transmission and reproduction of audio signals, undistorted signal capture and immersive reproduction were always seen as crucial features of high quality. With the arrival of teleconferencing systems, immersive multichannel reproduction became part of telecommunication systems, and the according terminals developed into multi-functional human/machine interfaces, with applications including telecommunication, gaming, simulators, interactive home theatres, humanoid robots and more. Along with increasingly powerful and cost-effective signal processing hardware, the according acoustic signal processing algorithms developed dramatically over the last decade striving for perfect solutions for the fundamental challenges of acoustic interfaces: Acoustic feedback from loudspeakers to microphones, noise and interfering sources, reverberation in enclosures, and spatial control of sound fields. In this talk, we will shortly review the fundamental problems and then highlight some recent developments for massive multichannel reproduction, signal extraction, source localization, dereverberation, as well as distant-talking speech recognition, and then point to applications in immersive reproduction, hearing aids, smartphones, and robot audition. Thereby, we will also outline promising avenues for future research.

3:30 PM - 3:40 PM

CB: Coffee Break

3:40 PM - 5:30 PM

IP/SWE: Information Processing and Software Engineering

Room: Abu Dhabi Hall

Chair: Manar Abu Talib (University of Sharjah, UAE)

Conjunctive Combined Causal Rules Mining

Manal Alharbi and Sanguthevar Rajasekaran (University of Connecticut, USA)

Delay and Power Consumption Estimation in Embedded Systems Using Hierarchical Performance Modeling

Ahmed Alsheikhy (University of Connecticut & School of Engineering, USA); Song Han and Reda Ammar (University of Connecticut, USA)

Disjunctive Combined Causal Rules Mining

Manal Alharbi and Sanguthevar Rajasekaran (University of Connecticut, USA)

Effect of Training Set Size on SVM and Naïve Bayes for Twitter Sentiment Analysis

Omar Ashraf Abdelwahab (University of Louisville, USA); Mohamed Bahgat (IBM Ireland, Ireland); Christopher Lowrance and Adel S Elmaghraby (University of Louisville, USA)

Towards Sustainable Development Through Open Source Software in GCC

Manar Abu Talib (University of Sharjah, UAE)

Using Physiological Signal Analysis to Design Affective VR Games

Yi Li, Adel S Elmaghraby and Ayman Sabry El-Baz (University of Louisville, USA); Estate Sokhadze (University of South Carolina School of Medicine Greenville, USA)

3:40 PM - 5:45 PM

RSP: Radar Signal Processing

Room: Al Ain Hall

Chairs: Esam Abdel-Raheem (University of Windsor, Canada), Saleh A Alshebeili (King Saud University, Saudi Arabia)

Compressive Sensing Based Passive Bistatic Radar Processing Using Time-Domain Complex Data

Muhammad Naveed Tabassum (King Saud University, Saudi Arabia); Muhammad Hadi (King Saud University & PSATRI, Saudi Arabia); Saleh A Alshebeili (King Saud University, Saudi Arabia)

Block Sparsity Based Compressive Sensing Processing for Multi-Channel GSM Passive Bistatic Radar

Muhammad Hadi (King Saud University & PSATRI, Saudi Arabia); Naif Almakhdhub, Mohammed F AlBagami and Saleh A Alshebeili (King Saud University, Saudi Arabia)

Adaptive Tracking of Maneuvering Targets Using Two-Stage Kalman Filter

Ahmed Abdul Salam (University of Bradford, United Kingdom)

UWB Virtual Beamforming Using Hermite Fractional Delay Filter Sets Combining Autoregressive Modeling

Qiang Du, Yaoliang Song, Zeeshan Ahmad and Chenhe Ji (Nanjing University of Science and Technology, P.R. China)

Probabilistic Controlled Airspace Infringement Tool

Yusra Almathami and Reda Ammar (University of Connecticut, USA)

Target Detection in Synthetic Aperture Radar Imageries Using Scale Invariant Feature Transform

Mangalraj Poobalabramanian (Indian Institute of Information Technology & Institute, India); Anupam Agrawal and Mukul Bisherwal (Indian Institute of Information Technology Allahabad, India)

On Isotropic Circular Arrays of Anisotropic Sensors

Houcem Gazzah (University of Sharjah, UAE); Jean Pierre Delmas (UMR CNRS 5157 - CITI Department, France)

3:40 PM - 5:30 PM

CNW/MCA1: Computer Network and Mobile Computing & Applications 1

Room: Almas Hall

Chair: Amr Elmougy (German University in Cairo, Egypt)

Wearable Sensor-based System to Promote Physical Activity Among Elderly People

Alexander Sarria (University of Deusto, Spain); Amaia Mendez Zorrilla and Begoña García Zapirain (University of Deusto, Spain); John Gialelis (University of Patras, Greece)

On the Integration of Software-Defined and Information-Centric Networking Paradigms

Amr Elmougy (German University in Cairo, Egypt)

A Heuristic for Routing, Modulation and Spectrum Allocation in Spectrum Sliced Elastic Optical Path Network

Christos Douligeris (University of Piraeus, Greece); Gang Feng (University of Wisconsin, Platteville, USA); Mirosław Klinkowski (National Institute of Telecommunications, Poland)

Taking Swarms to the Field: AUV Reorientation Algorithm for PSO Realization

Sherif Tolba and Reda Ammar (University of Connecticut, USA)

Orientation and Displacement Detection for Smartphone Device Based Inertial Measurement Units

Tarek Elarabi (California State University-Fresno & CSU-Fresno, USA); Abhijit Suprem (California State University, Fresno, USA)

UACS: Towards Unified Access Control Services

Georgios Katsikogiannis, Sarandis Mitropoulos and Christos Douligeris (University of Piraeus, Greece)

Two Architectures for Real-Time Sensor Data Streaming for Cloud Applications

Harsh Singh and Syed Rizvi (UOIT, Canada); Qusay Mahmoud (University of Ontario Institute of Technology, Canada)

7:00 PM - 10:00 PM

BQ: Banquet

Wednesday, December 9

9:00 AM - 9:45 AM

IT1: Cyber Forensics: Challenges and Opportunities

Prof. Saif alZaher, University of Northern British Columbia, Canada

Room: Abu Dhabi Hall

Digital multimedia and networks prevalence enable fast communications, greater productivity, and countless opportuneness. However, the unbounded cyber space brings significant challenges and threats to information security in many ways and forms including hacking, data manipulation, tampering, forgery, social engineering, spams, and phishing just to name a few. A large emphasis of information security research has always been on cryptography for so many years. The idea behind cryptography is to change (that is, to encrypt) the source material (i.e., content) such that it becomes impossible to correctly interpret, outside of the intended senders and receivers assembly. During the last three decades, a much less common method of security, called steganography, has been a growing area of focus amongst the digital image research community. Steganography is the art of hiding a secret message in an information container (object). From digital steganography a technique for content authentication has evolved called digital watermarking. Digital watermarking is the process of embedding data called a digital watermark, tag or label, into a multimedia object in such a way that the watermark can be detected and/or extracted to make an assertion about the object. A watermark can be perceived as an attribute of the carrier (cover). In addition, it may contain information such as copyright, license, tracking and authorship etc. All these methods can be used for ownership authentication. With the significant growth of unauthorized access into the Internet, the study of steganography and watermarking schemes for grey and color visual information, images and video, becomes indispensable. This "Invited Talk", presents new steganographic and watermarking methods that target grey and color images. Then, I present our method that uses quick response codes, QR-Codes, as a guide to represent the payload via some mathematical manipulations of the singular values of a singular value decomposed image. This method is unique in that it does not contain the secret message but rather its representation. QR codes are used for the first time in such a way to generate a representation of blind image steganographic message. Finally, I will present simulation results to show that our stego images maintained high PSNR. Results from various image-processing attacks such as cropping, low-pass filtering, scaling, noise addition, JPEG and JPEG2000 compression with high compression rate will also be shown to demonstrate the method performance and robustness.

9:45 AM - 10:00 AM

CB: Coffee Break

10:00 AM - 10:45 AM

IT2: Invited Talk 2: Energy-Efficient Cooperative Spectrum Sensing for Cognitive Radio Networks

Prof. Esam Abdel Raheem, University of Windsor, Canada

Room: Abu Dhabi Hall

10:45 AM - 11:00 AM

CB: Coffee Break

11:00 AM - 12:50 PM

AASP: Audio, Acoustic Signal Processing

Room: Abu Dhabi Hall

Informed Source Location and DOA Estimation Using Acoustic Room Impulse Response Parameters

Shahab Pasha (University of Wollongong, Australia); Christian H Ritz (University of Wollongong, Australia)

Statistical Modeling for Suppression of Late Reverberation with Inverse Filtering for Early Reflections

Sara Islam and Tariqullah Jan (University of Engineering and Technology Peshawar, Pakistan)

A VSS Sparseness Controlled Algorithm for Feedback Suppression in Hearing Aids

Vasundhara Vasundhara (IIT Bhubaneswar, India); Ganapati Panda and Niladri Puan (Indian Institute of Technology Bhubaneswar, India)

A Low Complexity Delayless Frequency Domain Feedback Canceller for Hearing Aids

Vasundhara Vasundhara (IIT Bhubaneswar, India); Ganapati Panda and Niladri Puan (Indian Institute of Technology Bhubaneswar, India)

Separation of Vocals From Monaural Music Recordings Using Diagonal Median Filters and Practical Time-Frequency Parameters

Hatem Deif (Brunel University London, UAE); Derry FitzGerald (Dublin Institute of Technology, Ireland); Wenwu Wang (University of Surrey, United Kingdom); Lu Gan (Brunel University, United Kingdom)

Acoustic Imaging Using a 64-Node Microphone Array and Beamformer System

Feng Su and Chris Joslin (Carleton University, Canada)

SPCOMN2: Signal Processing for Communications & Networks 2

Room: Al Ain Hall

Noise Calibrated GLRT-Based Spectrum Sensing Algorithm for Cognitive Radio Applications

Shahriar Shirvani Moghaddam (Shahid Rajaee Teacher Training University (SRTTU), Iran); Ameneh Habibzadeh (Shahid Rajaee Teacher Training University, Tehran, Iran)

Cooperative Wideband Spectrum Sensing Over Rician and Nakagami Fading Channels

Mohamed Torad (Higher Technological Institute, Egypt); Ahmed Kassas (High Institute of Engineering Shrouk Academy, Egypt); Hadya El-Hennawy (Ain Shams University, Egypt)

Novel Energy Efficient Strategies for Cooperative Spectrum Sensing in Cognitive Radio Networks

Faroq Awin, Esam Abdel-Raheem and Majid Ahmadi (University of Windsor, Canada)

Pitch Tracking in Reverberant Environments

Mohammed Kamal Khwaja (VIT University, India); Sunil Sivasdas (Institute for Infocomm Research, Singapore); Pachaiappan Arulmozhivarman (VIT University, India)

Adaptive OFDM System with Limited Feedback Using Truncated Channel Impulse Response

Arafat Al-Dweik and Noha Abou Aly (Khalifa University, UAE); Mohammed Al-Mualla (Khalifa University of Science, Technology and Research, UAE)

Cooperative Compressed Sensing for Joint Terminal Localization and Spectrum Sensing

Shahriar Shirvani Moghaddam (Shahid Rajaee Teacher Training University (SRTTU), Iran); Rashin Jalili Danaloo (Shahid Rajaee Teacher Training University, Iran)

IVMDSP2: Image, Video, and Multidimensional SP 2

Room: Almas Hall

Image Encryption Using Camellia and Chaotic Maps

Marwa Elpeltagy (EJust, Egypt); Mohammed Sayed (Egypt-Japan University of Science and Technology, Egypt); Moataz Abdelwahab (EJUST, Egypt)

A Natural Preserving Transform Based Forgery Detection Scheme

Omar Fahmy (Future University, Egypt); Mamdouh Fahmy (Assiut University, Egypt)

Efficient Terrain Data Coding for Rendering on Mobile Devices

Yankui Sun, Xiaoxin An and Zi Ye (Tsinghua University, P.R. China); Zhongyang Sun (Sun Yat-sen University, P.R. China)

Classification of Black Mold Contaminated Figs by Hyperspectral Imaging

Gizem Ortaç (International Antalya University, Turkey); Ahmet Bilgi, Yusuf Erkan Gorgulu, Ali Güneş and Habil Kalkan (Suleyman Demirel University, Turkey); Kadim Taşdemir (International Antalya University, Turkey)

Convolutional Neural Networks for SAR Image Segmentation

David Malmgren-Hansen (Technical University of Denmark & Terma A/S, Denmark); Morten Nobel-Jørgensen (Technical University of Denmark, Denmark)

Huffman Coding Analysis of XOR Filtered Images

Ahmed Desoky (University of Louisville & Speed School of Engineering, USA); Takiyah Cooper (University of Louisville, USA)

12:50 PM - 2:20 PM

L: Lunch

2:20 PM - 4:10 PM

SPTM: Signal Processing Theory & Methods

Room: Abu Dhabi Hall

Chair: Belkacem Mouhouche (Samsung Electronics Research and Development UK, United Kingdom)

Recovery of Multiband Signals Using Group Binary Compressive Sensing

Xinyue Gu, Lingyun Zhou, Peiyang Yu and Chang Chen (University of Science and Technology of China, P.R. China)

Design of Non Uniform Constellations for Layered Division Multiplexing

Belkacem Mouhouche (Samsung Electronics Research and Development UK, United Kingdom); Carlos Barjau (Samsung Electronics, United Kingdom); Hakju Lee (Samsung Electronics, Korea)

An Efficient Multiple Particle Filter Based on the Variational Bayesian Approach

Boujemaa Ait-El-Fquih and Ibrahim Hoteit (King Abdullah University of Sciences and Technology, Saudi Arabia)

Using $\ell_{1,2}$ Mixed-Norm MUSIC Based on Compressive Sampling for Direction of Arrival Estimation

Mahnaz Amiri Parian and Sedigheh Ghofrani (Islamic Azad University, South Tehran Branch, Iran)

High Performance GPU Bayesian Image Synthesis

Miguel Carcamo and Fernando Rannou (Universidad de Santiago de Chile, Chile); Pablo Roman, Victor Moral and Simon Casassus (Universidad de Chile, Chile)

A Novel Adaptive Beamforming Technique for Large-Scale Arrays

Lei Yu and Wei Yinsheng (Harbin Institute of Technology, P.R. China); Wei Liu (University of Sheffield, United Kingdom)

DISPS: Design & Implementation of SP Systems

Room: Al Ain Hall

Chair: Aiman H. El-Maleh (KFUPM, Saudi Arabia)

FastICA Architecture Utilizing FPGA and Iterative Symmetric Orthogonalization for Multivariate Signals

Al Laith Taha (Graduate - University Of Windsor, Canada); Luay Yassin Taha and Esam Abdel-Raheem (University of Windsor, Canada)

A New Systematic Synthesis Procedure of Configurable Higher Order Analog Filter

Mousumi Bhanja (Dept. of ETC, IEST, Shibpur, India); Souvik Kundu (Indian Institute of Engineering Science and Technology, India); Baidyanath Ray (IEST, Shibpur, India)

A Framework for Dynamically-Loaded Hardware Library (HLL) in FPGA Acceleration

Gian Carlo Cardarilli and Leonardo Di Carlo (University of Rome "Tor Vergata", Italy); Alberto Nannarelli (DTU Technical University of Denmark, Denmark); Federico Pandolfi (University of Rome "Tor Vergata", Italy); Marco Re (Universita' di Roma Tor Vergata, Italy)

Design and Simulation of State-of-Art ZigBee Transmitter for IoT Wireless Devices

Tarek Elarabi (California State University-Fresno & CSU-Fresno, USA); Vishal Deep and Chashamdeep Rai (California State University - Fresno, USA)

A Sequential Circuit Fault Tolerance Technique with Enhanced Area and Power

Aiman El-Maleh (King Fahd University of Petroleum & Minerals, Saudi Arabia)

State Assignment for Power Optimization of Sequential Circuits Based on a Probabilistic Pairwise Swap Search Algorithm

Aiman El-Maleh (King Fahd University of Petroleum & Minerals, Saudi Arabia)

IBS: Image Based Systems

Room: Almas Hall

Chair: Hassan Hajjdiab (Abu Dhabi University, UAE)

Colored Texture Classification with Support Vector Machine and Wavelet Multiresolution Analysis

Osama Hosam (The City for Scientific Research and Technology Applications, Egypt)

Minimally Invasive Surgery Skills Assessment Using Multiple Synchronized Sensors

Sami Taha Abu Snaineh (Palestine Polytechnic University & American Psychological Association, Palestine); Brent Seales (University of Kentucky, USA)

Invasion Detection on Transmission Lines Using Saliency Computation

Huang Lilei (Shanghai Jiaotong University, P.R. China); Yi Xu and Rong Xie (Shanghai Jiao Tong University, P.R. China)

High Level Visual and Paralinguistic Features Extraction and Their Correlation with User Engagement

Fasih Haider and Fahim Salim (Trinity College Dublin, Ireland); Saturnino Luz (University of Edinburgh, United Kingdom); Owen Conlan (Trinity College Dublin, Ireland); Nick Campbell (Trinity College Dublin, Canada)

UAV-based Remote Sensing for Vegetation Cover Estimation Using NDVI Imagery and Level Sets Method

Mohammed Ghazal, Yasmina Al Khalil and Hassan Hajjdiab (Abu Dhabi University, UAE)

Novel Vegetation Estimation Index Computation in Arid Environments

Hassan Hajjdiab, Samr Samir Ali and Mohammed Ghazal (Abu Dhabi University, UAE)

4:10 PM - 4:20 PM

CB: Coffee Break

4:20 PM - 6:25 PM

BSIP: Biological Signal and Image Processing

Room: Abu Dhabi Hall

Chair: Kasi Rajgopal (Indian Institute of Science, India)

Sondric: Image-Processing Algorithm for the Automatic Calculation of the Length and Type of a Nasogastric Tube for Medication or Feeding

Teresa Rondono Garrastachu, Amaia Mendez Zorrilla and Begoña García Zapirain (University of Deusto, Spain)

Automatic Heart Rate Detection From FBG Sensors Using Sensor Fusion and Enhanced Empirical Mode Decomposition

Ibrahim Sadek Ibrahim Hussein Tahoun (Institute for Infocomm Research & Image and Pervasive Access Lab (IPAL), Singapore); Jit Biswas and Siang Fook Foo (Institute for Infocomm Research, Singapore); Mounir Mokhtari (Institut Mines-Télécom & Image and Pervasive Access Lab (IPAL), Singapore)

3D Reconstruction From Multiple Imaging Planes: A Pilot Study of Bone Tumor MR Images

Weerayuth Chanapai (Faculty of Engineering, Mahidol University, Thailand); Praman Fuangfa (Ramathibodi Hospital, Mahidol University, Thailand); Suphaneewan Jaovisidha (Ramathibodi Hospital, Mahidol University, Thailand); Adisak Narttharung (Ramathibodi Hospital, Mahidol University, Thailand); Panrasee Rittipravat (Mahidol University, Thailand)

MEG Data Classification for Healthy and Epileptic Subjects Using Linear Discriminant Analysis

Muhammad Imran Khalid, Saeed Aldosari and Saleh A Alshebeili (King Saud University, Saudi Arabia); Turky Al Otaiby (King ABDULAZIZ CITY for Science and Technology, Saudi Arabia); Majed Al-Hameed and Lamyaa Jad (King Fahad Medical City, Saudi Arabia)

Adaptive Variable Density Sampling Based on Knapsack Problem for Fast MRI

Chennakeshava Krishna and Kasi Rajgopal (Indian Institute of Science, India)

Autonomous Glaucoma Detection From Fundus Image Using Cup to Disc Ratio and Hybrid Features

Anum Abdul Salam (College of Electrical & Mechanical Engineering NUST & NUST, Pakistan); Muhammad Usman Akram (CEME NUST, Pakistan); Syed Muhammad Anwar and Muhammad Majid (University of Engineering and Technology Taxila, Pakistan)

Methods for Increased Sensitivity and Scope in Automatic Segmentation and Detection of Lung Nodules in CT Images

Anindya Gupta (Tallinn University of Technology, Estonia); Olev Martens (Tallinn University of Technology & Competence Center ELIKO, Estonia); Yannick Le Moullec and Tonis Saar (Tallinn University of Technology, Estonia)

SS: Special Session

Room: Al Ain Hall

Chair: Beena Ahmed (Texas A&M University at Qatar, Qatar)

Memory Disorders Within the Frame of Algorithmic Thinking: Brain Imaging Evidence

Antonia Plerou and Catherine Bobori (Ionian University, Greece)

Molecular Basis of Huntington's Disease and Brain Imaging Evidence

Antonia Plerou, Catherine Bobori and Panagiotis Vlamos (Ionian University, Greece)

Detection of Oxidative Stress in Neurodegenerative Diseases

Antigoni Avramouli, Georgia Theocharopoulou and Panagiotis Vlamos (Ionian University, Greece)

The Mechanism of Splitting Mitochondria in Terms of Membrane Automata

Georgia Theocharopoulou, Konstantinos Giannakis and Theodore Andronikos (Ionian University, Greece)

CNW/MCA2: Computer Network and Mobile Computing & Applications 2

Room: Almas Hall

Chair: Konstantinos Moustakas (University of Patras, Greece)

Sparse Coding of Dense 3d Meshes in Mobile Cloud Applications

Aris S. Lalos, Iason Nikolas and Konstantinos Moustakas (University of Patras, Greece)

Performance Evaluation of Cloud Systems: A Behavioural Approach

Dimitrios Kallergis, John Tsantilis and Christos Douligeris (University of Piraeus, Greece)

Effect of Channel Impairments on Radiometric Fingerprinting

Saeed Ur Rehman and Iman Ardekani (Unitec Institute of Technology, New Zealand)

A Clustered Caching Placement in Heterogeneous Small Cell Networks with User Mobility

Iman Keshavarzian, Zolfa Zeinalpour and Ali A. Tadaion (Yazd University, Iran)

Performance Analysis of Small Cell Networks with Multi-Antenna Base Stations Utilizing Interference Mitigation Techniques

FahimeSadat Mirhosseini (Yazd University & Yazd University, Iran); Ali A. Tadaion (Yazd University, Iran)

Secure and Efficient Sharing Aggregation Scheme for Data Protection in WSNs

Feriel Bouakkaz and Mawloud Omar (Laboratoire LIMED, Faculté des Sciences Exactes, Université de Bejaia, Algeria); Ahcene Bounceur (Lab-STIC, UBO, France); Abdelkamel Tari (Laboratoire LIMED, Faculté des Sciences Exactes, Université de Bejaia, Algeria)

A Novel Handover Decision-Making Algorithm for HetNets

Shahriar Shirvani Moghaddam (Shahid Rajaee Teacher Training University (SRTTU), Iran); Ameneh Habibzadeh (Shahid Rajaee Teacher Training University, Tehran, Iran); S. Mohammad Razavizadeh (Iran University of Science & Technology (IUST), Iran); Mahyar Shirvanimoghaddam (University of Newcastle, Australia)

Thursday, December 10

9:00 AM - 9:10 AM

CB: Coffee Break

9:10 AM - 11:00 AM

SPCOMN3: Signal Processing for Communications & Networks 3

Room: Abu Dhabi Hall

Chair: Karim Said (Virginia Tech, USA)

MMSE Sparse Beamforming for Power-Constrained Large Two-Way Relay AF Networks

Homa Eghbali (University of British Columbia, Canada); Ahmed El Shafie (University of Texas at Dallas, USA); Junho Lee (KAIST, Korea); Sami Muhaidat (Khalifa University, UAE); Naofal Al-Dhahir (University of Texas at Dallas, USA)

Per-symbol ICI Mitigation for Frequency Non-selective Time-varying Channels

Karim Said (Virginia Tech, USA); A. A. (Louis) Beex (DSPRL - Wireless@VT & Virginia Tech, USA)

An Extension to the Filtered-x LMS Algorithm with Logarithmic Transformation

Marek Pawelczyk and Witold Wierchowksi (Silesian University of Technology, Poland); Lifu Wu (Nanjing University of Information Science and Technology, P.R. China); Xiaojun Qiu (Nanjing University, P.R. China)

Per-symbol ICI Mitigation for Low-dimensional Doubly Dispersive Channels Using Pilot Restoration

Karim Said (Virginia Tech, USA); A. A. (Louis) Beex (DSPRL - Wireless@VT & Virginia Tech, USA)

Implementation of Adaboost for the Detection of the Toxic Response Behaviour of Zebrafish (Danio Rerio)

Qiujun Du, [Jianyu Xu](#), Yinghui Ge and Chunlin Wang (Ningbo University, P.R. China)

A Finite-Precision Adaptation of Bit Recycling to Arithmetic Coding
[Ahmad Al-Rababa'a](#) and Danny Dubé (Université Laval, Canada)

IVMDSP3: Image, Video, and Multidimensional Signal Processing 3

Room: Al Ain Hall

Chair: Orrawan Kumdee (Mahidol University, Thailand)

Modified Block Matching Algorithm Improving Rate-Distortion Performance for Stereoscopic Image Coding

[Aysa Kadaikar](#) (Université Paris 13, Sorbonne Paris Cité, France); Gabriel Dauphin (University of Paris, France); Anissa Mokraoui (Université Paris 13, Sorbonne Paris Cité & Institut Galilée, L2TI, France)

Repetitive Motion Detection for Human Behavior Understanding From Video Images

Orrawan Kumdee and Panrasee Rittipravat (Mahidol University, Thailand)

Analysis of Linear and Non-Linear Frequency Modulated Signals Using STFT and Hough Transform

[Thokala Ravi Kishore](#) (DRDO, India); [Sai Sidharth Doppalapudi](#) (BITS Pilani, Hyderabad Campus, India); K. Deerga Rao (Dept. of ECE, Vasavi College of Engg, Osmania University, India)

Joint Color and Texture Descriptor Using Ring Decomposition for Robust Video Copy Detection in Large Databases

[Yassine Himeur](#) (Centre de Développement des Technologies Avancées & Jijel University, Algeria); Karima Ait saadi (Centre de Développement des Technologies Avancées, Algeria)

Implementation of Edge-Enhancement Nonlinear Anisotropic Diffusion Filtering Using Different CUDA Memory Models

Mohamed Attia and Saleh Elshehaby (Alexandria University, USA); [Adel S Elmaghraby](#) (University of Louisville, USA)

Extended Disparity Map Estimation Algorithm Using Joint Entropy-Distortion Metric for Non-Rectified Stereoscopic Images

[Aysa Kadaikar](#) (Université Paris 13, Sorbonne Paris Cité, France); Gabriel Dauphin (University of Paris, France); Anissa Mokraoui (Université Paris 13, Sorbonne Paris Cité & Institut Galilée, L2TI, France)

SLP2/AASP2: Speech and Language Processing and Audio, Acoustic Signal Processing 2

Room: Almas Hall

Chair: Iman Ardekani (Unitec Institute of Technology, New Zealand)

Psychoacoustic Model Compensation for Robust Continuous Speech Recognition in Additive Noise

[Biswajit Das](#) (Innovation Labs, Tata Consultancy Services, India); Ashish Panda (Tata Consultancy Services, India)

American Midland Dialect Identification Using Prosodic Features and SVM

[Asmaa Etman](#) (Virginia Tech, Egypt); A. A. (Louis) Beex (DSPRL - Wireless@VT & Virginia Tech, USA)

Improved Pitch Detection Using Fourier Approximation Method

[Balachandra Kumaraswamy](#) (International Institute of Information Technology Bangalore & BMS College of Engineering, India); Poonacha G (IIITB, India)

Adaptive Frequency Domain Identification for ANC Systems Using Non-stationary Signals

[Allahyar Montazeri](#) (Lancaster University, United Kingdom); Saurav Karna (Ilmenau University of Technology, Germany)

THUEE Language Modeling Method for the OpenKWS 2015 Evaluation

[Zhuo Zhang](#), Wei-Qiang Zhang and Kai-Xiang Shen (Tsinghua University, P.R. China); Xu-Kui Yang (Zhengzhou Information Science and Technology Institute, P.R. China); Yao Tian (Tsinghua University, P.R. China); Meng Cai (Tsinghua National Laboratory for Information Science and Technology, P.R. China); Jia Liu (Tsinghua University, P.R. China)

Shared Speech Attribute Augmentation for English-Tibetan Cross-language Phone Recognition

Yue Zhao and Nan Zhou (Minzu University of China, P.R. China); Libing Zhang (Sino-HK Eeneration Electrical Engineering (Beijing) Co., Ltd, P.R. China); Licheng Wu and Rui Zheng (Minzu University of China, P.R. China); Xiaoyang Wang (RPI, USA); Qiang Ji (Rensselaer Polytechnic Institute, USA)

11:00 AM - 11:10 AM

CB: Coffee Break

11:10 AM - 12:40 PM

eH/BI&BE: eHealth and Bio Informatics & Bio Engineering

Room: Abu Dhabi Hall

Chair: Beena Ahmed (Texas A&M University at Qatar, Qatar)

Predicting E. Coli Promoters Using Formal Grammars

[Aljoharah Alqwaiz](#), Sanguthevar Rajasekaran and Reda Ammar (University of Connecticut, USA)

A Novel Insomnia Identification Method Based on Hjorth Parameters

[Sana Tmar-Ben Hamida](#) and Beena Ahmed (Texas A&M University at Qatar, Qatar); Thomas Penzel (Charité - Universitätsmedizin Berlin, Germany)

The Truth Machine of Involuntary Movement: FPGA Based Cortico-Muscular Analysis for Fall Prevention

Valerio Francesco Annese and Daniela De Venuto (Politecnico di Bari, Italy)

An Efficient Chain Code Based Face Identification System for Biometrics

[Souvik Kundu](#) (Indian Institute of Engineering Science and Technology, India); Baidyanath Ray (IEST, Shibpur, India)

A Cloud-Based System for Real-Time, Remote Physiological Monitoring of Infants

SayedParham Mohajerani, [Syed Ali Hashim Moosavi](#) and Rami Al-Rihawi (Texas A&M University at Qatar, Qatar); Akhlaque Bhat and Reema Youssef Kamal (Hamad Medical Corporation, Qatar); Beena Ahmed (Texas A&M University at Qatar, Qatar)

Integration Framework of Chronic Disease Management System and a Recommender System in the United Arab Emirates

[Modafar Ali](#) (Abu Dhabi University, UAE); Wail Omar (BNR Education, Canada); Asmaa Hussein (University of Queensland, Australia)

IP/BSIP2: Information Processing and Biological Signal and Image Processing 2

Room: Al Ain Hall

Chair: Walaa Sheta (Informatic Research Institute, MuCSAT, Egypt)

Accelerating Higher-Order Masking of AES Using Composite Field and SIMD

Abdulaziz Miyajan (University of Connecticut & Uconn, USA); Zhijie Shi and Chun-Hsi Huang (University of Connecticut, USA); Turki Al-Somani (Umm Al-Qura University, Saudi Arabia)

Psychological Stress Measurement Using Low Cost Single Channel EEG Headset

Sanay Muhammad Saeed (University of Engineering and Technology, Taxila, Pakistan, Pakistan); Syed Muhammad Anwar and Muhammad Majid (University of Engineering and Technology Taxila, Pakistan)

Evaluation of CUDA Memory Fence Performance; Berlekamp-Massey Case Study

Hannan Hassan and Ghafa Fathy (City for Scientific Research, Egypt); Walaa Sheta (Informatic Research Institute, MuCSAT, Egypt)

Investigation Into Google Play Security Mechanisms Via Experimental Botnet

Milan Oulehla (Tomas Bata University in Zlin, Faculty of Applied Informatics, Czech Republic)

SPCOMN4: Signal Processing for Communications & Networks 4

Room: Almas Hall

Chair: Mohamed A Abou-Khousa (The Petroleum Institute, UAE)

Optimized Dual Uplink and Downlink Resource Allocation for Multiple Class of Service in OFDM Network

Mohamed Shehata (Arab Academy for Science, Technology and Maritime, Egypt); Safa Gasser (Arab Academy for Science, Technology and Maritime Transport, Egypt)

Adaptive LMS Power Series Analytical Solution for Differential Algebraic Equations

Tarek I Haweel (Assiut University & Faculty of Engineering, Egypt); Mohammad Haweel (Egyptian Russian University (ERU), Egypt); Abdulaziz Alsayari (Shaqra University, Saudi Arabia)

Determination of Layered Structure Parameters Based on Spectrum Estimation Techniques

Mohamed A Abou-Khousa (The Petroleum Institute, UAE)

12:40 PM - 2:10 PM

L/C: Lunch and Closing

Room: Abu Dhabi Hall

Tuesday, December 8

11:35 AM - 1:05 PM

IVMDSP1: Image, Video, and Multidimensional SP 1

Room: Abu Dhabi Hall

Chair: Gamal Fahmy (Assiut University, Egypt)

Online Improvement of Time-of-Flight Camera Accuracy by Automatic Integration Time Adaption

Thomas Hoegg (University of Siegen, Germany); Christian Baiz (Christ-Elektronik GmbH, Germany); Andreas Kolb (Siegen University, Germany)

Efficient Watermark Registration Technique for Monochrome Images

Ayman Tawfik (Ajman University of Science & Technology, UAE)

Single Image Superresolution Using E-SPLINE Functions

Gamal El-Din Fahmy (Assiut University, Egypt)

Iterative Image Subset Scanning for Image Reconstruction From Sensor Signals

Giovanni Cherubini and Paul Hurley (IBM Zurich Research Laboratory, Switzerland); Matthieu Simeoni (IBM Zurich Research Lab, Switzerland); Sanaz Kazemi (IBM Netherlands, The Netherlands)

Automatic License Plate Recognition: A Comparative Study

Imran Ahmad (University of Windsor, Canada); Boubakeur Boufama (UNiversity of Windsor, Canada); Pejman Habashi, William Anderson and Tarik Elamsy (University of Windsor, Canada)

SPCOMN1: Signal Processing for Communications & Networks 1

Room: Al Ain Hall

Chair: Christopher P Thron (Texas A&M University-Central Texas, USA)

On the Use of Compressed Sampling Algorithms for Impairments Compensation in Dynamic Nonlinear Transmitters

Qualid Hammi (Schulich School of Engineering, University of Calgary, Canada); Abubakr Abdelhafiz (The University of Calgary, Canada); Tareq Y. Al-Naffouri (King Abdullah University of Science and Technology, USA); Fadhel Ghannouchi (University of Calgary, Canada)

Algebraic Method for Optimal Beamforming in Two-Way Relay Systems with Analog Network Coding

Christopher P Thron (Texas A&M University-Central Texas, USA); Ahsan Aziz (National Instruments, USA)

Performance Analysis of Pre-Equalized Multilevel Partial Response Schemes

Mamoun Guenach (Bell Laboratories, Alcatel-Lucent, Antwerp, Belgium); Lennert Jacobs (Ghent University, Belgium); Bartomiej Kozicki (Alcatel-Lucent, Belgium); Marc Moeneclaey (Ghent University, Belgium)

Peak-to-Average Power Ratio Reduction in Interleaved OFDMA Systems

Shamuel Ashuhail (KAUST, Saudi Arabia); Anum Ali (University of Texas at Austin, USA); Tareq Y. Al-Naffouri (King Abdullah University of Science and Technology, USA)

Data-aided Iterative Reweighted LMMSE Channel Estimation for MIMO OFDM

Mohammed Kashoob and Yury Zakharov (University of York, United Kingdom)