

Technical Program

Monday, June 13

Monday, June 13, 08:45 - 09:00

Conference Inauguration [JN Tata Auditorium]

Monday, June 13, 09:00 - 10:00

Plenary Talk by Prof. Rama Chellappa [JN Tata Auditorium]

Chair: Soma Biswas (Indian Institute of Science, Bangalore, India)

Monday, June 13, 10:10 - 11:20

Mo-AM1-1: Audio and Speech Processing 1

Room: JN Tata Auditorium

Chair: Nanda Kishore Chavali (Uurmi Systems Pvt. Ltd. & IIT Hyderabad, India)

10:10 *Dealing with Unwanted Information in Speech*

Hynek Hermansky (Johns Hopkins University, USA)

10:40 *A Fast Query-by-Example Spoken Term Detection for Zero Resource Languages*

Karthik Pandia Durai (Indian Institute of Technology Madras, India); Malarvizhi Sundaresan Saranya (Indian Institute of Technology, Madras, India); Hema A Murthy (Indian Institute of Technology Madras, India)

11:00 *Changes in Shout Features in Automatically Detected Vowel Regions*

Vinay Kumar Mittal (Indian Institute of Technology Chittoor, Sri City, India); Anil Kumar Vuppala (International Institute of Information Technology Hyderabad, India)

Mo-AM1-2: Forensics and Privacy

Room: Hall A

Chair: Rajiv Soundararajan (Indian Institute of Science, India)

10:10 *Hypothesis Testing in the High Privacy Limit*

Jiachun Liao and Lalitha Sankar (Arizona State University, USA); Vincent Y. F. Tan (National University of Singapore, Singapore); Flavio P. Calmon (IBM, USA)

10:40 *Improved Spread Spectrum Compressive Image Watermark Detection with Distortion Minimization*

Anirban Bose and Santi Prasad Maity (Indian Institute of Engineering Science and Technology, Shibpur, India)

11:00 *Enhancement of Latent Fingerprints on Banknotes Using Monogenic Wavelets*

Parmeshwar Birajadar, Varun Patidar, Pushkaraj Shirvalkar and Shubham Gupta (Indian Institute of Technology Bombay, India); Vikram M. Gadre (IIT Bombay, India)

Monday, June 13, 10:20 - 11:20

Mo-AM1-3: RF Systems

Room: Hall B

Chair: KJ Vinoy (Indian Institute of Science, India)

10:20 Wide-Band Real-Time Frequency Measurement Using Compressive Receiver

Keerthan P, Ritesh Kumar and KJ Vinoy (Indian Institute of Science, India)

10:40 A Miniaturized Pre Select Filter Based on Quarter-cut Dielectric Resonator

Nishant Shukla (IIT Kanpur, India)

11:00 Exploring Fractional Order Elements for Single and Dual Band Impedance Matching for RF Applications

Shreya Singh (IIIT Delhi, India); Mohammad Hashmi (IIITD, India)

Mo-AM1-4: Image and Video Processing 1

Room: Hall C

Chair: Chandra Sekhar Seelamantula (Indian Institute of Science, India)

10:20 Temporal Video Frame Interpolation Using New Cubic Motion Compensation Technique

Ragina Ghutke (Visvesvaraya National Institute of Technology, Nagpur, India)

10:40 Fully Automated Radiogrammetric Measurement of Third Metacarpal Bone From Hand Radiograph

Anu Shaju Areeckal (National Institute of Technology Karnataka, Surathkal, India); Sumam David S. (National Institute of Technology Karnataka, India); Michel Kocher (La Haute Ecole d'Ingénierie et de Gestion du Canton de Vaud (HEIG-VD), Switzerland); Nikil Jayasheelan and Jagannath Kamath (Kasturba Medical College Hospital, Mangalore, India)

11:00 Fast and High-Quality Bilateral Filtering Using Gauss-Chebyshev Approximation

Sanjay Ghosh and Kunal Narayan Chaudhury (Indian Institute of Science, India)

Monday, June 13, 11:20 - 11:40

Coffee Break

Monday, June 13, 11:40 - 12:50

Mo-AM2-1: Cooperative Communications 1

Room: JN Tata Auditorium

Chair: Prabhat Kumar Upadhyay (Indian Institute of Technology Indore, India)

11:40 Efficient CSMA Based on Kikuchi Approximation

Peruru Swamy, Venkata Pavan Kumar Bellam, Radha Krishna Ganti and Krishna P Jagannathan (Indian Institute of Technology Madras, India)

12:10 Outage Performance and Location Optimization for Traffic-Aware Two-Way Relaying with Direct Link

Suneel Yadav (Indian Institute of Technology, Indore, Madhya Pradesh India, India); Ronshee Chawla (Indian Institute of Technology (IIT) Indore, India); Prabhat Kumar Upadhyay (Indian Institute of Technology Indore, India)

12:30 Secure Amplify-and-Forward Relaying in Linear Chains with a Single Eavesdropper

Tulika Agrawal (IIT MANDI, India); Samar Agnihotri (Indian Institute of Technology Mandi, India)

Mo-AM2-2: Algorithms, Neural Nets, and Machine Learning for Signal Processing 1

Room: Hall A

Chair: Manikandan J (PES University (PESU), India)

11:40 Testing Against Independence with Multiple Decision Centers

Michele A Wigger (Telecom ParisTech, France); Roy Timo (Technische Universität München, Germany)

12:10 *ARRNET: Action Recognition Through Recurrent Neural Networks*

Kumaresh Krishnan (International Institute of Information Technology Bangalore, India); Nikita Prabhu and Venkatesh Babu R (Indian Institute of Science, India)

12:30 *A Sparse Concept Coded Spatio-Spectral Feature Representation for Handwritten Character Recognition*

Kalyan S Dash, Niladri Puan and Ganapati Panda (Indian Institute of Technology Bhubaneswar, India)

Monday, June 13, 11:50 - 12:50

Mo-AM2-3: Adaptive Signal Processing

Room: Hall B

Chair: Hari Kvs (IISc, India)

11:50 *Phased Antenna Array Design for L-band Aerospace Detection of Radiolytic Components*

Jolly Rajendran (Amrita School of Engineering Coimbatore, India); GA Shanmugha Sundaram (Amrita Vishwa Vidyapeetham University & Center for CEN, India)

12:10 *A Method of Spatial Focus Control Using Electro-Optics for Camera Lens Systems*

Shashank Agashe (Samsung Research and Development Institute-India, Bangalore, India); Gaurav Kumar (Samsung Research AND Development Institute Bangalore, India)

12:30 *Natural Gradient Non-Parametric Maximum Likelihood Algorithm for Sparse Channel Estimation in Non-Gaussian Noise*

Abhijeet Bishnu and Vimal Bhatia (Indian Institute of Technology Indore, India)

Mo-AM2-4: Bio-Signal Processing 1

Room: Hall C

Chair: Venkatesh Babu Radhakrishnan (Indian Institute of Science, India)

11:50 *Robust Real-Time Pulse Rate Estimation From Facial Video Using Sparse Spectral Peak Tracking*

Aditya Gaonkar P, Bhuthesh R, Dipanjan Gope and Prasanta Kumar Ghosh (Indian Institute of Science, India)

12:10 *Robust ECG Artifact Removal From EEG Using Continuous Wavelet Transformation and Linear Regression*

Chinmayee Dora (IIIT Bhubaneswar, India); Pradyut Biswal (IIIT Bhubaneswar, India)

12:30 *Low-Complexity Detection and Classification of ECG Noises for Automated ECG Analysis System*

Udit Satija (Indian Institute of Technology, Bhubaneswar, India)

Monday, June 13, 12:50 - 14:00

Lunch

Monday, June 13, 14:00 - 15:30

Mo-PM1-1: SP Algorithms and Architecture 1

Room: JN Tata Auditorium

Chair: Piya Pal (University of Maryland, College Park, USA)

2:00 A Fast Algorithm for Demixing Signals with Structured Sparsity

Chinmay Hegde (Iowa State University, USA)

2:30 Reduced State MAP Algorithm with Modified Branch Metric

Kiran Kuchi (IIT Hyderabad, India); Dharma Teja Bade (Uurmi Systems Pvt. Ltd., India); Nanda Kishore Chavali (Uurmi Systems Pvt. Ltd. & IIT Hyderabad, India); Anusha Kilari (Uurmi Systems Pvt Ltd, India)

2:50 Measurement of Transmitter IQ Parameters in HT and VHT Wireless LAN Systems

Markandeya Janaswamy (Uurmi Systems Pvt. Ltd., India); Nanda Kishore Chavali (Uurmi Systems Pvt. Ltd. & IIT Hyderabad, India); Subhendu Batabyal (Uurmi Systems, India)

3:10 A Common Framework for ML Detection of Spatially Multiplexed and Space Time Coded MIMO Signals and Reducing Its Computational Complexity

Sheela Mounika (Uurmi Systems Private Limited, India); Nanda Kishore Chavali (Uurmi Systems Pvt. Ltd. & IIT Hyderabad, India); Kiran Kuchi (IIT Hyderabad, India)

Mo-PM1-2: Detection and Estimation 1

Room: Hall A

Chair: Nikhil Karamchandani (Indian Institute of Technology Bombay, India)

2:00 Completely Blind Sensing of Multi-Band Signals

Massimo Franceschetti (University of California at San Diego, USA)

2:30 Despeckling of SAR Clutter Amplitude Data Using G 0 -MAP Filter

Dheeren Mahapatra, Soumya Ray and Lakshi Roy (National Institute of Technology, Rourkela, India)

2:50 An Improved Algorithm for Eye Corner Detection

Anirban Dasgupta (Indian Institute of Technology, Kharagpur, India); Anshit Mandloi, Anjith George and Aurobinda Routray (Indian Institute of Technology Kharagpur, India)

3:10 Decision Boundary for Under Water Acoustic Communication with Generalized Gaussian Noise Model

Snigdha Bhuyan (National Institute of Technology, Rourkela, India); Siddharth Deshmukh (National Institute Of Technology, Rourkela, India)

Monday, June 13, 14:10 - 15:30

Mo-PM1-3: Cognitive Radio 1

Room: Hall B

Chair: Chandramani Singh (Indian Institute of Science, India)

2:10 Cognitive Relay Sharing for Two-Way Primary Transmissions Under Nakagami-m Fading Channels

Sourabh Solanki, Pankaj Kumar Sharma and Prabhat Kumar Upadhyay (Indian Institute of Technology Indore, India)

2:30 Outage Analysis of Cluster-Based Multi-Hop Cognitive Networks Using BLAR Routing Protocol

Hari Krishna Boddapati (IIT Delhi, India); Shankar Prakriya (Indian Institute of Technology, Delhi, India); Manav Bhatnagar (Indian Institute of Technology Delhi, India)

2:50 Trade-off on Spectrum-Energy Efficiency in Cooperative Cognitive Radio Networks

Subhankar Chatterjee (Indian Institute of Engineering Science and Technology Shibpur, India);

Santi Prasad Maity (Indian Institute of Engineering Science and Technology, Shibpur, India);
Tamaghna Acharya (Indian Institute of Engineering Science and Technology Shibpur, India)

3:10 Learning Based Primary User Activity Prediction in Cognitive Radio Networks for Efficient Dynamic Spectrum Access

Anirudh Agarwal (The LNM Institute of Information Technology, Jaipur, India); Shivangi Dubey (The LNM Institute of Information and Technology, India); Mohd Asif Khan (The LNM Institute of Information Technology, Jaipur, India); Ranjan Gangopadhyay (The L.N.Mittal Institute of Information Technology, India); Soumitra Debnath (The LNM Institute of Information Technology, India)

Mo-PM1-4: Image and Video Processing 2

Room: Hall C

Chair: Ramesh R Galigekere (MIT Manipal, India)

2:10 Fourth Order PDE Based Ultrasound Despeckling Using ENI Classification

Soorajkumar R and Krishna P (National Institute of Technology Karnataka, SURATHKAL, India); Girish D (Devi Scan Centre Kothamangalam, Kerala, India); Jeny Rajan (National Institute of Technology Karnataka, SURATHKAL, India)

2:30 A Hybrid Method for Long Term Moving Object Tracker

Kshitij Dwivedi, Parijat Prabhudesai and Sabari Shanmugam (Samsung R&D Institute Bangalore, India)

2:50 Weighted-Average Fusion Method for Multiband Images

Hemalata Bhujle (SDM College of Engineering & Technology, India)

3:10 Estimation of Small Motion for Dynamic X-Ray Computed Tomography Using a General Motion Model and Moments of Projections

Gokul Deepak Manavalan and Kasi Rajgopal (Indian Institute of Science, India)

Monday, June 13, 15:30 - 16:00

Coffee Break

Monday, June 13, 16:00 - 17:00

Mo-PM2-1: Invited Talks

Room: JN Tata Auditorium

Chair: Lalitha Sankar (Arizona State University, USA)

4:00 On Nanopore Sequencing

Suhas Diggavi (University of California Los Angeles, USA)

4:30 Conditional Dependence Measures: Axioms, Estimators and Biological Applications

Sreeram Kannan (University of Washington Seattle, USA)

Mo-PM2-2: Invited Talks

Room: Hall A

Chair: Aditya Gopalan (Indian Institute of Science, India)

4:00 On the Indexability of a Class of Restless, Hidden-Markov Model Multiarm Bandits

D. Manjunath (IIT Bombay, India)

4:30 Analysis of Double Covers of Factor Graphs

Pascal Vontobel (The Chinese University of Hong Kong, Hong Kong)

Monday, June 13, 16:10 - 16:50

Mo-PM2-3: Sensor Networks

Room: Hall B

Chair: Vishnu Vardhan Makkapati (Myntra Designs Pvt. Ltd., India)

4:10 Power Delay Tradeoff for Dynamic Data Compression and Transmission Over a Wireless Channel

Vineeth Bala Sukumaran (Indian Institute of Space Science and Technology, Trivandrum, India);

Utpal Mukherji (Indian Institute of Science, India)

4:30 Scalable and Accurate Sensor Network Localization Using Cliques

Rajat Sanyal and Kunal Narayan Chaudhury (Indian Institute of Science, India)

Mo-PM2-4: Bio-Signal Processing 2

Room: Hall C

Chair: Tanish Zaveri (Nirma University, India)

4:10 Fragrance Effect on Beta Band Oscillations of Primary Visual and Prefrontal Cortices for Reading Tasks

Mani Kumar Tellamekala (Student at Rajiv Gandhi University of Knowledge Technologies, India);

Mohammad Rafi Shaik (Rajiv Gandhi University of Knowledge Technologies, India)

4:30 Neural Signal Multiplexing Via Compressed Sensing

Nithin Nagaraj (National Institute of Advanced Studies, India); Sahasranand K R (Indian Institute of Science, India)

Monday, June 13, 17:00 - 17:40

High Tea

Monday, June 13, 17:45 - 19:00

Panel Discussion: "The Evolving Start-Up Environment in India" [JN Tata Auditorium]

Tuesday, June 14

Tuesday, June 14, 09:00 - 10:00

Plenary Talk by Lt. Gen. (Retd.) Dr. R.S. Panwar [JN Tata Auditorium]

Chair: D. Manjunath (IIT Bombay, India)

Tuesday, June 14, 10:10 - 11:20

Tu-AM1-1: Wireless Networks 1

Room: JN Tata Auditorium

Chair: Jayakrishnan Nair (IIT Bombay, India)

10:10 Speed Control in a Multiple Access Server Under Delay Constraints

Sibi Raj B Pillai (IIT Bombay, India)

10:40 Order Statistics Based Diagonal Precoding for 4×1 MISO System with Real Orthogonal Space Time Block Codes

Ankit Garg (IIT Delhi, India); Manav Bhatnagar (Indian Institute of Technology Delhi, India); Olivier Berder (University of Rennes 1, IRISA, INRIA, France); Baptiste Vrigneau (University of Rennes 1 & IRISA Granit, France)

11:00 A Statistical Block Fading Channel Model for Multiuser Massive MIMO System

Suresh Dahiya (Indian Institute of Technology Jodhpur, India)

Tu-AM1-2: Cooperative Communications 2

Room: Hall A

Chair: Michele A Wigger (Telecom ParisTech, France)

10:10 Incorporating Scheduling in Poisson Point Process Model for Cellular Networks

Radha Krishna Ganti (Indian Institute of Technology Madras, India)

10:40 Optimal Power Allocation for Decode-and-Forward Based Mixed MIMO-RF/FSO Cooperative Systems

Neeraj Varshney (Indian Institute of Technology Kanpur, India); Parul Puri (Jaypee Institute of Information Technology, India)

11:00 Outage Analysis for Path Selection Based MIMO-Beamforming Cooperative Wireless Systems with Node Mobility and Imperfect CSI

Neeraj Varshney and Aditya K Jagannatham (Indian Institute of Technology Kanpur, India)

Tuesday, June 14, 10:20 - 11:20

Tu-AM1-3: Audio and Speech Processing 2

Room: Hall B

Chair: Vinay Kumar Mittal (Indian Institute of Technology Chittoor, Sri City, India)

10:20 Countermeasure to Handle Replay Attacks in Practical Speaker Verification Systems

Anupama Paul, Rohan Kumar Das, Rohit Sinha and S. R. Mahadeva Prasanna (Indian Institute of Technology Guwahati, India)

10:40 Low Complexity Language Recognition Exploiting Ensemble of Random Subspace

Om Prakash Singh and Rohit Sinha (Indian Institute of Technology Guwahati, India)

11:00 Improved Phone-Cluster Adaptive Training Acoustic Model

Neethu Mariam Joy (Dept. of Electrical Engineering, India); Umesh S (Indian Institute of Technology, Madras, India); Basil Abraham and Navneeth K (IIT Madras, India)

Tu-AM1-4: Information Theory

Room: Hall C

Chair: Pascal Vontobel (The Chinese University of Hong Kong, Hong Kong)

10:20 The Feedback Capacity of the BIBO Channel with a No-Consecutive-Ones Input Constraint

Oron Sabag and Haim H Permuter (Ben-Gurion University, Israel); Navin Kashyap (Indian Institute of Science, India)

10:40 A Cycle-based Rate-compatible Puncturing Technique for Non-binary LDPC Codes

Kuntal Deka (IIIT Guwahati, India); Alentattil Rajesh (IIT G, India); Prabin Kumar Bora (Indian Institute of Technology, India)

11:00 Text Compression Using Lexicographic Permutation of Binary Strings

Sourya Basu and Shivam Chaturvedi (Indian Institute of Technology, Kanpur, India); Rajesh M Hegde (Indian Institute of Technology Kanpur, India)

Tuesday, June 14, 11:20 - 11:40

Coffee Break

Tuesday, June 14, 11:40 - 12:50

Tu-AM2-2: Optimization

Room: Hall A

Chair: Arya Mazumdar (University of Massachusetts Amherst, USA)

11:40 Online Learning of Power Allocation Policies in Energy Harvesting Communications

Pranav K Sakulkar and Bhaskar Krishnamachari (University of Southern California, USA)

12:10 Online Load Scheduling Under Price and Demand Uncertainty in Smart Grid

Amrit Singh Bedi (IIT Kanpur, India); Ketan Rajawat (Indian Institute of Technology Kanpur, India)

12:30 A Completely Uncoupled Learning Algorithm for General Utility Maximization

S. Ramakrishnan (Indian Institute of Technology, Madras, India); Venkatesh Ramaiyan (Indian Institute of Technology Madras, India)

Tuesday, June 14, 11:50 - 12:50

Tu-AM2-1: Networks and RF Systems

Room: JN Tata Auditorium

Chair: Kuntal Deka (IIIT Guwahati, India)

11:50 Mean Delay Analysis of Cache Assisted File Transfers Over the Internet

Abhijit Bhattacharya and Anurag Kumar (Indian Institute of Science, India)

12:10 Design of a Novel Dual-Band Low Noise Amplifier Incorporating Dual-Band Impedance Transformer

Rusan Barik (IIITDM, India); Rehana Siddiqui (IIITD&M Kancheepuram, India); K. v. Phanikumar (IIITD&M Kancheepuram, India); Sholampettai Subramanian Karthikeyan (IIITDM, Kancheepuram, India)

12:30 Reconfigurable Beam Scanning Using Hexagonal Slotted Parasitic Patch Antenna Array

Vikas Vishnu Khairnar (Birla Institute of Technology and Science Pilani, K K Birla Goa Campus, India); Ramesha C K (Assistant Professor, India); Lucy J Gudino (BITS Pilani, K K Birla Goa Campus, India)

Tu-AM2-3: Audio and Speech Processing 3

Room: Hall B

Chair: Nithin Nagaraj (National Institute of Advanced Studies, India)

11:50 Modification in Sequential Dynamic Time Warping for Fast Computation of Query-by-Example Spoken Term Detection Task

Maulik C. Madhavi (Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar, India); Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India)

12:10 *Who Spoke What? A Latent Variable Framework for the Joint Decoding of Multiple Speakers and Their Keywords*

Harshavardhan Sundar and Thippur V. Sreenivas (Indian Institute of Science, India)

12:30 *Significance of Constraining Text in Limited Data Text-independent Speaker Verification*

Rohan Kumar Das, Sarfaraz Jelil and S. R. Mahadeva Prasanna (Indian Institute of Technology Guwahati, India)

Tu-AM2-4: Cognitive Radio 2

Room: Hall C

Chair: Parimal Parag (Indian Institute of Science, India)

11:50 *Outage Analysis in Cooperative Cognitive Radio Networks with Simultaneous Wireless Information and Power Transfer*

Sanjay Yadav (Indian Institute of Engineering Science and Technology Shibpur, India);
Tamaghna Acharya (Indian Institute of Engineering Science and Technology Shibpur, India)

12:10 *GLRT Based Bartlett Detection for Spectrum Sensing in Multi-Antenna Cognitive Radio*

Saumya Dwivedi and Anusha Kota (IIT Kanpur, India); Aditya K Jagannatham (Indian Institute of Technology Kanpur, India)

12:30 *On Optimal Offline Time Sharing Policy for Energy Harvesting Underlay Cognitive Radio*

Kalpant Pathak (Indian Institute of Technology Kanpur, India); Adrish Banerjee (Indian Institute of Technology, Kanpur, India)

Tuesday, June 14, 12:50 - 14:00

Lunch

Tuesday, June 14, 14:00 - 14:30

Tu-Sh: Expository Talk on Shannon's Work [JN Tata Auditorium]

Chair: Sreeram Kannan (University of Washington Seattle, USA)

Tuesday, June 14, 14:40 - 16:10

Tu-PM1-1: Shannon Centenary

Room: JN Tata Auditorium

Chair: Sreeram Kannan (University of Washington Seattle, USA)

2:40 *Recent Results in Multi-version Codes, Update-Efficient Codes and Consistent Shared Memory Emulation*

Viveck Cadambe (Pennsylvania State University, USA)

3:10 *Sensitivity of Functions and Distributed Computing*

Shun Watanabe (Tokyo University of Agriculture and Technology, Japan)

3:40 *The epsilon-Capacity Region of AWGN Multiple Access Channels with Feedback*

Lan V. Truong, Silas L. Fong and Vincent Y. F. Tan (National University of Singapore, Singapore)

Tuesday, June 14, 14:40 - 16:00

Tu-PM1-2: Image and Video Processing 3

Room: Hall A

Chair: Prasanta Kumar Ghosh (Indian Institute of Science, India)

2:40 Lens Adhering Contaminant Detection Using Spatio-Temporal Blur

Akkala Vivek (Uurmi Solutions, India); Parth Parikh (Uurmi Systems, India); Mahesh BS (Uurmi Systems Pvt. Ltd., India); Ajinkya S. Deshmukh (Uurmi System Pvt. Ltd., India); Swarup Medasani (Chief Technology Officer & Uurmi Systems, USA)

3:00 Saliency and Memorability Driven Retargeting

Diptiben Patel (IIT Gandhinagar, India); Shanmuganathan Raman (Indian Institute of Technology, Gandhinagar, India)

3:20 Retinal Blood Vessel Segmentation Using Matched Filter and Laplacian of Gaussian

Debamita Kumar (Indian Institute of Engineering Science and Technology, Shibpur, India); Ankita Pramanik (IIEST, Shibpur, India); Sudeshna Sil Kar and Santi Prasad Maity (Indian Institute of Engineering Science and Technology, Shibpur, India)

3:40 Denoising in a Jiffy: A Fast and GPU Friendly Algorithm for Image Denoising

Nithish Divakar and Venkatesh Babu R (Indian Institute of Science, India)

Tu-PM1-3: Audio and Speech Processing 4

Room: Hall B

Chair: Niladri Puhon (Indian Institute of Technology Bhubaneswar, India)

2:40 Reverberation Robust TDOA Estimation Using Convex Region Prior

Harshavardhan Sundar and Thippur V. Sreenivas (Indian Institute of Science, India)

3:00 An Improved Block Sparse Method for Feedback Suppression in Hearing Aids

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

3:20 A Comparative Study of Articulatory Features From Facial Video and Acoustic-To-Articulatory Inversion for Phonetic Discrimination

Abhishek Narwekar (Indian Institute of Technology Madras, India); Prasanta Kumar Ghosh (Indian Institute of Science, India)

3:40 Global Soft Decision Based Speech Enhancement Using Voiced-Unvoiced Uncertainty and Harmonic Phase Decomposition Technique

Suman Samui (Indian Institute of Technology, Kharagpur, India); Indrajit Chakrabarti (IIT Kharagpur, India); Soumya K. Ghosh (Indian Institute of Technology, Kharagpur, India)

Tu-PM1-4: Machine Learning for Signal Processing

Room: Hall C

Chair: Aditya Gopalan (Indian Institute of Science, India)

2:40 Group Delay Based Music Source Separation Using Deep Recurrent Neural Networks

Jilt Sebastian (Indian Institute of Technology, Madras, India); Hema A Murthy (Indian Institute of Technology Madras, India)

3:00 Analysis of Hierarchical Bottleneck Framework for Improved Phoneme Recognition

Mohammadi Zaki (Indian Institute of Science (IISc), India); Hardik B. Sailor (DA-IICT, Gandhinagar, India); Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India)

3:20 Design and Evaluation of a Fast Half-Against-Half Support Vector Machine Classifier

Manikandan J (PES University (PESU), India)

3:40 Graph Fourier Transform Based on Directed Laplacian

Rahul Singh (Indian Institute of Space Science & Technology, India); Abhishek Chakraborty (Indian Institute of Space Science and Technology, India); Manoj Bs (Indian Institute of Space Science and Technology & California Institute of Telecommunication and IT, India)

Tuesday, June 14, 16:00 - 16:30

Coffee Break

Tuesday, June 14, 16:30 - 17:00

Tu-PM2-1: Shannon Centenary

Room: JN Tata Auditorium

Chair: Vincent Y. F. Tan (National University of Singapore, Singapore)

4:30 Index Coding and Local Partial Clique Covers

Abhishek Agarwal (University of Minnesota-Twin Cities, USA); Arya Mazumdar (University of Massachusetts Amherst, USA)

Tuesday, June 14, 16:30 - 17:30

Tu-PM2-2: Audio and Speech Processing 5

Room: Hall A

Chair: Rajesh M Hegde (Indian Institute of Technology Kanpur, India)

4:30 A Novel Lowpass Filtering-Based Approach for Estimating Strength of Excitation From Speech Signal

Deep Gandhi (V. V. P. Engineering College, India); Tanvina B. Patel and Hemant A. Patil (Dhirubhai Ambani Institute of Information and Communication Technology, India)

4:50 Design and Development of Bionic Ears for Rendering Binaural Audio

Sandeep Chitreddy (IIT Kanpur, India); Rajesh M Hegde (Indian Institute of Technology Kanpur, India)

5:10 Exploring the Role of Pitch-Adaptive Cepstral Features in Context of Children's Mismatched ASR

Rohit Sinha, Syed Shah Nawazuddin and Patri Karthik (Indian Institute of Technology Guwahati, India)

Tu-PM2-3: Image and Video Processing 4

Room: Hall B

Chair: Shashank Agashe (Samsung Research and Development Institute-India, Bangalore, India)

4:30 Adaptive Image Compression Using Saliency and KAZE Features

Siddharth Srivastava (Center for Development of Advanced Computing, India); Prerana Mukherjee (Indian Institute of Technology, Delhi, India); Brejesh Lall (Indian Institute of Technology Delhi, India)

4:50 Weighted Fusion of LBP and CCH Features for Effective Content Based Image Retrieval

Swati Jain (Institute of Technology & Nirma University, India)

5:10 Classification of Bacterial Morphotypes From Images of ZN-stained Sputum-smears

Towards Diagnosing Drug-resistant TB

Rijul Soans (Manipal University, India); Ramakrishnan G A (Indian Institute of Science, India);
Vishnu Prasad Shenoy (Kasturba Medical College, India); Ramesh R Galigekere (MIT Manipal,
India)

Tu-PM2-4: Wireless Networks 2

Room: Hall C

Chair: Sibi Raj B Pillai (IIT Bombay, India)

4:30 Quantization Methods for Precoder Feedback in Interference Channel

Navneet Garg and Govind Sharma (Indian Institute of Technology Kanpur, India)

4:50 Rate Loss Analysis for Precoder Feedback in Interference Channel with Imperfect CSI

Navneet Garg and Govind Sharma (Indian Institute of Technology Kanpur, India)

5:10 Outage Performance of Scheduling in a Distributed Multiuser Fixed-gain AF Relay System with Co-channel Interference and Noise

Anup Kumar Mandpura and Shankar Prakriya (Indian Institute of Technology, Delhi, India)

Tuesday, June 14, 18:00 - 19:00

Cultural Program [Satish Dhawan Auditorium]

Tuesday, June 14, 19:30 - 21:30

Conference Dinner [Main Guesthouse Lawns]

Wednesday, June 15

Wednesday, June 15, 09:00 - 10:00

Plenary Talk by Prof. David Tse [JN Tata Auditorium]

Chair: P. Vijay Kumar (Indian Institute of Science, Bangalore, India)

Wednesday, June 15, 10:00 - 10:20

Awards Ceremony and Vote of Thanks [JN Tata Auditorium]

Wednesday, June 15, 10:30 - 11:40

We-AM1-1: SP Algorithms and Architecture 2

Room: JN Tata Auditorium

Chair: Chinmay Hegde (Iowa State University, USA)

10:30 *Difference Sets and Structured Quadratic Samplers for High Resolution Imaging*

Piya Pal (University of Maryland, College Park, USA)

11:00 *Low Complexity, Low Latency Resampling of Asynchronously Sampled Signals*

Ganesan Thiagarajan (Texas Instruments India Ltd, India); Abhijit Patki (Texas Instruments India Private Limited, India)

11:20 *Reversible Radix-4 Booth Multiplier for DSP Applications*

Nagamani A N (Visweswaraya Technological University & P E S Institute of Technology, India); Nikhil R and Manish Nagaraj (PES Institute of Technology, India); Agrawal VK (Director- CORI, PESIT, India)

We-AM1-2: Wireless Networks 3

Room: Hall A

Chair: A. Chockalingam (Indian Institute of Science, India)

10:30 *Remotely Powered Communications*

Ayfer Özgür (Stanford University, USA)

11:00 *Performance Analysis of a Delay Tolerant Network by State Aggregation*

Karthik Velugoori, Utpal Mukherji and Vinod Sharma (Indian Institute of Science, India)

11:20 *Interference Alignment Techniques in Cellular System with Multiple D2D Networks*

Navneet Garg and Govind Sharma (Indian Institute of Technology Kanpur, India)

Wednesday, June 15, 10:40 - 11:20

We-AM1-3: Networks

Room: Hall B

Chair: D. Manjunath (IIT Bombay, India)

10:40 *TCP/NC: Stability and Performance Analysis with Small Buffer Drop-Tail Queues*

Santosh Chavan (Indian Institute of Technology Madras, India)

11:00 *Transmission Impairment Aware Routing and Spectrum Allocation in CO-OFDM Based Elastic Optical Networks*

Sadananda Behera (IIT Kharagpur, India); Jithin George (University of Melbourne); Goutam Das (IIT Kharagpur, India)

Wednesday, June 15, 10:40 - 11:40

We-AM1-4: Bio-Signal Processing 3

Room: Hall C

Chair: Ganesan Thiagarajan (Texas Instruments India Ltd, India)

10:40 *Camera Based Respiration Rate of Neonates by Modeling Movement of Chest and Abdomen Region*

Vishnu Vardhan Makkapati (Myntra Designs Pvt. Ltd., India); Pujita Raman (Qualcomm Technologies, USA); Gautam Pai (Technion - Israel Institute of Technology, Israel)

11:00 *Automatic Classification of Toco-Signals: An Approach Towards Comprehensive Monitoring of Labour Progress*

Jyothi R, Rijul Soans and Parvati Bhat (Manipal University, India)

11:20 *Accelerated Learning of Discriminative Spatio-temporal Features for Action*

Recognition

Munender Varshney and Renu Rameshan (IIT Mandi, Himachal Pradesh, India)

Wednesday, June 15, 11:40 - 12:00

Coffee Break

Wednesday, June 15, 12:00 - 13:00

We-AM2-1: Scheduling and Pricing

Room: JN Tata Auditorium

Chair: Krishna P Jagannathan (Indian Institute of Technology Madras, India)

12:00 A New Competitive Ratio for Network Applications with Hard Performance Guarantees

Han Deng and I-Hong Hou (Texas A&M University, USA)

12:30 Zero Rating: Can ISPs Choose Winning Content?

Kunal Phalak, D. Manjunath and Jayakrishnan Nair (IIT Bombay, India)

Wednesday, June 15, 12:10 - 13:10

We-AM2-2: Speech and Image Processing

Room: Hall A

Chair: Sumohana Channappayya (Indian Institute of Technology Hyderabad, India)

12:10 Emotion Classification Using Residual Sinusoidal Peak Amplitude

Suman Deb (Indian Institute of Technology, India); Samarendra Dandapat (IITG, India)

12:30 No-Reference Image Quality Assessment Using Statistics of Sparse Representations

Manasa Priya K (Indian Institute of Technology Hyderabad, India); Bala Appina (IIT HYDERABAD, India); Sumohana Channappayya (Indian Institute of Technology Hyderabad, India)

12:50 Hartley Transform Based Correlation Filters for Face Recognition

Narendra Chandrashekara (B N M Institute of Technology & Siddaganga Institute of Technology, India); Shashank Satyanarayana (Visvesvaraya Technological University & BNM Institute of Technology, India)

We-AM2-3: Algorithms, Neural Nets, and Machine Learning for Signal Processing 2

Room: Hall B

Chair: Animesh Kumar (Indian Institute of Technology Bombay, India)

12:10 Frequency Count Based Two Stage Classification for Online Handwritten Character Recognition

Subhasis Mandal (Indian Institute of Technology Guwahati, India); Himakshi Choudhury (Indian Institute of Technology Guwahati, India); S. R. Mahadeva Prasanna (Indian Institute of Technology Guwahati, India); Suresh Sundaram (IIT Guwahati, India)

12:30 Real-time Eye Gaze Direction Classification Using Convolutional Neural Network

Anjith George (IIT Kharagpur, India); Aurobinda Routray (Indian Institute of Technology Kharagpur, India)

12:50 Customizing CNNs for Blood Vessel Segmentation From Fundus Images

Sunil Kumar Vengalil (International Institute of Information Technology, Bangalore, India); Neelam Sinha (International Institute of Information Technology & Bangalore, India); Srinivas

Kruthiventi (IISC, India); Venkatesh Babu R (Indian Institute of Science, India)

Wednesday, June 15, 12:10 - 12:50

We-AM2-4: Detection and Estimation 2

Room: Hall C

Chair: Hari Kvs (IISc, India)

12:10 Novel Techniques for Target Detection with Waveform Identity in Multi-static Radar Using Bi-static Configuration

Jawed Qumar (Indian Institute of Technology Kanpur & Motorola India Bangalore, India); S Christopher (Distinguished Scientist, India); Ratnajit Bhattacharjee (Indian Institute of Technology, Guwahati, India)

12:30 Cumulant Based Automatic Modulation Classification of QPSK, OQPSK, $\frac{\pi}{4}$ -QPSK and 8-PSK in MIMO Environment

Dibyajyoti Das (Indian Institute of Technology Guwahati, India); Abhinav Anand (Indian Institute of Technology, Guwahati, India); Prabin Kumar Bora (Indian Institute of Technology Guwahati, India); Ratnajit Bhattacharjee (Indian Institute of Technology, Guwahati, India)

Wednesday, June 15, 13:10 - 14:30

Lunch