

Conference Report: PerMIn'15
2nd International Conference on
Perception and Machine Intelligence
February 26-27, 2015
Kolkata, India

General Chairs:
Sankar K. Pal

Program Chairs:
Malay K. Kundu
Santanu Chaudhury

The 2nd International Conference on Perception and Machine Intelligence (PerMIn'15) was organized by Centre for Development of Advanced Computing (C-DAC), Kolkata on 26th and 27th of February, 2015 with intellectual and technical support from Indian Statistical Institute (ISI), Kolkata. The conference was attended by about 120 participants from various parts of the world including England, Japan and India. The participants were mostly university/institution faculty, research scholars, personnel from R&D organizations and industry. The event inaugural session started on 26th of February 2015 with the plenary talks, invited lectures, contributory paper presentations followed by demonstration of innovative products of C-DAC.

The objective of this international conference was to present state-of-the-art scientific results, encourage academic and industrial interaction, and promote collaborative research and developmental activities in perception engineering, machine intelligence and related fields, involving scientists, engineers, professionals, researchers and students from India and abroad. The conference is held in successive years to make it an ideal platform for people to share their views and experiences in the said areas. Particular emphasis was placed on pattern recognition and perception, human computer interaction techniques, computational theory of perception, cognitive systems, reception based E-nose and E-tongue, speech processing and analysis, apart from dealing with various pattern recognition/image processing problems. Invited speeches were delivered by scientists of international repute from both academia and industry. Technical sessions encompassed all these emergent areas. The conference gave a platform for young researchers to review the state-of-the-art, to present their research outputs, to interact and establish contacts with well-known senior researchers of the field.

Col A. K. Nath (Retd), Executive Director CDAC Kolkata in his welcome address set the pitch of the Conference by highlighting the multidisciplinary nature of this emerging frontier of advanced research. A large number of scientists and researchers from India and abroad presented their recent research outcomes. Chief Guest Prof. Bikash Sinha, Padma Bhushan, an eminent Indian physicist and Ex Director of Saha Institute of Nuclear Physics and VEC, BARC, Kolkata active in the fields of nuclear physics and high energy physics, Prof. Sankar K. Pal, Padma Sri (General Chair), Prof. Malay K. Kundu (Programme Chair) of ISI Kolkata and Prof Santanu Choudhury (Programme Chair) of IIT, Delhi, also spoke on the occasion followed by the vote of thanks delivered by Shri. Debasis Mazumdar(Programme co-chair).



Group Photograph of PerMin'15

Five Plenary talks were delivered by renowned researchers like Prof. Subhasis Chaudhury of IIT Bombay, Prof Neeraj Jain of National Brain Research, Manesar, Prof Andrea Cavallero of Queen Mary University of London, UK, Dr Ravi Kothari of IBM Research Lab and Prof. Narayanan Srinivasan, University of Allahabad. The whole conference was well orchestrated by Conference Secretariat.

The conference was started with Inaugural session followed by eight technical sessions consisting of 35 accepted papers including 4 papers from CDAC, Kolkata. The technical sessions were facilitated with the sharing of experiences, knowledge of the conference participants came from different domain in research activities. As part of the two day event, C-DAC Kolkata showcased few innovative products and technologies on Facial Expression Analysis, Handwriting and Character Recognition, Speech Recognition, eNose, eVision and eTongue developed by it in the field of Perception Engineering. The latter three hold the great promise for quality benchmarking of Food and Agro produce both by the procurement agencies and the farmers themselves. The conference proceedings was published in ACM Digital Library.

More than 135 research papers were received for the conference out of which 35 papers were accepted for oral presentation and publication in the conference proceedings which was published in the prestigious ACM Digital Library.

The conference was funded by DeitY, Ministry of Communication and Information Technology, Govt. of India, Department of Atomic Energy, Govt. of India, Government of India and the Council of Scientific and Industrial Research, Government of India, State Bank of India and Electronics Research and Development Enterprise.

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Stefano Baldassi, Pisa Vision Lab, University of

PerMIn'15 Conference Program Schedule

26th February, 2015

8:30 A.M	-	9:30 A.M	Registration
9:30 A.M	-	9:35 A.M	Invocation and Presentation of Floral Bouquet
9:35 A.M	-	9:45 A.M	Welcome Address by ED, CDAC(Kolkata)
9:45 A.M	-	9:50 A.M	Address by General Chair, PerMIn'15
9:50 A.M	-	9:55 A.M	Address by Programme Chair I, PerMIn'15
9:55 A.M	-	10:00 A.M	Address by Programme Chair II, PerMIn'15
10:00 A.M	-	10:15 A.M	Inaugural Address by Chief Guest
10:15 A.M	-	10:20 A.M	Address by Guest of Honour
10:20 A.M	-	10:25 A.M	Vote of Thanks
10:25 A.M	-	10:45 A.M	High Tea
10:45 A.M	-	11:45 A.M	Plenary Talk - I (Central Hall) Topic : Biologically Inspired Machine Learning Speaker : Ravi Kothari
11:45 A.M	-	1:15 P.M	Technical Session I (Perception) (Hall - I)

- 1. Adaptive Analog Disparity Model using Ocular Dominance Map by Sheena Sharma, Priti Gupta and C.M. Markan.*
- 2. Framework for analysis of bio-inspired self-organization in urban pervasive system by Sumant Mukherjee and Santanu Chaudhury.*
- 3. An EEG Study on Working Memory and Cognition by Poulami Ghosh, Ankita Mazumder, Saugat Bhattacharyya and D.N. Tibarewala.*
- 4. Traffic Analysis and Prediction using a Committee of Experts by Keshav Parthasarathy, Sundararam Rathod, Sashank Ramesh, Dhruv Vora and Susan Elias.*
- 5. PAA: Perception based Anti-Aliasing for High Quality Transformed Image Reconstruction from Single Image by Sankaralingam M. and Apurba Das.*
- 6. An unification of Inner Distance Shape Context and Local Binary Pattern for Shape Representation and Classification by Bharathi Pilar and B. H. Shekar.*

11:45 A.M - 1:15 P.M Technical Session II (Perception Driven Visualization) (Hall - II)

1. *MRI Denoising using Visual System Response Model Simulating PCNN by Sudeb Das and Malay Kumar Kundu*.
2. *Endoscopic Image Retrieval System Using Multi-scale Image Features by Manish Chowdhury and Malay Kumar Kundu*.
3. *X-Ray Imaging and General Regression Neural Network (GRNN) for Estimation of Silk Content in Cocoons by Gopinath Bej, Amitava Akuli, Abhra Pal, Tamal Dey, Arkarag Chaudhuri, Shamshad Alam, Rajendra Khandai and Nabarun Bhattacharya*.
4. *A Framework for Ischemic Beat Detection using Multi-Layer Feedforward Neural Network and Principal Component Analysis (IBD-MLFFNN-PCA) by Sounak Mohanta and Kousik Dasgupta*.
5. *Automatic Characterization of Mammograms using Fractal Texture Analysis and Fast Correlation Based Filter method by Shradhananda Beura*.
6. *A new multi focus image fusion method using principal component Analysis in shearlet domain by Biswajit Biswas, Ritamshirsa Choudhuri and Kashi Nath Dey*.

1:15 P.M - 2:15 P.M Lunch

2:15 P.M - 3:15 P.M Plenary Talk - II (Central Hall)
Topic : Wearable and Robotic Camera Networks,
Speaker : Andrea Cavallaro

3:15 P.M - 3:30 P.M Tea

3:30 P.M - 4:45 P.M Technical Session III (Biometrics) (Hall - I)

1. *Significance of Phase-based Features for Person Recognition Using Humming by Hardik Sailor, Maulik Madhavi and Hemant Patil*.
2. *Salient Keypoint Detection using Entropy Map for Iris Biometric by Beeren Sahu, Pankaj Sa and Banshidhar Majhi*.
3. *Pose Invariant Face Detection In Video by Vaidehi Vijayakumar*.
4. *Face Recognition using Face-Autocropping and Facial Feature Points Extraction by Dhiman Karmakar and C.A. Murthy*.
5. *Unsupervised method of Domain Adaptation on representation of discriminatory regions of the face image for surveillance face datasets by Samik Banerjee, Suranjana Samanta and Sukhendu Das*.

3:30 P.M - 4:45 P.M Technical Session IV (Speech Synthesis and Recognition) (Hall - II)

- 1. Combining Evidences from Bark Scale and Mel Scale Warped Features for VTLN by Shubham Sharma and Hemant Patil*
- 2. Effect of Nonlinear Compression Function on the Performance of the Speaker Identification System under Noisy Conditions by Naresh Jawarakar, Raghunath Holambe and Tapan Kumar Basu.*
- 3. Classification of Stop Consonants using Modulation Spectrogram-Based Features by Anshu Chittora, Hemant Patil and Kewal Malde.*
- 4. Behavioural Modelling of Ragas of Indian Classical Music using Unified Modelling Language by Sudipta Chakrabarty, Debashis De and Payel Gupta.*
- 5. Fusion of TEO Phase with MFCC Features for Speaker Verification Purvi Agrawal and Hemant Arjun Patil.*

4:45 P.M - 6:00 P.M Demonstration of Products(by C-DAC, Kolkata)

6:00 P.M - 6:30 P.M Tea

6:30 P.M - 9:30 P.M Cultural Program and Dinner

27th February, 2015

10:00 A.M	-	11:00 A.M	Plenary Talk - III(Hall I) Topic : Application of Machine Learning in Haptic Perception, Speaker: Subhasis Choudhury
11:00 A.M	-	11:20 A.M	High Tea
11:20 A.M	-	12:20 P.M	Plenary Talk - IV(Hall I) Topic: Emotion Perception and Attention, Speaker: Narayanan Srinivasan
12:20 P.M	-	1:35 P.M	Technical Session V (Man Machine Interface and Robotics) (Hall - I)

1. An Efficient Expression Recognition Method using Contourlet Transform by Suparna Biswas and Jaya Sil.

2. Controlling Wall Following Robot Navigation Based on Gravitational Search and Feed Forward Neural Network by Tirtharaj Dash, Tanistha Nayak and Rakesh Ranjan Swain.

3. Interactive Facial Expression Reader and Extension to First Impression Improver by Tatsuya Yamazaki, Ken'ichi Maehara and Koichiro Enomoto.

4. Low Complexity Graph based Navigation and path Finding of mobile Robot using BFS by Hrudaya Kumar Tripathy and Prabin Kumar Panigrahi.

5. DI-BOW: Domain Invariant Feature Descriptor Using Bag of Words by Tirumarai Selvan, Suranjana Samanta and Sukhendu Das.

12:20 P.M	-	<p>1:20 P.M</p> <p>Technical Session VI (Cognitive Model, Perception and Machine Intelligence) (Hall – II)</p> <p><i>1. Cognitive Inspired WOR Framework to Reveal Image Semantics, for Efficient Content Based Image Retrieval by Nitin Gupta, Sukhendu Das and Gyanesh Dwivedi.</i></p> <p><i>2. Sparsifying Dense Features for Action Classification by Debaditya Roy, M. Srinivas and C Krishna Mohan.</i></p> <p><i>3. Perceptual Depth Preserving Saliency based Image Compression by Meera Khanna, Karan Rai and Santanu Chaudhury.</i></p> <p><i>4. Stereo Pair Generation by Introducing Bokeh Effect in 2D Images by Nidhi Chahal and Santanu Chaudhury.</i></p>
1:35 P.M	-	<p>2:45 P.M</p> <p>Lunch</p>
2:45 P.M	-	<p>3:45 P.M</p> <p>Plenary Talk - V(Hall I)</p> <p>Topic : Tactile information processing in the brain and the effects of the effects of spinal cord injuries</p> <p>Speaker: Neeraj Jain</p>
3:45 P.M	-	<p>4:00 P.M</p> <p>Tea</p>
4:00 P.M	-	<p>5:00 P.M</p> <p>Technical Session VII (Perception Based Sensory System) (Hall – I)</p> <p><i>1. Sliding Window-based DCT Features for Tea Quality Prediction Using Electronic Tongue by Pradip Saha, Santanu Ghorai, Bipan Tudu, Rajib Bandyopadhyay and Nabarun Bhattacharyya.</i></p> <p><i>2. Selection of Optimum Level of Data Compression for Voltammetric Electronic Tongue Signal Using DWT by Ashmita De, Arunangshu Ghosh and Bipan Tudu.</i></p> <p><i>3. Towards artificial flavor perception of black tea: an approach using fusion of electronic nose and electronic tongue responses with fuzzy ART classification technique by Angiras Modak, Runu Banerjee Roy, Bipan Tudu, Rajib Bandyopadhyay and Nabarun Bhattacharyya.</i></p> <p><i>4. Multi-frequency Large Amplitude Pulse Voltammetric Electronic Tongue to Assess Key Compounds Imparting the Taste of Briskness to Finished Black Tea Liquor by Arunangshu Ghosh, Trisita Chatterjee, Paban Kumar Borah, Dilip Sing, Prolay Sharma, Bipan Tudu, Pradip Tamuly, Nabarun Bhattacharya and Rajib Bandyopadhyay.</i></p>

4:00 P.M . 5:00 P.M

Technical Session VIII (Industrial research trends on Image Processing, Perception Engineering and Machine Intelligence) (Hall –II)

1. 3D reconstruction from multi-view images by Brojeshwar Bhowmick, TCS Innovation Lab, Kolkata.

2. RELEVANCE OF Visual perception on image quality, steganography and Compression by Apurba Das, TCS Innovation Lab, Bangalore.

PerMin'15 Conference Proceedings

Number of Papers submitted : 135

Number of Papers accepted : 35

Review Process : Each paper was single blind reviewed by three reviewers .

Proceedings of the conference have been published by ACM DL in the series SIGCHI and SIGGRAPH Series

