We request the honour of your presence at the Inaugural ceremony of the International Conference on Computing: Theory and Applications (ICCTA) at 9:30AM on March 5, 2007, in the Geology Auditorium, Indian Statistical Institute, 203 B T Road, Kolkata 700108.

Professor Sankar K Pal, Director, Indian Statistical Institute will inaugurate. Professor Debesh K Das, Honourable Minister-in-Charge, Department of Information Technology, Government of West Bengal will be the Chief Guest and Professor Sir Michael Brady, FRS, University of Oxford, UK will be the Guest of Honour.

Dipti Prasad Mukherjee
Organizing Chair, ICCTA

programme overleaf

Inaugural Programme

09:30AM	**Vedic Hymn** ISI Club
09:35AM	***Welcome Address*** Professor Malay K. Kundu General Chair, ICCTA
09:40AM	***Inaugural Address*** Professor Sankar K Pal, FNA Director, Indian Statistical Institute
09:45AM	***Address by the Chief Guest*** Professor Debesh K Das Honourable Minister-in-Charge Department of Information Technology Government of West Bengal
09:50AM	***Address by the Guest of Honour*** Professor Sir Michael Brady, FRS University of Oxford, UK
09:55AM	***Vote of Thanks*** Professor Dipti Prasad Mukherjee Organizing Chair, ICCTA

The programme will be presided over by Professor Sankar K Pal, Director, Indian Statistical Institute.

Foreword

On behalf of the organizing committee, let me welcome you to the International Conference on Computing: Theory and Applications (ICCTA). The conference is being organized by the Computer and Communication Sciences Division (CCSD) of the Indian Statistical Institute to commemorate the ongoing Platinum Jubilee of this Institute of national importance in India. You will see that the technical programme broadly reflects the common research interests of the four units of CCSD, namely, the Advanced Computing and Microelectronics Unit, the Computer Vision and Pattern Recognition Unit, the Electronics and Communication Sciences Unit and the Machine Intelligence Unit. I must appreciate the untiring efforts made by the track chairs and members of the programme committee to compile a technical programme of this magnitude.

Organizing such a conference requires contribution from all quarters. The conference enjoys the special support of the Director of the Institute without which it might not have been possible to invite so many international experts. We are indebted to the general chair and professor-in-charge of CCSD for their guidance. I thank the finance chair who volunteered to be the main interface between the authors and the organizers of the conference. The publications chair added prestige to the conference by inviting the IEEE Computer Society Press for publication of the proceedings of the conference. I am fortunate to have a dedicated organizing committee who were always there to ensure that the minutiae of the events were executed with precision and quality.

The Indian Statistical Institute, which had a humble beginning in 1931, under the visionary leadership of Prof. P C Mahalanobish, has today fostered a significant interest in the field of research in Computer Science in India and abroad. I am confident that your stay here and your interactions with us will strengthen our confidence and enrich your experience.

Benefit us with your conference; take pleasure in the beautiful campus of the Institute, the food, and in your visit to this remarkable city of Kolkata, a city with a human face, all alive with its rich tradition.

Thank you for your interest in ICCTA.

Dipti Prasad Mukherjee
Organizing Chair, ICCTA

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Venue of the Conference

The Kolkata campus of the Indian Statistical Institute is located in a sprawling 30-acre estate on the Barrackpore Trunk Road (B.T. Road) in the Baranagore suburb of Greater Kolkata. It consists of two approximately equal parts - the office complex and the residential complex, - separated by a public road. This road (Girish Chand Ghosh Street) connects B.T. Road with Gopal Lal Tagore Road, a road that runs along the western boundary of the main campus. The office complex bears door numbers 202, 203 and 204, and the residential complex, 205 and 206. There is a subway connecting the two parts of the campus - residential and office complexes; to move between the residential and office complexes.

Buildings

The principal buildings in the office complex are the R. A. Fisher Bhavan (Main Building), the Pamela Robinson Bhavan (Geology Building), the Satyendra Nath Bose Bhavan (Library Building), the P. N. Haksar Bhavan (Administration Building) and the Amrapali. The residential campus at 205 and 206 B. T. Road premises includes, apart from several staff quarters, the Guest House, the Medical Welfare Unit, the Boys' Hostel, the Research Scholars' and ISEC hostel, the Ladies hostel, and parts of several service units.

Conference Inauguration. Keynote and Plenary Lectures:

Geology Auditorium (2nd Floor, Pamela Robinson Bhavan)
203 B. T. Road, Kolkata-700108
Behind R. A. Fisher Bhavan (Main Building)

Conference Venue:

Track I: Geology Auditorium (1st Floor, Pamela Robinson Bhavan)
Track II: New Academic Building Seminar Room 1 (NAB-1) (Ground Floor, Kolmogorov Bhavan)
Track III: ECSU Seminar Room (9th Floor, S.N. Bose Bhavan)
Track IV: CVPR Seminar Room (8th Floor, S.N. Bose Bhavan)

Lunch:

ISI Guest House
205 B. T. Road, Kolkata-700108
Phone: +91 33 25778597

Registration Desk:

Soft Computing Centre Seminar Room
1st Floor, R. A. Fisher Bhavan
(Registration will start from 08:30 Hrs, March 05, 2007)

Email:

Computer and Statistical Service Center
4th Floor, Satyendra Nath Bose Bhavan (Library Building)

ICCTA Cultural Programme

The organizing committee of the International Conference on Computing: Theory and Applications (ICCTA) requests the pleasure of your company at the Violin recital by

Violin Brothers

Debsankar Roy and Jyotisankar Roy

at Amrakunja on March 05, 2007, 6:30 PM.

Computer and Communication Sciences Division
Indian Statistical Institute
203, B. T. Road
Kolkata- 700108

Paper Presentation Details

Audio Visual Equipment available includes PC/Laptop (with USB port, CD-ROM) equipped with Windows O/S MS Power Point, PDF Viewer and LCD and Overhead Projector.

Instructions for Speakers:

- Time allotted for **keynote** talk is 60 minutes.
- Time allotted for each **plenary** talk is 45 minutes.
- Time allotted for each **invited** talk is 30 minutes.
- Time allotted for each **contributed** talk is 20 minutes.

Instructions for Chairpersons:

- Please request the speakers to finish their presentation 5 minutes before the allotted time.
- Please note that there is no specific time slot for pre and post session moderation, which is certainly very important. Please apply your judgment to adjust/monitor this so that overall time limit for the session could be maintained.
- Representative of the organizing committee will try to inform you about any change of schedule/non-availability of speakers for any particular session.

In case of any difficulty the chairperson should communicate with the volunteers present in the room. The chairperson may seek assistance of the registration desk for contacting organizing committee members.

PROGRAM DETAILS: AT A GLANCE

March 05, 2007

Time	Geology Auditorium	NAB-I Seminar Room	ECSU Seminar Room	CVPR Seminar Room
08:00 – 09:30	Registration			
09:30 – 10:00	Inauguration			
10:00 – 10:15	Tea Break			
10:15 – 11:00	Plenary Talk Track-II *Speaker*: Witold Pedrycz, University of Alberta, Canada *Title*: Distributed and collaborative soft computing: an emerging development environment. *Session Chair*: C. A. Murthy			
11:00 – 11:45	Plenary Talk Track-III *Speaker*: Hiromichi Fujisawa, Hitachi Ltd., Japan *Title*: Information Just-in-Time: Going beyond 'the Myth of Paperlessness'. *Session Chair*: B. B. Chaudhuri			
11:45 – 12:00	Tea Break			
12:00 – 13:30	Session TI-A	Session TII-A	Session TIII-A	Session TIV-A
13:30 – 14:15	Lunch Break			
14:15 – 16:15	Session TI-B	Session TII-B	Session TIII-B	Session TIV-B
16:15 – 16:30	Tea Break			
16:30 – 18:30	Session TI-C	Session TII-C	Session TIII-C	Session TIV-C
18:30 – 19:30	Cultural Programme followed by **Welcome Dinner** for Conference Participants			

March 06, 2007

Time	Geology Auditorium	NAB-I Seminar Room	ECSU Seminar Room	CVPR Seminar Room
10:15 – 12:15	Session TI-D	Session TII-D	Session TIII-D	Session TIV-D
12:15 – 12:30	Tea Break			
12:30 – 13:30	Keynote Speech *Speaker*: Michael Brady, Oxford University, UK. *Title*: Oncological Image Analysis: Medical and Molecular Image Analysis. *Session Chair*: S. K. Pal			
13:30 – 14:15	Lunch Break			
14:15 – 16:15	Session TI-E	Session TII-E	Session TIII-E	Session TIV-E
16:15 – 16:30	Tea Break			
16:30 – 17:30	Session TI-F	Session TII-F	Session TIII-F	Session TIV-F
18:30 – 21:00	**Banquet Dinner** for Conference Participants			

March 07, 2007

Time	Geology Auditorium	NAB-I Seminar Room	ECSU Seminar Room	CVPR Seminar Room
10:15 – 11:00	Plenary Talk Track-I *Speaker*: Reinhard Klette, Univ. of Auckland, New Zealand *Title*: Rubberband algorithms for solving various 2D or 3D shortest path problems. *Session Chair*: B. B. Bhattacharya			
11:00 – 11:45	Plenary Talk Track-IV *Speaker*: B. F. Buxton, University College London, UK. *Title*: Development of an Extension of the Otsu Algorithm for Multidimensional Image Segmentation of Thin-film Blood Slides. *Session Chair*: B. Chanda			
11:45 – 12:00	Tea Break			
12:00 – 13:00	Session TI-G	Session TII-G	Session TIII-G	Session TIV-G
13:00 – 13:30	Valedictory Session			
13:30 – 14:15	Lunch Break			
15:00 – 16:30	Institute Convocation			

CONFERENCE SESSIONS

Session TI-A: Parallel and Distributed Computing		
March 05, 2007	**Room: Geology Auditorium**	**12:00 – 13:30**
Session Chair: Vijaya L. Ramachandran		
TI-A-1	**Distributed Protocols for Defensive and Offensive Alliances in Network Graphs** *P. Srimani and Z. Xu*	
TI-A-2	**Partially Dynamic Concurrent Update of Distributed Shortest Paths** *G. D'Angelo, G. Di Stefano, S. Cicerone, and D. Frigioni*	
TI-A-3	**Checkpointing using Mobile Agents in Distributed Systems** *P. S. Mandal and K. Mukhopadhyaya*	
TI-A-4	**Distributed Data Gathering Scheduling in Multihop Wireless Sensor Networks for Improved Lifetime** *S. Bhattacharjee and N. Das*	
TI-A-5	**A Distributed Trust Establishment Scheme for Mobile Ad Hoc Networks** *J. Sen, P. Roy Chowdhury, and I. Sengupta*	

Session TII-A: Artificial Neural Network		
March 05, 2007	**Room: NAB-I Seminar Room**	**12:00 – 13:30**
Session Chair: S. Bose		
TII-A-1	**Neural Network aided Unscented Kalman Filter for Maneuvering Target Tracking in Distributed Acoustic Sensor Networks** *Zhi-Jun Yu, Shao-Long Dong, Tao Xing, and Hai-Tao Liu*	
TII-A-2	**Neural Network Control of Coordinated Multiple Manipulator Systems** *Naveen Kumar, Vikas Panwar, and N. Sukavanam*	
TII-A-3	**Smell Peak Prediction during Black Tea Fermentation Process using Time-Delay Neural Network on Electronic Nose Data** *Bipan Tudu, Barun Das, Nabarun Bhattacharyya, Arun Jana, Debdulal Ghosh, and Rajib Bandyopadhyay*	
TII-A-4	**Neural Network Based Effort Estimation using Class Points for OO Systems** *S. Kanmani, J.Kathiravan, S. SenthilKumar, and M. Shanmugam*	

Session TIII-A: Document Processing I		
March 05, 2007	Room: ECSU Seminar Room	12:00 – 13:30
Session Chair: H. Fujisawa		
INVITED	**Co-articulation Modeling for Handwriting Synthesis** *J. H. Kim* *AIPR Lab, KAIST, Korea*	
TIII-A-1	**PATRAM: A Unified Word Processing System for Handwritten Characters in Indian Languages** *M. Kasirajan and V. S. Chakravarthy*	
TIII-A-2	**Ranking of Optical Character Prototypes in a Large Database using Isothetic Chord Lengths** *P. Bhowmick, A. Biswas, and B. B. Bhattacharya*	
TIII-A-3	**A Fuzzy Technique for Segmentation of Handwritten Bangla Word Images** *S. Basu, R. Sarkar, N. Das, M. Kundu, M. Nasipuri, and D. K. Basu*	

Session TIV-A: Biometrics		
March 05, 2007	Room: CVPR Seminar Room	12:00 – 13:30
Session Chair: S. Chaudhury		
INVITED	**Biometric Research and Development** *David Zhang* *Department of Computing, Hong King Polytechnic University, Hong Kong*	
TIV-A-1	**Localization of Ear using Outer Helix Curve of the Ear** *S. Ansari and P. Gupta*	
TIV-A-2	**Secondary Diagonal FLD for Fingerspelling Recognition** *M. G. Suraj and D. S. Guru*	
TIV-A-3	**Optimal Objective Functional Selection for Image Reconstruction in Diffuse Optical Tomography** *A. V. Patil and U. B. Desai*	

Session TI-B: Mobile and Wireless Networks		
March 05, 2007	Room: Geology Auditorium	14:15 – 16:15
Session Chair: J. Dattagupta		
TI-B-1	**Lower Bound on Bandwidth for Channel Assignment in Multimedia Cellular Networks with 2-Band Buffering** *G. K. Audhya and B. P. Sinha*	
TI-B-2	**A Heuristic Technique for Solving Dual-homing Assignment Problem of 2.5G Cellular Networks** *S. K. Sadhukhan, S. Mandal, and D. Saha*	
TI-B-3	**On the Link Excess Life in Mobile Wireless Networks** *A. Nayebi, A. Khosravi, and H. Sarbazi-Azad*	
TI-B-4	**A Finite State Analysis of Time-triggered CAN (TTCAN) Protocol using Spin** *I. Saha and S. Roy*	
TI-B-5	**SISO based Turbo Equalization and Decoding for ISI corrupted Wireless Channels** *A. Tripathy, S. S. Pathak, and S. Chakrabarti*	
TI-B-6	**A Beacon Selection Algorithm for Bounded Error Location Estimation in Ad hoc Networks** *K. Sinha and A. Datta Chowdhury*	

Session TII-B: Fuzzy Sets		
March 05, 2007	Room: NAB-I Seminar Room	14:15 – 16:15
Session Chair: W. Pedrycz		
TII-B-1	**Intuitionistic fuzzy automata and associated topologies** *Arun K. Srivastava and S. P. Tiwari*	
TII-B-2	**AFDM approach for Experience Inclusion in Learning Controllers** *S. Gopinath, Indra Narayan Kar and R. K. P. Bhatt*	
TII-B-3	**Methods of Evaluation and Extraction of Membership Functions - Review with a New Approach** *Dwijesh Dutta Majumder, Rupak Bhattacharyya and Supratim Mukherjee*	

Session TII-B: Fuzzy Sets		
March 05, 2007	**Room: NAB-I Seminar Room**	**14:15 – 16:15**
Session Chair: W. Pedrycz		
TII-B-4	**Parallel Evolutionary Asymmetric Subsethood Product Fuzzy-Neural Inference System: An Island Model Approach** *Lotika Singh and Satish Kumar*	
TII-B-5	**A Fuzzy Ontology Generation Framework for Handling Uncertainties and Non-uniformity in Domain Knowledge Description** *Muhammad Abulaish and Lipika Dey*	

Session TIII-B: Natural Language Processing I		
March 05, 2007	**Room: ECSU Seminar Room**	**14:15 – 16:15**
Session Chair: B. B. Chaudhuri		
TIII-B-1	**Algorithm for Identifying the Syntactic and Semantic Categories of Prepositions: Case of Over** *Y. S. Alam*	
TIII-B-2	**Semantics of 'to'** *A. Almeida, R. K. Mohanty, and P. Bhattacharyya*	
TIII-B-3	**Word Sense Disambiguation Using Extended WordNet** *S. K. Naskar and S. Bandyopadhyay*	
TIII-B-4	**An Example Based Approach for Parsing Natural Language Sentences** *N. Chatterjee and S. Goyal*	

Session TIV-B: Content based Image Retrieval		
March 05, 2007	**Room: CVPR Seminar Room**	**14:15 – 16:15**
Session Chair: B. F. Buxton		
INVITED	**Current Status and Future Trends of Nanoscale Technology and Its Impact on Modern Computing, Biology, Medicine and Agricultural Biotechnology** *D. Dutta Majumder, Christian Ulrichs, Debosmita Majumder, Inga Mewis, Ashoke Ranjan Thakur, R. L. Brahmachary, Rajat Banerjee, Ayesha Rahman, Nitai Debnath, Dipankar Seth, Sumistha Das, Indrani Roy, Amrita Ghosh, Prity Sagar, Carsten Schulz, Nguyen Quang Linh, and Arunava Goswami*	
TIV-B-1	**Characterization of Isothetic Polygons for Image Indexing and Retrieval** *A. Biswas, P. Bhowmick, and B. B. Bhattacharya*	
TIV-B-2	**Content Based Image Retrieval System for Multi Object Images using Combined Features** *A. Katare, S. Mitra, and A. Banerjee*	
TIV-B-3	**An Approach Based on Regression Line Features for Low Complexity Content Based Image Retrieval** *R. P. Kumar and P. Nagabhushan*	
TIV-B-4	**Concept Pre-digestion Method for Image Relevance Reinforcement Learning** *P. S. Reddy, R. S. Bapi, C. Bhagvati, and B. L. Deekshatulu*	

Session TI-C: VLSI Design I		
March 05, 2007	**Room: Geology Auditorium**	**16:30 – 18:30**
Session Chair: P. S. Dasgupta		
TI-C-1	**Process Variability-aware Statistical Hybrid Modeling of Dynamic Power Dissipation in 65 nm CMOS Designs** *B. P. Harish, N. Bhat, and M. B. Patil*	
TI-C-2	**An Approach for Pre-Silicon Power Modeling** *P. Agrawal, R. Srinivasa, A. N. Oke, and S. Vijay*	
TI-C-3	**An Overlap Removal Algorithm for Macrocell Placement** *M. Thenappan, A. T. Senthil, K. M. Sreekanth, and R. S. Guzar*	

Session TI-C: VLSI Design I		
March 05, 2007	**Room: Geology Auditorium**	**16:30 – 18:30**
Session Chair: P. S. Dasgupta		
TI-C-4	**A Novel Scheme for Encoding and Watermark Embedding in VLSI Physical Design for IP Protection** *D. Saha, P. S. Dasgupta, S. Sur-Kolay, and S. Sen-Sarma*	
TI-C-5	**Faster Placer for Island-style FPGAs** *P. Banerjee and S. Sur-Kolay*	
TI-C-6	**Reconfigurable Frame Parser Design for Multi-radio Support on Asynchronous Microprocessor Cores** *D. Guha and T. Srikanthan*	

Session TII-C: SVMs and Clustering		
March 05, 2007	**Room: NAB-I Seminar Room**	**16:30 – 18:30**
Session Chair: D. Sengupta		
TII-C-1	**Fast Single-Shot Multiclass Proximal Support Vector Machines and Perceptrons** *K. P. Soman, Loganathan R, M. S. Vijaya, V. Ajay, and Shivsubramani K*	
TII-C-2	**Scalable clustering with smoka** *Jacob Kogan*	
TII-C-3	**Cluster based training for scaling non-linear Support Vector Machines** *Asharaf S , M Narasimha Murty, and S K Shevade*	
TII-C-4	**A Fuzzy Genetic Clustering Technique Using A New Symmetry Based Distance for Automatic Evolution of Clusters** *Sriparna Saha and Sanghamitra Bandyopadhyay*	

Session TIII-C: Speech and Signal Processing I		
March 05, 2007	**Room: ECSU Seminar Room**	**16:30 – 18:30**
Session Chair: S. Palit		
TIII-C-1	**High Computational Performance in Code Exited Linear Prediction Speech Model using Faster Codebook Search Techniques** *R. P. Kumar*	
TIII-C-2	**Capturing Complementary Information via Reversed Filter Bank and Parallel Implementation with MFCC for Improved Text-Independent Speaker Identification** *S. Chakroborty, A. Roy, S. Majumdar, and G. Saha*	
TIII-C-3	**ISPIHT-Improved SPIHT: a Simplified and Efficient Sub-band Coding Scheme** *Y. K. Singh*	
TIII-C-4	**Fast Reliable & Secure Digital Communication Using Hadamard Matrices** *S. K. Pal*	

Session TIV-C: Image Processing		
March 05, 2007	**Room: CVPR Seminar Room**	**16:30 – 18:30**
Session Chair: P. K. Biswas		
TIV-C-1	**Non-parametric mixture model based evolution of level sets** *N. Joshi and M. Brady*	
TIV-C-2	**Edge Filtering using Orientation Entropy** *A. K. Das, P. K. Mitra, A. K. Ray, and S. K. Ghosh*	
TIV-C-3	**A Noise Fading Technique for Images Highly Corrupted with Impulse Noise** *S. Indu and C. Ramesh*	
TIV-C-4	**High Fidelity Inpainting for Critical Applications using Image Fusion** *A. Mishra, B. Sharma, and S. Rakshit*	

Session TIV-C: Image Processing		
March 05, 2007	**Room: CVPR Seminar Room**	**16:30 – 18:30**
Session Chair: P. K. Biswas		
TIV-C-5	**Adaptive Index Coding Scheme for VQ Indices Compression** *K. Somasundaram and S. Domnic*	
TIV-C-6	**New Filter Based Unsupervised Rules for Boolean Blur Metric** *P. Shivakumara, S. Noushat, and G. H. Kumar*	

Session TI-D: VLSI Design II		
March 06, 2007	**Room: Geology Auditorium**	**10:00 – 12:00**
Session Chair: S. Sur Kolay		
TI-D-1	**What graphs can be efficiently represented by BDDs?** *C. Dong and P. Molitor*	
TI-D-2	**Register Sharing Verification During Data-path Synthesis** *C. Karfa, C. Mandal, D. Sarkar, and C. Reade*	
TI-D-3	**Genetic Algorithm Based Approach For Hierarchical SOC Testing** *C. Giri, D. K. R. Tipparthi, and S. Chattopadhyay*	
TI-D-4	**Test Data Compression by Split-VIHC(SVIHC)** *C. Giri, B. M. Rao, and S. Chattopadhyay*	
TI-D-5	**Timing Analysis of Sequential Circuits using Symbolic Event Propagation** *A. Mondal, P. P. Chakrabarti, and P. Dasgupta*	
TI-D-6	**A Low-Cost Pipelined Multilingual E-Dictionary Using a Pipelined CTAM** *S. K. Ray, S. Dutta, and A. K. Saha*	

Session TII-D: Data Mining and Soft Computing		
March 06, 2007	**Room: NAB-I Seminar Room**	**10:00 – 12:00**
Session Chair: Amita Pal		
TII-D-1	**A Multi-objective Genetic Algorithm with Relative Distance: Method, Performance Measures and Constraint Handling** *Praveen Kumar Tripathi, Sanghamitra Bandyopadhyay, and Sankar Kumar Pal*	
TII-D-2	**Exploitation of Multivalued Type Proximity for Symbolic Feature** *Bapu B. Kiranagi, D. S. Guru, and Manabu Ichino*	
TII-D-3	**Semantic Integration of Heterogeneous Databases on the Web** *Niladri Chatterjee and Madhav Krishna*	
TII-D-4	**Discretization Using Clustering and Rough Set Theory** *Girish Kumar Singh and Sonajharia Minz*	

Session TIII-D: Natural Language Processing II		
March 06, 2007	**Room: ECSU Seminar Room**	**10:00 – 12:00**
Session Chair: S. Bandyopadhyay		
TIII-D-1	**Resolution of Pronominals in Tamil** *L. Sobha*	
TIII-D-2	**A Hybrid Approach to Sentence Alignment Using Genetic Algorithm** *M. Gautam and R. M. K. Sinha*	
TIII-D-3	**Some Improvements over the BLEU Metric for Measuring Translation Quality for Hindi** *N. Chatterjee, M. Krishna, and A. Johnson*	
TIII-D-4	**A Novel Approach for Re-Ranking of Search results using Collaborative Filtering** *U. Rohini and V. Varma*	

Session TIV-D: Motion and 3D Vision		
March 06, 2007	**Room: CVPR Seminar Room**	**10:00 – 12:00**
Session Chair: S. Das		
TIV-D-1	**Pose-Invariant 3D Object Recognition using Linear Combination of 2D Views and Evolutionary Optimisation** *V. Zografos and B. F. Buxton*	
TIV-D-2	**Using object models as domain knowledge in perceptual organization: An approach for object category identification in video sequences** *G. Harit, R. Bharatia, and S. Chaudhury*	
TIV-D-3	**An efficient motion re-estimation in frame-skipping video transcoding** *V. Patil and R. Kumar*	
TIV-D-4	**Stabilisation of Active Contours using Tangential Evolution Term: An Application to Tracking** *V. Srikrishnan, S. Chaudhuri, and S. D. Roy*	
TIV-D-5	**Kernel PCA in Detecting Moving Vehicle from its Viewpoint** *M. M. Rahman and A. Santhanam*	
TIV-D-6	**Algorithms and Programmable VLSI Architecture for Multi-format Video Processing** *S. Dey*	

Session TI-E: High Performance Computing		
March 06, 2007	**Room: Geology Auditorium**	**14:15 – 16:15**
Session Chair: B. P. Sinha		
INVITED	**Cache-Oblivious Computation: Algorithms and Experimental Evaluation** *V. Ramachandran* *University of Texas at Austin, USA*	
TI-E-1	**Utility Based Multiple QoS Guaranteed Resource Scheduling Optimization In Grid Computing** *L. Chunlin and L. Layuan*	

Session TI-E: High Performance Computing		
March 06, 2007	**Room: Geology Auditorium**	**14:15 – 16:15**
Session Chair: B. P. Sinha		
TI-E-2	**Unintelligent Guided Ant-Based Solution to the Application Service Mapping Problem in a Grid Environment** *S. B. Musunoori and G. Horn*	
TI-E-3	**Generation of Group Key using Enhanced One Way Function Tree Group Rekey Protocol** *B. P. Varthini and S.Valli*	
TI-E-4	**Privacy Preserving Vehicle Purchase Marketplace** *S. K. Sehgal and A. Saroop*	

Session TII-E: Bio Informatics		
March 06, 2007	**Room: NAB-I Seminar Room**	**14:15 – 16:15**
Session Chair: X. Zhang		
INVITED	**Pattern Recognition in Mining High-throughput Genomics/proteomics Data: the New Challenges in Old Questions** *Xuegong Zhang* *Tsinghua University, Beijing, China*	
TII-E-1	**New Distance Measure for Microarray Gene Expressions using Linear Dynamic Range of Photo Multiplier Tube** *Shubhra Sankar Ray, Sanghamitra Bandyopadhyay, and Sankar K. Pal*	
TII-E-2	**Unsupervised Thresholding of Affymetrix Microarray Data** *Matthew W. B. Trotter and Bernard F. Buxton*	

Session TIII-E: Document Processing II		
March 06, 2007	**Room: ECSU Seminar Room**	**14:15 – 16:15**
Session Chair: M. Shridhar		
INVITED	**Star Compression and Compressed Domain Pattern Matching** *Amar Mukherjee* *University of Central Florida, Orlando, USA*	

Session TIII-E: Document Processing II		
March 06, 2007	**Room: ECSU Seminar Room**	**14:15 – 16:15**
Session Chair: M. Shridhar		
TIII-E-1	**Document Frauds: Identification and Linking Fake Document to Scanners and Printers** *G. Gupta, S. K. Saha, C. Mazumdar, and S. Chakraborty*	
TIII-E-2	**Automatic Seal Information Reader** *F. Nourbakhsh, P. B. Pati, and A. G. Ramakrishnan*	
TIII-E-3	**An Integrated Scheme for Compression and Interactive Access to Document Images** *G. Harit, R. Garg, and S. Chaudhury*	
TIII-E-4	**Text/Graphics Separation in Color maps** *P. P.Roy, J. Llados, and U. Pal*	

Session TIV-E: Remote Sensing and Image Analysis		
March 06, 2007	**Room: CVPR Seminar Room**	**14:15 – 16:15**
Session Chair: D. Dutta Majumder		
TIV-E-1	**Neuro-Wavelet Classifier for Remote Sensing Image Classification** *B. Uma Shankar, S. K. Meher, and A. Ghosh*	
TIV-E-2	**Unsupervised Change Detection in Remote-Sensing Images using Modified Self-Organizing Feature Map Neural Network** *S. Patra, S. Ghosh, and A. Ghosh*	
TIV-E-3	**Machine Extraction of Landforms from Multispectral Images using Texture and Neural Methods** *P. Roychowdhury, B. Deshmukh, and A.Goswami*	
TIV-E-4	**Chromatogram Image Pre-Processing and Feature Extraction for Automatic Soil Analysis** *V. Saritha, M. M. Joseph, S. Das, and D. Khemani*	

Session TIV-E: Remote Sensing and Image Analysis		
March 06, 2007	**Room: CVPR Seminar Room**	**14:15 – 16:15**
Session Chair: D. Dutta Majumder		
TIV-E-5	**Weed Classification using Angular Cross Sectional Intensities for Real-time Selective Herbicide Applications** *A. M. Naeem, I. Ahmad, M. Islam, and S. Nawaz*	
TIV-E-6	**A Novel Integrated Approach using Dynamic Thresholding and Edge Detection (IDTED) for Automatic Detection of Exudates in Digital Fundus Retinal Images** *A. Vidyasagar, S.Balasubramaniam, and V.Chandrasekaran*	

Session TI-F: Architectures		
March 06, 2007	**Room: Geology Auditorium**	**16:30 – 18:30**
Session Chair: P. Srimani		
TI-F-1	**Diameter and Routing in Enhanced OTIS-cube** *R. Das*	
TI-F-2	**Empirical Performance Evaluation of Adaptive Routing in Necklace Hypercubes: A Comparative Study** *S. Meraji, A. Nayebi, and H. Sarbazi-Azad*	
TI-F-3	**NLPBench: A tool for studying the architectural characteristics of Natural Language and Speech Applications** *A. Mukhopadhyay*	
TI-F-4	**A Model for Service Composition with Multiple QoS Constraints** *X. Feng, Y. Ren, J. Hu, Q. Wu, and Y. Jia*	
TI-F-5	**Handling Parameter Passing In Dynamic Rendering of Enterprise Reports** *D. Jana, A. Mandal, C. Bose, and D. Ghosh*	

Session TII-F: Classification and Prediction		
March 06, 2007	**Room: NAB-I Seminar Room**	**16:30 – 17:30**
Session Chair: P. Chowdhury		
TII-F-1	**A Unified Approach to Encoding and Classification using Bimodal Projection-based Features** *Dipti Deodhare, M. Vidyasagar and M. Narasimha Murthy*	
TII-F-2	**Kernel Auto-Regressive Model with eXogenous Inputs for Nonlinear Time Series Prediction** *Venkataramana Kini B and C. Chandra Sekhar*	
TII-F-3	**Modeling Time-Varying Population for Biometric Authentication** *Vandana Roy and C. V. Jawahar*	

Session TIII-F: Speech and Signal Processing II		
March 06, 2007	**Room: ECSU Seminar Room**	**16:30 – 17:30**
Session Chair: D. Sengupta		
TIII-F-1	**Total Removal of Baseline Drift from ECG Signal** *V.S. Chouhan and S.S. Mehta*	
TIII-F-2	**Comparision of Estimation Techniques using Kalman Filter and Grid based Filter for linear System** *S. Bhowmik and C. Roy*	
TIII-F-3	**Digital Signal Types Identification Using a Hierarchical SVM-Based Classifier and Efficient Features** *Ataollah Ebrahimzadeh and Seyed Alireza Seyedin*	

Session TIV-F: Graphics		
March 06, 2007	**Room: CVPR Seminar Room**	**16:30 – 17:30**
Session Chair: S. Dutta Roy		
TIV-F-1	**Point Based Representation for Hierarchical Environments** *T. Kedarnath, G. Lakshmi, Jagmohan, and P. J. Narayanan*	
TIV-F-2	**Finite Automata Inspired Model for Dominant Point Detection: A Non-Parametric Approach** *R. Dinesh and D. S. Guru*	
TIV-F-3	**A Comparative Study on 2D Curvature Estimators** *S. Hermann and R. Klette*	
TIV-F-4	**Single View Image Based 3D Modeling and Rendering from Perspective** *S. Mohan and S. Murali*	

Session TI-G: Algorithms		
March 07, 2007	**Room: Geology Auditorium**	**12:00 – 13:00**
Session Chair: R. Klette		
TI-G-1	**Covering a Set of Points in a Plane using Two Parallel Rectangles** *C. Saha and S. Das*	
TI-G-2	**ICE: The Isothetic Convex Envelope of a Digital Object** *P. Bhowmick, A. Biswas, and B. B. Bhattacharya*	
TI-G-3	**A Local Search Heuristic for Biobjective Intersecting Geometric Graphs** *R. Kumar, P. K. Singh, and B. B. Bhattacharya*	

Session TII-G: Applications in Image Analysis		
March 07, 2007	**Room: NAB-I Seminar Room**	**12:00 – 13:00**
Session Chair: S. Mitra		
TII-G-1	**Face Recognition by Combination of RBF Neural Networks Using Dempster-Shafer Theory** *S. Thakur, J. K. Sing, D. K. Basu, M. Nasipur,i and M. Kundu*	
TII-G-2	**Deformation Correction in Brain MRI Using Mutual Information and Genetic Algorithm** *Pradipta Maji, Bhabatosh Chanda, Malay K. Kundu, and Suman Dasgupta*	
TII-G-3	**A Pose Recovery Algorithm to Minimize the Effects of Pose Variation on the Matching Performance of Elastic Bunch Graph Based Multiview Face Recognition System** *D. Mazumdar, K. Chanda, M. Bhattacharya and S. Mitra*	
TII-G-4	**Analysis of Ultrasound Kidney Images using Content Descriptive Multiple Features for Disorder Identification and ANN based Classification** *K. Bommanna Raja, M.Madheswaran and K. Thyagarajah*	
TII-G-5	**Hyperspectral Image Analysis -A Robust Algorithm using Support Vectors and Principal Components** *Sindhumol S and Wilsy M*	

Session TIII-G: Document Processing III		
March 07, 2007	**Room: ECSU Seminar Room**	**12:00 – 13:00**
Session Chair: J. H. Kim		
INVITED	**Comprehensive Check Image Reader** *M. Shridhar,* *University of Michigan-Dearborn, USA*	
TIII-G-1	**Indexing of Document Images based on Triangular Spatial Relationships** *P. P. Naveen and D. S. Guru*	
TIII-G-2	**A Study of Different Kinds of Degradation in Printed Gurmukhi Script** *M.K. Jindal, R. K. Sharma, and G.S.Lehal*	

Session TIV-G: Watermarking		
March 07, 2007	**Room: CVPR Seminar Room**	**12:00 – 13:00**
Session Chair: P. K. Nandi		
TIV-G-1	**An Efficient Digital Watermarking Scheme for Dynamic Estimation of Wireless Channel Condition** *S. P. Maity, M. K. Kundu, and S. Maity*	
TIV-G-2	**Image Watermarking Using Krawtchouk Moments** *A.V. Ramana and P.A. Raj*	
TIV-G-3	**Image Quality Assessment Complemented with Visual Regions of Interest** *D.V. Rao, N. Sudhakar, I. R.Babu, and L.P. Reddy*	

Late Submissions

Plenary lecture of Track III

Information Just-in-Time: Going beyond 'the Myth of Paperlessness'

Hiromichi Fujisawa
Corporate Chief Scientist
Research & Development Group
Hitachi, Ltd., Japan

Abstract

Information Just-in-Time or iJIT is a concept that denotes the idealistic status of information to be ready to use when it is necessary. Because of the great successes of search engines being used for World-Wide Webs, we are apt to think that the information availability issues have been almost solved. However, we still have a lot of information in terms of paper documents at our desks and in our cabinets. This reality is well analyzed by Sellen, et al. by their book titled "the myth of the paperless office." Under the iJIT concept we have been proposing, the talk will present a possibility of turning paper into 'incarnation' of the information that exists in computers. In other words, we will propose a system under which the two versions of information, which are in paper and in computers, respectively, are always equivalent so that the paper version may be discarded when it has become 'warm' or 'cold.' Needless to say, 'hot' information can be more effectively processed by relying on both paper and computer. Based on the digital pen technology, such systems are now under development at several institutions. An example case at our laboratory will be presented.

Invited Lecture of Track IV

Biometrics Security: Research and Development

David Zhang
Department of Computing,
Hong King Polytechnic University, Hong Kong

Abstract

In recent times, an increasing, worldwide effort has been devoted to the development of automatic personal identification systems that can be effective in a wide variety of security contexts. As one of the most powerful and reliable means of personal authentication, biometrics has been an area of particular interest. This interest has led to the extensive study of biometric technologies such as fingerprint and face recognition and the development of numerous algorithms, applications, and systems. This presentation will provide a summary about various biometric technologies as well as why biometrics and what about biometrics. Biometrics systems and applications are also discussed.

Invited Lecture of Track III

Star Compression and Compressed Domain Pattern Matching

Amar Mukherjee
School of Electrical Engineering and Computer Science
University of Central Florida
Orlando, FL.32816, USA

Abstract

Data compression serves an obvious practical purpose: it conserves storage by removing redundancy, it enhances utilization of available bandwidth in a network and it also improves computer systems performance by reducing accesses to storage devices. Researchers have studied lossless text compression methods for the last half century and the techniques generally fall under three categories: statistical, dictionary-based and transformation-based. In the first half of the talk, I will present a relatively new transformation technique called Star transform which enables data compression with performance better than that of many existing compression algorithms. I will briefly present some of the variations of the theme of Star compression and their relative performances with respect to many classical and recent methods.

With increasing amount of text data being stored in compressed format, efficient information retrieval in the compressed domain has also become a major challenge. Being able to randomly access and partially decode the compressed data is highly desirable for efficient retrieval. In the second half of the talk, I will summarize our recent work on compressed domain pattern matching and information retrieval systems. Broadly, the compressed domain pattern matching and retrieval research has been based on BWT (Burrows-Wheeler Transform) and LZW (Ziv-Lempel-Welch) compression methods.

KOLKATA

In the fall of 1687, Job Charnock, an agent of the East India Company secured permission from the Mughals to found a base at sutanati. In 1696, Old Fort William was established and this was the origin of the city of Kolkata. The name Kolkata is derived from Kalikata, one of the three villages whose lands became a part of the new settlement. In the three centuries, Kolkata has grown from a mere fishing village into the largest cities in the India with a population of 10.5 million, and indeed, one of the largest cities in the world. Kolkata served as the capital of British India until 1912 and it is not surprising that one sees predominantly Western architectural styles in its many buildings and monuments. Two of the finest examples are Writers Building and the Victoria Memorial, where the architecture is a medley of the best of Occidental and Oriental styles. It is proud to have one of the best libraries and museum in Asia. Kolkata is a city with strong cultural, literary and scientific flavors. This is reflected in the ever increasing flow of activities in such diverse fields as science, fine arts, writing, music, dance and theatre. The first Nobel laureate in literature from Asia was from Kolkata and it was the main place of work of several other Nobel laureates.

AIR CONNECTIONS

Kolkata is internationally connected by air directly to New York, London, Paris, Frankfurt, Rome, Moscow, Dubai, Bangkok, Singapore, Tokyo and others.
Within India it is linked with Delhi, Mumbai, Chennai, Bangalore, Guwahati, Dibrugarh, Nagpur, Bhubaneswar, Hyderabad and other important cities.

PLACES TO VISIT

Academy of Fine Arts: Established in 1933, the Academy is a place where the city's culturally conscious intellectuals converge. Its art galleries feature exhibitions by contemporary artists throughout the year. The Rabindra Gallery contains personal belongings, manuscripts and paintings by Tagore. Situated near Victoria Memorial, its galleries are open daily from 3 pm to 8 pm (except the Rabindra Gallery which remain open from 12:00 noon to 6 pm daily, closed on Mondays).

Belur Math: Founded by Swami Vivekananda, the world famous yogi and disciple of Sri Ramakrishna Paramhansa, it is the Headquarters of the Ramakrishna Mission. This International tourist attraction is located on the banks of the river Hooghly near Belur, 6.4 kms. from Howrah Station. Its sprawling prayer hall with a statue of Ramakrishna is remarkable. Connected by train and bus.

Birla Industrial & Technological Museum: Established in 1959, it is located at 19A Gurusaday Road. It features permanent exhibition on scientific and

technological progress. Has workshop which designs and produces much of its exhibits. Entry by ticket, Monday closed.

Birla Planetarium: One of the largest in Asia, it is located at 96 Jawaharlal Nehru Road, Daily programmes in English, Bengali and Hindi from 12 noon to 7 pm. It can accommodate 500 persons. Entry by ticket, Monday closed.

Botanical Garden: The largest and oldest of its kind in India, it was laid out in 1787. It covers an area of 109.27 ha and is famous for the over 250 years old Great Banyan tree which covers 382 m in its circumference, with over 600 aerial roots. There are more than 30,000 varieties of trees and plants. Situated about 9 km from Kolkata, across the Hooghly river, it is a lovely picnic spot, best reached by a ferry across the Hooghly river from Metiabruz. Open from 7:00 am to 5:00 pm. Entry by ticket.

Dakshineswar: Built by Rani Rasmoni in the 19th century on the bank of the river Hooghly, in the northern suberb of Kolkata. It is here that Sri Ramakrishna Paramhansa, the renowned spiritual personality and the guru of Swami Vivekananda had worshipped the goddess Kali. A world famous place of pilgrimage.

Eden Gardens: A sprawling garden set up by the British in the early 20th century with a band stand and a beautiful pagoda. An attractive picnic spot on Strand Road. A stadium has been built adjacent to it for cricket test matches which can accommodate about 100,000 people.

Indian Museum: A National Museum housing rare antiques, armaments, armour, fossils, stones, paintings of Mughal India, regal dresses/uniforms, rare animal skeletons, mummies, etc. Entry by ticket. Situated on J L Nehru Road.

Kalighat Temple: Legend goes that the name of Kolkata, is derived from the famous Kali deity of this temple located at Kalighat in South Kolkata. A great attraction for Hindu pilgimage.

Metro Rail: The underground railway system is the main traffic artery of the city, running from Dum Dum in the North to Tollygunge in the South. Stations are placed at all major junctions along the length of the city.

National Library: Previously vice-Regal House, it is one of the largest libraries in Asia with a collection of rare books and manuscripts. Located opposite the Zoological Gardens, Alipore.

Nicco Park: An amusement park with a variety of enjoyable games and rides. Located at Salt Lake. Entry by ticket.

Saheed Minar: Previously known as Octerloney Monument, it resembles the Qutab Minar of Delhi. Located near Esplanade on the Maidan and seat of many memorable political meetings.

St. Paul's Cathedral: The Anglican Cathedral of Kolkata built in 1847, adjacent to the Birla Planetarium. Its tower is 65 m high and is famous for the serene service conducted on Christmas Eve.

Science City: One of the few such facilities in the World, the Science City on the Eastern Metropolitan Bypass has a Convention Center and Science Theme Park. Here,
hitech combines with impressive visuals to bring science closer to people. Entry by ticket.

Victoria Memorial: Built in memory of Queen Victoria, between 1906 and 1921, imitating the Taj Mahal, topped with an angel, this memorial faces the Kolkata maidan. It houses paintings, manuscripts, and other objects of historic value in its Museum and Art Gallery. Two regular sound and light shows are held in the evening. Entry by ticket, Monday closed.

Zoological Garden: One of the biggest zoological gardens in India, it has a vast collection of animals, birds, snakes and reptiles. It also has a section for children. It remains a favourite picnic spot during winter and attracts a large number of emigrant birds. Directly across the main zoo is an aquarium, with a variety of aquatic life from around the world. Entry by ticket.

ESSENTIAL INFORMATION

Hospitals Nursing Homes
Advanced Medicare & Research Institute Ltd.: 2440-4102/9753/54
Assembly of god Hospital & Research Centre: 2229-4853/4886
Belle Vue Clinic: Ambulance with medical facilities including oxygen, 24-hr doctor/nurse available: 2247-7473/6925/7920/7918/6921
B. M. Birla Heart Research Centre: 2456-7900/7100/7705/7102-5
CMRI: 2456-7700/02/03/04, Fax: 2456-7880
Kolkata Medical College: 2241-49012-4/3953/3177/2962
Kothari Medical Centre: 2456-7051/7055/7059
Lansdown Nursing Home: Ideal place with life saving equipment: 2217-1001 to 04, Tel./Fax: 2217-7860
Peerless Hospital: 2462-0955/0766/6394/2394/2462
SSKM Hospital: 2223-9692
Woodlands Nursing Home: 2456-7079/7080

Ambulance & Other Medical Services
East West Medical Complex: Ambulance Services: 2476-2252/2280
Happy Kolkatans: Ambulance available with oxygen and emergency drugs: 2440-0160
Life Aid: Ambulance available: 2473-5807/417-1845
Lokenath Divine Society of India: 24-hour hours service: 2479-3301
Nightangle Ambulance Service: 2475-4169
Meera Seva Kendra: Ambulance, Oxygen, Medical care, nurse available: 411-9400/0968/8316
Medicare Services: 2247-6111 to 12, 2247-6223
St. John Ambulance Association: 24-hour ambulance with Oxygen Sealdah: 2350-4199
Trains / Flights
Howrah Station (inquiry): 2660-2581/3542/7412
Fairlie Place (inquiry): 2220-4025
Reservation : Manual : 135 (05 lines) Computerized: 136 (Eng) 137 (Hindi) 138 (Bengali)
Howrah (New Complex): 660-2217
Train information: Central Enquiry Manual: 1310, Recorded: 1331
Sealdah Station (Enquiry): 2350-3537/3535
Public Information Centres/Sealdah: 23503536
Air India: 2282-2356-59/282-1187 Airport: 2511-9031
Indian Airlines: 2236-4433 (24 hours)/236-0810/0730 Reservations: 141, 236-6869 (1900 to 0900 hrs)
Royal Brunei Airlines: 2229-7112/7105/9577/2014 Airport: 2511-8685, 2511-8787 extn.: 4309
Sahara India Airlines: 2282-7685 (City Office) Airport : 511-8357/8442
Singaport Airlines: Reservations/Ticketing: 2280-9898/8882/8883, Airport: 2511- 9179/8978
British Airways: 2288-3451/32/53/54, 2288-9161/62 (City Office)
Airport: 511-8262/8424
Bangladesh Biman: 2229-2844 Airport: 2511-8787 Extn.: 4207
Druk Air: 2280-5376, 2240-2419, Airport: 2511-9894/9895 Telecheck in 2511-8836
KLM: 2240-3151, 2247-4593 (Fax) 2247-2444(Sales) Airport: 2511-8329, 2511-8336(Fax)
Royal Nepal: 2288-8549/8534/8635
NECON AIR: 2229-1802
Royal Jordanian: 47645091-3/4745094 Airport: 2511-9069
Thai Airways: 2280-1630-35 Airport: 2511-8189/8389

Police
Lalbazar (Police Control Room): 2215-5000, 2235-3024/0230
Bhawani Bhawan: 2479-1761-9, 2479-1933-6

Fire
Fire Service Station: 2244-0101/2222

Kolkata Telephones
Changed Number Announcement: 1951, 1952, 1953