

# ICAPR 2009 Venue

## Conference Inauguration:

Geology Auditorium  
2<sup>nd</sup> Floor, Pamela Robinson Bhavan (Geology Building)  
203 B. T. Road, Kolkata-700108

## Conference Venue:

Pamela Robinson Bhavan (Geology Auditorium)  
203 B. T. Road,  
Kolkata-700108

A N Kolmogorov Bhavan (New Academic Building (NAB))  
203 B. T. Road,  
Kolkata-700108

## Tutorial Venue:

A N Kolmogorov Bhavan (New Academic Building (NAB))  
203 B. T. Road,  
Kolkata-700108

## Lunch:

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

## Banquet:

The Oberoi Grand Kolkata  
15 J. L. Nehru Road  
Kolkata 700013

**\*\*Buses for attending banquet will start from ISI main gate at 17:45 hrs.**

## Registration Desk:

Ground Floor, A N Kolmogorov Bhavan (New Academic Building)  
(Registration will start from 09:00 Hrs, February 04, 2009)

## Email:

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

# TUTORIAL SESSION

**February 03, 2009**

**Registration** **10:00-10:30 Hrs**

**Venue** **New Academic Building (NAB) Seminar Hall - I**

**Tutorial-1** **10:30-11:30 Hrs**

**Speaker:** Ioannis Pitas, University of Thessaloniki, Greece

**Title:** Introduction to Image and Video Replica Detection (fingerprinting)

**Tea Break** **11:30-12:00 Hrs**

**Tutorial-2** **12:00-13:00 Hrs**

**Speaker:** B B Bhattacharya, ISI, Kolkata, India

**Title:** On-Chip Design of Embedded Systems for Image Processing Applications

**Lunch Break** **13:00-14:00 Hrs**

**Tutorial-3** **14:00-16:00 Hrs**

**Speaker:** Probal Chaudhuri, ISI, Kolkata, India

**Title:** Some Pattern Recognition Problems in Molecular Biology and their Statistical Solutions

## **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.

## **Oral Presentation:**

### **Instructions for Speakers:**

- Time allotted for each **plenary** talk is 60 minutes. The speaker is requested to finish the presentation within 55 minutes leaving 5 minutes for open discussion.
- Time allotted for each **contributed** talk is 15 minutes. The speaker is requested to finish the presentation within 12 minutes leaving 3 minutes for open discussion. A warning bell will ring after 10 minutes, 12 minutes and finally 15 minutes.

### **Instructions for Chairpersons:**

- Time allotted for each **plenary** talk is 60 minutes. The speaker should be requested to finish the presentation within 55 minutes leaving 5 minutes for open discussion.
- Time allotted for each **contributed** talk is 15 minutes. The speaker should be requested to finish the presentation within 12 minutes leaving 3 minutes for open discussion. A warning bell will ring after 10 minutes, 12 minutes and finally 15 minutes.
- 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 any of the following persons:

### **Pinakpani Pal and Partha Pratim Mohanta**

The chairperson may seek assistance of registration desk for contacting these persons

# PROGRAMME AT A GLANCE

February 04, 2009

09:00 - 10:30	R E G I S T R A T I O N (NAB Ground Floor)
10:30 – 11:00	I N A U G U R A T I O N (Geology Auditorium)
11:00 – 11:30	T E A
11:30 – 12:30	Plenary Talk (Geology Auditorium) Speaker: Ioannis Pitas Title: Still Image and Video Fingerprinting
12:30 – 13:30	Digital Watermarking (NAB Seminar Hall–I)
	Pattern Recognition–I (Geology Auditorium)
13:30 – 14:30	L U N C H B R E A K ( <i>ISI Guest House</i> )
14:30 – 16:30	Image Processing – I (NAB Seminar Hall – I)
	Pattern Recognition–II (Geology Auditorium)
16:30 – 17:00	T E A B R E A K
17:00 – 18:30	Image and Video Retrieval (Geology Auditorium)
	Computational Intelligence (NAB Seminar Hall–I)

# PROGRAMME AT A GLANCE

**February 05, 2009**

09:00 - 11:00	Speech Processing and Recognition (Geology Auditorium)
	Biometrics-I (NAB Seminar Hall – I)
11:00 – 11:30	T E A B R E A K
11:30 – 12:30	Remote Sensing (Geology Auditorium)
	Document Image Analysis–II (NAB Seminar Hall – I)
12:30 – 13:30	Medical Image Processing (Geology Auditorium)
	Pattern Recognition–III (NAB Seminar Hall–I)
13:30 – 14:30	L U N C H B R E A K ( <i>ISI Guest House</i> )
14:30 – 16:30	Video Tracking (Geology Auditorium)
	Document Image Analysis–I (NAB Seminar Hall – I)
16:30 – 16:45	T E A B R E A K
16:45 – 17:15	Industry Session
18:30 Onwards	C O N F E R E N C E B A N Q U E T ** <i>Performance by COLOURS – a fusion band with a difference (The Oberoi Grand Kolkata)</i>

**\*\* Buses for attending Banquet will start from ISI main gate at 17:45 hrs.**

# PROGRAM AT A GLANCE

**February 06, 2009**

09:00 - 11:00	Image Processing – II (Geology Auditorium)
	Pattern Recognition – IV (NAB Seminar Hall – I)
11:00 – 11:30	T E A   B R E A K
11:30 – 12:30	Plenary Talk (Geology Auditorium) Speaker: P. Anandan Title: From Pictures to Scenes: Recent Advances in Photo-analysis Technologies
12:30 – 13:30	Plenary Talk (Geology Auditorium) Speaker: Hong Zhang Title: Large Lump Detection using a Particle Filter of Hybrid State Variable
13:30 – 14:30	L U N C H   B R E A K ( <i>ISI Guest House</i> )
14:30 – 16:30	Computer Vision (Geology Auditorium)
	Biometrics – II (NAB Seminar Hall – I)
16:30 – 17:00	T E A   B R E A K
17:00 – 18:30	V A L E D I C T O R Y   (Geology Auditorium)

# CONFERENCE SESSION

## Plenary Talk

February 04, 2009 11:30 - 12:30 Hrs

**Venue** Geology Auditorium

**Chair** D. Dutta Majumder

Still Image and Video Fingerprinting  
*Nikos Nikolaidis and Ioannis Pitas*

## Digital Watermarking

February 04, 2009 12:30 - 13:30 Hrs

**Venue** NAB Seminar Hall - I

**Chair** Bimal Roy

Robust Watermarking using Distributed MR-DCT and SVD  
*Gaurav Bhatnagar and Balasubramanian Raman*

A Secure Steganographic Technique for blind steganalysis resistance  
*Mehul S Raval*

Spread Spectrum Watermark Embedder Optimization using Genetic Algorithms  
*Santi P. Maity and Seba Maity*

## Pattern Recognition - I

February 04, 2009 12:30 - 13:30 Hrs

**Venue** Geology Auditorium

**Chair** Deba Prasad Mandal

Bayesian Mixture of AR Models for Time Series Clustering  
*Venkataramana Kini B and C Chandra Sekhar*

Detection of neural activities in FMRI using Jensen-Shannon Divergence  
*Jayanta Basak*

On Small Sample Prediction of Financial Crisis  
*Sankha Pallab Saha*

Model based clustering of audio clips using Gaussian mixture models  
*S.Chandrakala and C.Chandra Sekhar*

## Image Processing - I

February 04, 2009 14:30 - 16:30 Hrs

**Venue** NAB Seminar Hall - I

**Chair** Arijit Bishnu

Sparse Intensity Histogram: Distinctive and Robust to the space-distortion  
*Hyeokjune Jeon, Jaekyong Jeong, Joonwon Bang and Chijung Hwang*

A Novel Approach to Corner Matching using Fuzzy Similarity Measure  
*Ambar Dutta, Avijit Kar and B. N. Chatterji*

A Quality based Motion Estimation Criterion for Temporal Coding of Video  
*Ravindra Kumar Purwar, Nupur Prakash and Navin Rajpal*

Best Basis Selection using Singular Value Decomposition  
*S.Sakkrirajan, T.Veerakumar and P.Navaneethan*

Cast Shadow Removal Using Time and Exposure Varying Images  
*Pankaj Rajan and Wei Yan*

Performance Analysis for Image Super-Resolution using Blur as a Cue  
*Deven Patel and Subhasis Chaudhuri*

Upper and Lower Grey-Level Adaptive Morphological Operators  
*Corinne Vachier*

## Pattern Recognition – II

February 04, 2009

14:30 - 16:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Probal Chaudhuri**

Block-Mode Classification using SVMs for Early Termination of Block Mode Decision in H.264/MPEG-4 Part 10 AVC  
*Jaeil Kim, Munchurl Kim, Sangjin Hahm, In-joon Cho and Changsub Park*

Traffic Sign Detection and Pattern Recognition using Support Vector Machine  
*Kiran C. G., Lekhesh V. Prabhu, Abdu Rahiman V. and Rajeev Kumaraswamy*

A Validity Index Based on Connectivity  
*Sriparna Saha and Sanghamitra Bandyopadhyay*

Efficient Learning of Finite Mixture Densities Using Mutual Information  
*Padmini Jaikumar, Abhishek Singh and Suman K Mitra*

Ordering and Elimination based Component Learning Method  
*Sheetal Reddy Pamudurthy, C. Chandra Sekhar*

Document clustering for event identification and trend analysis in market news  
*Lipika Dey, Anuj Mahajan and Sk. Mirajul Haque*

Infant Identification from Their Cry  
*Hemant A. Patil*

## Image and Video Retrieval

February 04, 2009

17:00 - 18:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Malay K. Kundu**

Combining features for Shape and Motion Trajectory of Video Objects for efficient Content based Video Retrieval  
*A. Dyana, M.P. Subramanian and Sukhendu Das*

Color image retrieval using M-band wavelet transform based color texture feature  
*Malay K. Kundu and Priyank Bagrecha*

Proto-reduct Fusion for Relevance Feedback in CBIR  
*Samar Zutshi, Campbell Wilson and Bala Srinivasan*

Semantic Grouping of Shots in a Video using Modified K-Means Clustering  
*Partha Pratim Mohanta and Sanjoy Kumar Saha*

Hierarchical Local Maps for Robust Approximate Nearest Neighbour Computation  
*Pratyush Bhatt and Anoop M. Namboodiri*

SVM Based Shot Boundary Detection Using Block Motion Feature Based on Statistical Moments  
*Brojeshwar Bhowmick and Kaustav Goswami*

## Computational Intelligence

February 04, 2009

17:00 - 18:30 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**Rajat K. De**

Neurological Foundation of Image Processing  
*Przybyszewski Andrzej*

Binary Particle Swarm Optimization based Algorithm for Feature Subset Selection  
*Basabi Chakraborty*

Independent Component Analysis of Real Data  
*Malaya Kumar Nath*

Rough set based ensemble prediction for topic specific web crawling  
*Suman Saha, C. A. Murthy and Sankar K. Pal*

## Speech Processing and Recognition

February 05, 2009

09:00 - 11:00 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Amita Pal**

Significance of Word and Syllable level Information for Expressive speech processing  
*Krothapalli Sreenivasa Rao, S. R. M. Prasanna and T. V. Sagar*

High performance on-line session-adaptation for handling inter-session speaker variability in variable-text speaker-recognition  
*S. Thiyagarajan and V. Ramasubramanian*

A Novel Approach to Identification of Speakers from Their Hum  
*Hemant A. Patil, Robin Jain and Prakhar Jain*

Bangla Speech Recognition System using Linear Predictive Coding and Artificial Neural Network  
*Anup Kumar Paul, Md. Mustafa Kamal and Dipankar Das*

A Novel Modified Polynomial Network Design for Dialect Recognition  
*Hemant A. Patil and T. K. Basu*

A graphical model based decoder for recognition of loss-concealed VoIP speech  
*Anupam Mandal, C. Chandra Sekhar, K.R. Prasanna Kumar and G. Athithan*

Variational Gaussian Mixture Models for Speech Emotion Recognition  
*Harendra Mishra and C. Chandra Sekhar*

DA-IICT Cross-Lingual and Multilingual Corpora for Speaker Recognition  
*Hemant A. Patil, Sunayana Sitaram and Esha Sharma*

## Biometrics – I

February 05, 2009

09:00 - 11:00 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**Utpal Garain**

Qualitative Weight Assignment for Multimodal biometric Fusion  
*Raghavendra.R, Ashok Rao and Hemantha kumar.G*

Feature Level-Fused Ear Biometric System  
*Badrinath G. S.and Phalguni Gupta*

Relative Orientation of Geometric Centroids for Off-line Signature Verification  
*H N Prakash and D S Guru*

Multisensor Biometric Evidence Fusion for Person Authentication using Wavelet Decomposition and Monotonic-Decreasing Graph  
*Dakshina Ranjan Kisku, Jamuna Kanta Sing, Phalguni Gupta and Massimo Tistarelli*

On-line Signature Verification: An Approach based on cluster representations of global features  
*D.S. Guru, H.N. Prakash and S. Manjunath*

A Skin-Color and Template Based Technique for Automatic Ear Detection  
*Surya Prakash, Umarani Jayaraman and Phalguni Gupta*

Feature Extraction Using Gabor-Filter and Recursive Fisher Linear Discriminant with Application in Fingerprint Identification  
*Mehrdad Dadgostar, Pooneh Roshani Tabrizi, Emad Fatemizadeh and hamid Soltanian-Zadeh*

Texture Based Palmprint Identification Using DCT Features  
*Manisha Dale, Madhuri A. Joshi and Neena Gilda*

## Remote Sensing

February 05, 2009

11:30 - 12:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Sanghamitra Bandyopadhyay**

Integration of Region and Edge-based information for efficient Road Extraction from High Resolution Satellite Imagery

*T.T. Mirnalinee, Sukhendu Das and Koshy Varghese*

The combination of three statistical methods for visual inspection of anomalies in hyperspectral imageries

*Maria C. Alonso and Jose A. Malpica*

Unsupervised Satellite Image Segmentation by Combining SA based Fuzzy Clustering with Support Vector Machine

*Anirban Mukhopadhyay and Ujjwal Maulik*

Unsupervised Change Detection of Remotely Sensed Images using Fuzzy Clustering

*Susmita Ghosh, Niladri Mishra and Ashish Ghosh*

## Document Image Analysis – II

February 05, 2009

11:30 - 12:30 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**Amit K. Das**

Using Modified Contour Features and SVM Based Classifier for the Recognition of Persian/Arabic Handwritten Numerals

*Alireza Alaei, Umapada Pal and P. Nagabhushan*

Online Character Recognition using Elastic Curvature Matching

*Jong-Hoon Ahn*

An Efficient Bilingual Optical Character Recognition (English-Oriya) System for Printed Documents

*Sanghamitra Mohanty, Himadri Nadini Das Bebartta and Tarun Kumar Behera*

Discrete Curve Evolution Based Skeleton Pruning for Character Recognition

*Binu P Chacko and Babu Anto P*

## Medical Image Processing

February 05, 2009

12:30 - 13:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Ashis Ghosh**

An effective Edge Detection Methodology for Medical Images based on texture discrimination

*Sivaram V. Thangam, Sai Deepak K., HariKrishna Rai G. N. and Pranav Mirajkar*

Multimodal Medical Image Fusion using Redundant Discrete Wavelet Transform  
*Richa Singh and Mayank Vatsa*

Multi-objective Genetic Clustering with Ensemble Among Pareto Front Solutions:  
Application to MRI Brain Image Segmentation  
*Anirban Mukhopadhyay, Ujjwal Maulik and Sanghamitra Bandyopadhyay*

Region Based Image Fusion for Detection of Ewing Sarcoma  
*Tanish Zaveri and Mukesh Zaveri*

### Pattern Recognition – III

February 05, 2009

12:30 - 13:30 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**K. S. Ray**

Relevant and Redundant Feature Analysis with Ensemble Classification  
*Rakkrit Duangsoithong and Terry Windeatt*

Speeding up AdaBoost Classifier with Random Projection  
*Biswajit Paul, G. Athithan and M. Narasimha Murty*

Classification by Linearity Assumption  
*Angshul Majumdar and Arusharka Bhattacharya*

Bengali Named Entity Recognition using Classifier Combination  
*Asif Ekbal and Sivaji Bandyopadhyay*

### Video Tracking

February 05, 2009

14:30 - 16:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Sukhendu Das**

Face Tracking Based on 3D Positional Hypothesis  
*Yuzuko Utsumi, Yoshio Iwai And Masahiko Yachida*

Adaptive Objects Tracking by using Statistical Features Shape Modeling and Histogram Analysis  
*Spampinato Concetto*

Saving Electrical Power in a Surveillance Environment  
*Souvik Sen, Amit Kumar Das and Shyama Prasad Choudhury*

Online Improved EigenTracking  
*Subarna Tripathi, Santanu Chaudhury and Sumantra Dutta Roy*

Detecting and Tracking People in A Homogeneous Environment Using Skin Color Model  
*B.Yogameena, S.Md.Mansoor roomi and Dr.Mrs.S.Raju*

Histogram-Based Partial Differential Equation for Object Tracking  
*Peihua Li and Lijuan Xiao*

Tracking Multiple Circular Objects in Video Using Helmholtz Principle  
*Snehasis Mukherjee and Dipti Prasad Mukherjee*

## Document Image Analysis - I

February 05, 2009

14:30 - 16:30 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**Umapada Pal**

Graphic Symbol Recognition using Auto Associative Neural Network Model  
*Mahesh Kumar Gellaboina and Vijendran Venkoparao*

Low-Resolution Chinese Character Recognition of Vehicle License Plate Based on ALBP and Gabor Filters  
*Ye Wang*

Separation of Foreground Text from Complex Background in Color Document Images  
*Nirmala Shivananda and P. Nagabhushan*

Empirical Evaluation of Character Classification Schemes  
*Neeba N.V. and C.V. Jawahar*

Syntactic and semantic labeling of hierarchically organized document image components of Indian Scripts  
*Gaurav Harit, Ritu Garg and Santanu Chaudhury*

Raster-to-vector conversion: problems and tools towards a solution a map segmentation application  
*Lacroix*

## Industry Session

February 05, 2009

16:45 - 17:15 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Aditya Bagchi**

Multimedia Processing for Enhanced User Experience in Infotainment  
*Arpan Pal and Aniruddha Sinha (TATA Consultancy Services (TCS))*

## Image Processing – II

February 06, 2009

09:00 - 11:00 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**C. A. Murthy**

Smoothing and Sharpening Effects of Theta in Complex Diffusion for Image Processing  
*Jeny Rajan, K. Kannan and M.R. Kaimal*

Image denoising using edge model-based representation of Laplacian subbands  
*Malay K Nema, Subrata Rakshit and Subhasis Chaudhuri*

Ringling artifact reduction in blind image deblurring and denoising problems by regularization methods  
*Surya Prasath and Arindama Singh*

On the Breakdown Point of the Hough Transform  
*Shreyas B. Guruprasad*

A Thinning-free Algorithm for Straight Edge Detection in a Gray-scale Image  
*Sanjoy Pratihara and Partha Bhowmick*

Extraction of Smooth and Thin Ridgelines from Fingerprint Images Using Geometric Prediction  
*Partha Bhowmick and Sanghati Ghosh*

## Pattern Recognition - IV

February 06, 2009

09:00 - 11:00 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**Swapan K. Parui**

Parallel Point Symmetry Based Clustering for Gene Microarray Data  
*Anasua Sarkar and Ujjwal Maulik*

Integration of Co-expression Networks for Gene Clustering  
*Malay Bhattacharyya and Sanghamitra Bandyopadhyay*

Improving Accuracy of Discovered Knowledge through Direct Interaction and Cohesion-based Framework: A Study in Cell Cycle Data of Yeast  
*Ramkishore Bhattacharyya*

Optimal Control Approach to Robust Control of Nonlinear Systems Using Neural Network based HJB solution  
*Dipak Adhyaru, I.N.Kar and M. Gopal*

Long-Range Monsoon Rainfall Pattern Recognition & Prediction for the Subdivision 'EPMB' Chhattisgarh Using Deterministic & Probabilistic Neural Network  
*S Karmakar, M K Kowar and P Guhathakurta*

## Plenary Talk

February 06, 2009

11:30 - 12:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Bhargab B. Bhattacharya**

From Pictures to Scenes: Recent Advances in Photo-analysis Technologies  
*P Anandan*

## Plenary Talk

February 06, 2009

12:30 - 13:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Bhabani P. Sinha**

Large Lump Detection Using a Particle Filter of Hybrid State Variable  
*Zhijie Wan and Hong Zhang*

## Computer Vision

February 06, 2009

14:30 - 16:30 Hrs

**Venue**

**Geology Auditorium**

**Chair**

**Pinakpani Pal**

Object Recognition in Presence of Blur from Fourier Transform Spectrum  
*Mausumi Pohit*

Facial Expression Recognition with Multi-Channel Deconvolution  
*Gerald Krell, Robert Niese and Bernd Michaelis*

Distraction free Evolution of Active Contours  
*V. Srikrishnan and Subhasis Chaudhuri*

Shape recognition using a new spatial representation and a D.P. matching algorithm  
*Shiyuan Gu and S. Kundu*

Driver Hypo-Vigilance Detection based on Eyelid Behaviour  
*Mohamad Hoseyn Sigari, Mahmood Fathy and Mohsen Soryani*

## Biometrics - II

February 06, 2009

14:30 - 16:30 Hrs

**Venue**

**NAB Seminar Hall - I**

**Chair**

**Sanjoy Kumar Saha**

Belief Function Theory based Biometric Match Score Fusion: Case Studies in Multi-instance and Multi-unit Iris Verification  
*Mayank Vatsa, Richa Singh, Afzel Noore and S.K. Singh*

Eigen-domain Relighting of Face Images for Illumination-invariant Face Verification  
*Vinod Pathangay and Sukhendu Das*

A Hybrid Face Recognition Method Based on Structural and Holistic Features  
*Shuvendu Mondal and Bibhas Chandra Dhara*

A Novel Face Recognition Method using Facial Landmarks  
*Srinivas Nagamalla and Bibhas Chandra Dhara*

Shift Invariant Iris Feature Extraction using Rotated Complex Wavelet and Complex Wavelet for Iris Recognition System  
*Rajesh M Bodade, Sanjay N Talbar and Shailendra K Ojha*

Analytic phase-based representation for face recognition  
*Anil Kumar Sao and B. Yegnanaarayana*