ICVGIP 2006 Tentative Conference Program

Day 1, 13th December 2006

9.00-9.45	Inauguration		
Full day	Theme Session 1:	Half day	Theme Session 2:
	Digital Image Exploitation	(Morning)	Animation
	for Autonomous Vehicles	Half day	Theme Session 3:
		(Afternoon)	Medical Imaging

Day 2, 14th December 2006

9.00-10.00	Plenary Talk 1 – Michael Black
10.00-10.50	Oral Session 1 – Image Restoration and Super-Resolution
10.50-11.05	Coffee break
11.05-13.10	Oral Session 2 – Tracking, Surveillance and Video Analysis
13.10-14.00	Lunch
14.00-16.00	Poster Session 1
16.00-16.15	Tea break
16.15-17.15	Plenary Talk 2 – Subhasis Chaudhuri
17.15-18.30	Oral Session 3 – Image Filtering / Processing
19.30 +	Conference Banquet

Day 3, 15th December 2006

9.00-10.00	Plenary Talk 3 – David Salesin
10.00-11.40	Oral Session 4 – Tracking, Surveillance and Stereo
11.40-11.55	Coffee break
11.55-13.10	Oral Session 5 – Graphics and Visualization
13.10-14.00	Lunch
14.00-16.00	Poster Session 2
16.00-16.15	Tea break
16.15-17.55	Oral Session 6 – Segmentation and Classification

Day 4, 16th December 2006

9.00-10.00	Plenary Talk 4 – Philip Torr
10.00-11.40	Oral Session 7 – Recognition, Biometrics and CBIR
11.40-11.55	Coffee break
11.55-12.45	Oral Session 8 – Compression
12.45-13.35	Oral Session 9 – Document Processing / OCR
13.35-14.15	Lunch
14.15-15.15	Plenary Talk 5 – Nebojsa Jojic
15.15-15.30	Tea break
15.30-17.30	Poster Session 3
17.30-17.45	Closing Session

<div align="center">

Detailed Conference Program

</div>

Day 1, 13ᵗʰ December 2006

9.00-9.45	**Inauguration**		
Full Day	**Theme Session 1: Digital Image Exploitation for Autonomous Vehicles**	**Half Day (Morning)**	**Theme Session 2: Animation**
		Half Day (Afternoon)	**Theme Session 3: Medical Imaging**

Theme Sessions

- **Theme Session 1: Digital Image Exploitation for Autonomous Vehicles**:
  - Image Exploitation capabilities are required for using high-revisit multi-sensor, multi-resolution imagery from Unmanned Aerial Vehicle or other ground or ship based reconnaissance platforms for the purpose of intelligent information gathering. Another related emerging area is the exploitation of these same imagery for autonomous navigation of the imaging platforms themselves. In order to give a boost to these critical research areas within the country, it is planned to organize a one-day workshop on the theme of "Image Exploitation".
  - The purpose of this Theme Session is to bring together eminent personalities in the field of Image Exploitation from the country and abroad from such diverse backgrounds as Academics, Defense / Space research and private Industries. The day long activities will include invited talks, short presentations from various institutions and a brainstorming session with the objective of matching up research capabilities with user requirements.
  - The Session will be inaugurated by **Shri M Natarajan, Scientific Advisor to Raksha Mantri**, invited talks from **Prof. Narendra Ahuja, UIUC, USA, Dr. Harpreet Sahani, Director, Vision and Learning Laboratory, Sarnoff Corporation USA, Dr. K L Majumdar, Head Image Processing, SAC Ahmedabad and Shri G. Elangovan, Director ADE** .

- **Theme Session 2: Animation**:
  This theme sesssion will include various aspects of human animation. The speakers of the session are: **Prof. Nadia Magnenat Thalmann from University of Geneva and Prof. Daniel Thalmann from Swiss Federal Institute of Technology Lausanne (EPFL)**
  - Prof. Nadia Magnenat Thalmann will speak on "**Problems and solutions in clothing research**"
    - § Abstract - Since more than 15 years, we are working on the simulation of virtual clothes. First we used lagrange models, then physical based particules and now we are developing real-time simulation of clothes and virtual try on simulation. It includes the measurements of physical parameters, the adequate RT of the fabrics and cloth, the automatic dressing up on any sized person and a virtual try on. This presentation will show the development of this research and many results in the fashion industry. For more information, see www.miralab.unige.ch
  - Prof. Daniel Thalmann will speak on **"Real-time Autonomous Crowds of Virtual Humans"**
    - § Abstract - For many years, this was a challenge to produce realistic virtual crowds for special effects in movies. Now, there is a new challenge: the production of real-time autonomous Virtual Crowds. Real-time crowds are necessary for games, VR systems for training and simulation and crowds in Augmented Reality applications. Autonomy is the only way to create believable crowds reacting to events in real-time. But, this requires to solve many problems: flexible animation of individuals, behavioural animation, real-time rendering, level of details, interface.

- **Theme Session3: Medical Imaging**:
  This theme session will cover various aspects of Medical Imaging. The speakers of the session are: **Prof. Baba C. Vemuri from University of Florida, Prof. Dimitris Metaxas from Rutgers University and Prof. Guido Gerig from University of North Carolina at Chapel Hill**.
  - o In this theme session, we have three exciting talks scheduled. The talks cover a breadth of state-of-the-art techniques including, neuro-anatomical shape analysis performed from using standard magnetic resonance brain images (MRI), diffusion weighted MRI analysis and cardiac modeling & analysis from tagged MRI. MR is one of the most widely used non-invasive imaging technique in clinical practise today and this theme session will provide a variety of state-of-the-art image analysis techniques to extract appropriate information for use in the development of diagnostic assistance tools.
  - o Neuro-anatomical structural analysis is essential in a variety of tasks including but not limited to, brain development studies, understanding of neuro-degenerative disorders e.g., schizophrenia, epilepsy, alzheimers etc. MRI provides contrast based delineation of several of the neuro-anatomical structures and in the first talk, automatic methods to achieve this segmentation will be described along with techniques to model these structures and carry out the necessary shape analysis.
  - o The second talk will focus on a relatively new modality of MR imaging called diffusion weighted MRI. This modality of imaging makes the MR signal sensitive to diffusion of water molecules in the presence of tissue. In the presence of tissue rich in axons, the water molecules exhibit highly anisotropic diffusion and this information can be used to map out the axonal connectivity patterns in, for example, the corpus callosum, the optic chiasm etc. Disruption of these connectivity patterns caused by neuro-degenerative disorders can be observed non-invasively using diffusion MRI. In this second talk, novel automatic tools for analysis of diffusion weighted MRI will be presented along with appropriate visualization techniques.
  - o Finally, in the third talk, novel methods of 4-dimensional analysis of tagged MR scans of the heart will be presented. Tagged MR imaging is an innovative MR technique that allows one to non-invasively project a grid pattern on the heart and using powerful image analysis techniques, one can recover the cardiac motion, perform stres strain analysis and classification. This talk will focus on various aspects of this analysis including deformable modeling of the heart, motion estimation, stress-strain analysis etc.

9.00-10.00	**Plenary Talk 1 – Michael Black**
10.00-10.50	**Oral Session 1 – Image Restoration and Super-Resolution**

10.00-10.25   Edge Model Based High Resolution Image Generation
Malay Kumar Nema, Subrata Rakshit, Subhasis Chaudhuri

10.25-10.50   Grey-scale Photograph Geometry Informed by Dodging and Burning
Carlos Phillips, Kaleem Siddiqi

10.50-11.05	**Coffee break**
11.05-13.10	**Oral Session 2– Tracking, Surveillance and Video Analysis**

11.05-11.30   Inverse Composition for Multi-Kernel Tracking
Rémi Megret, Mounia Mikram, Yannick Berthoumieu

11.30-11.55   Tracking Facial Features using Mixture of Point Distribution Models
Atul Kanaujia, Yuchi Huang, Dimitris Metaxas

11.55-12.20   Improved Kernel-Based Object Tracking Under Occluded Scenarios
Vinay P. Namboodiri, Amit Ghorawat, Subhasis Chaudhuri

12.20-12.45   Integrated Tracking and Recognition of Human Activities in Shape Space
Bi Song, Amit K. Roy-Chowdhury, N. Vaswani

12.45-13.10   Task Specfic Factors for Video Characterization
Ranjeeth Kumar, S. Manikandan, C.V. Jawahar

13.10-14.00	**Lunch**
14.00-16.00	**Poster Session 1**

Image Restoration and Super-Resolution

A Discontinuity Adaptive Method for Super-resolution of License Plates
K. V. Suresh, A. N. Rajagopalan

Explicit Non-flat Time Evolution for PDE-based Image Restoration
Seongjai Kim, Song-Hwa Kwon

Decimation Estimation and Super-Resolution Using Zoomed Observation
Prakash P. Gajjar, Manjunath V. Joshi, Asim Banerjee, Suman Mitra

Segmentation and Classification

Nonparametric Neural Network Model Based on Rough-Fuzzy Membership Function
for Classification of Remotely Sensed Images
Niraj Kumar, Anupam Agrawal

Aggregation Pheromone Density based Image Segmentation
Susmita Ghosh, Megha Kothari, Ashish Ghosh

Remote Sensing Image Classification: A Neuro-Fuzzy MCS Approach
B. Uma Shankar, Saroj K. Meher, Ashish Ghosh, Lorenzo Bruzzone

A Hierarchical Approach to Landform Classification of Satellite Images using a Fusion
Strategy
Aakanksha Gagrani, Lalit Gupta, B. Ravindran, Sukhendu Das, Pinaki Roychowdhury, V. K. Panchal

Image Filtering / Processing

Speckle Reduction in Images with WEAD and WECD
Jeny Rajan, M.R. Kaimal

Image Filtering in the Compressed Domain
Jayanta Mukherjee, Sanjit K. Mitra

Significant Pixel Watermarking Using Human Visual System Model in Wavelet Domain
Jayalakshmi M., S. N. Merchant, U. B. Desai

Early Vision and Image Processing: Evidences Favouring a Dynamic Receptive Field
Model
Kuntal Ghosh, Sandip Sarkar, Kamales Bhaumik

An Alternative Curvature Measure for Topographic Feature Detection
Jayanthi Sivaswamy, Gopal Datt Joshi, B. R. Siva Chandra

Nonlinear Enhancement of Extremely High Contrast Images for Visibility Improvement
K. Vijayan Asari, Ender Oguslu, Saibabu Arigela

Compression

Adaptive Scalable Wavelet Difference Reduction Method for Efficient Image Transmission
Bindulal T.S., M.R. Kaimal

GAP-RBF Based NR Image Quality Measurement for JPEG Coded Images
R. Venkatesh Babu, S. Suresh

A Novel Error Resilient Temporal Adjacency Based Adaptive Multiple State Video Coding Over Error Prone Channels
Ragunathan M, C. Mala

Adaptive Data Hiding in Compressed Video Domain
Arijit Sur, Jayanta Mukherjee

Biometric

Dempster-Shafer Theory Based Classifier Fusion for Improved Fingerprint Verification Performance
Richa Singh, Mayank Vatsa, Afzel Noore, Sanjay K. Singh

Fingerprint Image Enhancement Using Decimation Free Directional Adaptive Mean Filtering
Muhammad Talal Ibrahim, Imtiaz A. Taj, M. Khalid Khan, M. Aurangzeb Khan

16.00-16.15   Tea break

16.15-17.15   Plenary Talk 2 – Subhasis Chaudhuri

17.15-18.30   Oral Session 3 – Image Filtering / Processing

17.15-17.40   An Improved 'Gas of Circles' Higher-Order Active Contour Model and Its Application to Tree Crown Extraction
Péter Horváth, Ian H. Jermyn, Zoltan Kato, Josiane Zerubia

17.40-18.05   A New Extension of Kalman Filter to Non-Gaussian Priors
G.R.K.S. Subrahmanyam, A.N. Rajagopalan, R. Aravind

18.05-18.30   A Computational Model for Boundary Detection
Gopal Datt Joshi, Jayanthi Sivaswamy

19.30+   Conference Banquet

9.00-10.00	**Plenary Talk 3 – David Salesin**
10.00-11.40	**Oral Session 4 – Tracking, Surveillance and Stereo**

10.00-10.25   Learning Efficient Linear Predictors for Motion Estimation
Jiří Matas, Karel Zimmermann, Tomáš Svoboda, Adrian Hilton

10.25-10.50   Object Localization by Subspace Clustering of Local Descriptors
C. Bouveyron, J. Kannala, C. Schmid, S. Girard

10.50-11.15   Spatiotemporal Discovery: Appearance + Behavior = Agent
Prithwijit Guha, Amitabha Mukerjee, K.S. Venkatesh

11.15-11.40   Using Strong Shape Priors for Stereo
Yunda Sun, Pushmeet Kohli, Matthieu Bray, Philip H.S. Torr

11.40-11.55   **Coffee break**

11.55-13.10   **Oral Session 5 – Graphics and Visualization**

11.55-12.20   Culling Object Hierarchy to Frustum Hierarchy
Nirnimesh, Pawan Harish, P.J. Narayanan

12.20-12.45   Secondary and Tertiary Structural Fold Elucidation from 3D EM Maps of Macromolecules
Chandrajit Bajaj, Samrat Goswami

12.45-13.10   Real-time Streaming and Rendering of Terrains
Soumyajit Deb, Shiben Bhattacharjee, Suryakant Patidar, P.J. Narayanan

13.10-14.00   **Lunch**

14.00-16.00   **Poster Session 2**

Tracking and Surveillance

Fusion of Thermal Infrared and Visible Spectrum Video for Robust Surveillance
Praveen Kumar, Ankush Mittal, Padam Kumar

Dynamic Events as Mixtures of Spatial and Temporal Features
Karteek Alahari, C. V. Jawahar

Discriminative Actions for Recognising Events
Karteek Alahari, C. V. Jawahar

Graphics and Visualization

Ad-Hoc Multi-Planar Projector Displays
Kashyap Paidimarri, Sharat Chandran

PACE: Polygonal Approximation of Thick Digital Curves Using Cellular Envelope
Partha Bhowmick, Arindam Biswas, Bhargab B. Bhattacharya

Texture Guided Realtime Painterly Rendering of Geometric Models
Shiben Bhattacharjee, Neeharika Adabala

Real-Time Camera Walks Using Light Fields
Biswarup Choudhury, Deepali Singla, Sharat Chandran

Massive Autonomous Characters: Animation and Interaction
In-Gu Kang, JungHyun Han

Clickstream Visualization Based on Usage Patterns
Srinidhi Kannappady, Sudhir P. Mudur, Nematollaah Shiri

GPU Objects
Sunil Mohan Ranta, Jag Mohan Singh, P.J. Narayanan

Progressive Decomposition of Point Clouds Without Local Planes
Jag Mohan Singh, P.J. Narayanan

Stereo / Camera Calibration

An Efficient Adaptive Window Based Disparity Map Computation Algorithm by Dense Two Frame Stereo Correspondence
Narendra Kumar Shukla, Vivek Rathi, Vijaykumar Chakka

Robust Homography-based Control for Camera Positioning in Piecewise Planar Environments
D. Santosh Kumar, C.V. Jawahar

Direct Estimation of Homogeneous Vectors: An Ill-Solved Problem in Computer Vision
Matthew Harker, Paul O'Leary

Video Analysis

Video Shot Boundary Detection Algorithm
Kyong-Cheol Ko, Young-Min Cheon, Gye-Young Kim, Hyung-Il Choi, Seong-Yoon Shin, Yang-Won Rhee

Modeling of Echocardiogram Video Based on Views and States
Aditi Roy, Shamik Sural, Jayanta Mukherjee, A.K. Majumdar

Video Completion for Indoor Scenes
Vardhman Jain, P.J. Narayanan

Reducing False Positives in Video Shot Detection Using Learning Techniques
Nithya Manickam, Aman Parnami, Sharat Chandran

Text Driven Temporal Segmentation of Cricket Videos
Pramod Sankar K., Saurabh Pandey, C.V. Jawahar

16.00-16.15   Tea break

16.15-17.55   Oral Session 6 – Segmentation and Classification

16.15-16.40   Description of Interest Regions with Center-Symmetric Local Binary Patterns
Marko Heikkilä, Matti Pietikäinen, Cordelia Schmid

16.40-17.05   An Automatic Image Segmentation Technique Based on Pseudo-Convex Hull
Sanjoy Kumar Saha, Amit Kumar Das, Bhabatosh Chanda

17.05-17.30   Single-Histogram Class Models for Image Segmentation
Florian Schroff, Antonio Criminisi, Andrew Zisserman

17.30-17.55   Learning Class-Specific Edges for Object Detection and Segmentation
Mukta Prasad, Andrew Zisserman, Andrew Fitzgibbon, M. Pawan Kumar, Philip H.S. Torr

Day 4, 16ᵗʰ Decmeer 2006

9.00-10.00	**Plenary Talk 4 – Philip H.S. Torr**
10.00-11.40	**Oral Session 7 – Recognition, Biometrics and CBIR**

10.00-10.25   Continuous Hand Gesture Segmentation and Co-articulation Detection
Manas Kamal Bhuyan, Debashis Ghosh, Prabin Kumar Bora

10.25-10.50   OBJCUT for Face Detection
Pushmeet Kohli, Jon Rihan, Philip H.S. Torr

10.50-11.15   Fingerprint Matching Based on Octantal Nearest-Neighbor Structure and Core Points
Li-min Yang, Jie Yang, Hong-Tao Wu

11.15-11.40   Retrieving Images for Remote Sensing Applications
Neela Sawant, Sharat Chandran, B. Krishna Mohan

11.40-11.55   Coffee break

11.55-12.45   Oral Session 8 – Compression

11.55-12.20   An Integrated Approach for Downscaling MPEG Video
Sudhir Porwal, Jayanta Mukherjee

12.20-12.45   DCT Domain Transcoding of H.264/AVC Video to MPEG-2 Video
Vasant Patil, Tummala Kalyani, Atul Bhartia, Rajeev Kumar, Jayanta Mukherjee

12.45-13.35   Oral Session 9 – Document Processing / OCR

12.45-13.10   Learning Segmentation of Documents with Complex Scripts
K.S. Sesh Kumar, Anoop M. Namboodiri, C.V. Jawahar

13.10-13.35   Machine Learning for Signature Verification
Harish N. Srinivasan, Sargur Srihari, Matthew J. Beal

13.35-14.15   Lunch

14.15-15.15   Plenary Talk 5 – Nebojsa Jojic

15.15-15.30   Tea break

15.30-17.30   Poster Session 3

Recognition

Selection of Wavelet Subbands using Genetic Algorithm for Face Recognition
Vinod Pathangay, Sukhendu Das

Object Recognition Using Reflex Fuzzy Min-Max Neural Network with Floating Neurons
A.V.Nandedkar, P.K.Biswas

Extended Fitting methods of Active Shape Model for the Location of Facial Feature Points
Chunhua Du, Jie Yang, Qiang Wu, Tianhao Zhang, Huahua Wang, Lu Chen, Zheng Wu

Pose Invariant Generic Object Recognition with Orthogonal Axis Manifolds in Linear Subspace
Manisha Kalra, P. Deepti, R. Abhilash, Sukhendu Das

A Profilometric Approach to 3D Face Reconstruction and Its Application to Face Recognition
Surath Raj Mitra, K.R. Ramakrishnan

Face Recognition Technique Using Symbolic Linear Discriminant Analysis Method
P.S.Hiremath, Prabhakar C.J.

Two-Dimensional Optimal Transform for Appearance Based Object Recognition
B.H. Shekar, D.S. Guru, P. Nagabhushan

Computing Eigen Space from Limited Number of Views for Recognition
Paresh K. Jain, Kartik Rao P., C.V. Jawahar

Face Recognition from Images with High Pose Variations by Transform Vector Quantization
Amitava Das, Manoj Balwani, Rahul Thota, Prasanta Ghosh

Document Processing / OCR

Text Localization and Extraction from Complex Gray Images
Farshad Nourbaksh, Peeta Basa Pati, A.G. Ramakrishnan

OCR of Printed Telugu Text with High Recognition Accuracies
C. Vasantha Lakshmi, Ritu Jain, C. Patvardhan

A MLP Classifier for Both Printed and Handwritten Bangla Numeral Recognition
Angshul Majumdar, B.B. Chaudhuri

Recognition of Offline Handwritten Devnagari Characters using Quadratic Classifier
N. Sharma, U. Pal, F. Kimura, S.Pal

On Recognition of Handwritten Bangla Characters
U. Bhattacharya, M. Shridhar, S. K. Parui

Evaluation Framework for Video OCR
Padmanabhan Soundararajan, Matthew Boonstra, Vasant Manohar, Valentina Korzhova, Dmitry Goldgof, Rangachar Kasturi, Shubha Prasad, Harish Raju, Rachel Bowers, John Garafolo

Enabling Search over Large Collections of Telugu Document Images - An Automatic Annotation Based Approach
Pramod Sankar K., C. V. Jawahar

Content-Based Image Retrieval

Content-Based Image Retrieval Using Wavelet Packets and Fuzzy Spatial Relations
Minakshi Banerjee, Malay K. Kundu

Content Based Image Retrieval Using Region Labelling
J. Naveen Kumar Reddy, Chakravarthy Bhagvati, S. Bapi Raju, Arun K. Pujari, B. L. Deekshatulu

17.30-17.45   Closing Session