ICIAP 2007

14th International Conference on Image Analysis and Processing

Program and Conference Guide

Organizers and sponsors

The International Conference on Image Analysis and Processing (ICIAP 2007) is organized by:

Imagelab (http://imagelab.ing.unimo.it)
Dipartimento di Ingegneria dell'Informazione

ICIAP 2007 has received the endorsement of:

Università degli Studi di Modena e Reggio Emilia

Comune di Modena

GIRPR - Gruppo Italiano Ricercatori in Pattern Recognition

International Association on Pattern Recognition (IAPR)

**ICIAP 2007 has been possible thanks to the sponsorship of:**

Accademia Militare di Modena

Welcome message

It is a great pleasure to welcome you all at the XIV edition of the International Conference on Image Analysis and Processing (ICIAP) in Modena.

After twenty-seven years, ICIAP 2007 preserves its long tradition of joining together Italian and International communities of scientific researchers working on digital images.
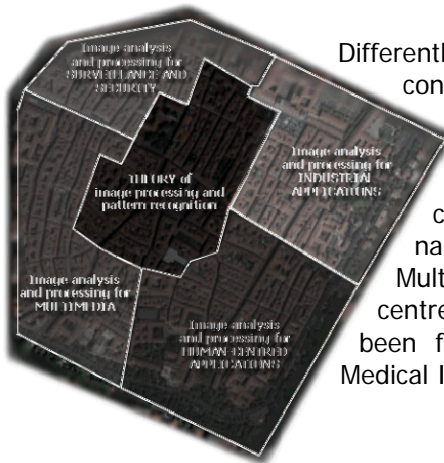
Differently from previous editions, the main conference is organized into five main tracks: a central track, addressing the Theory of Image Analysis and Processing, and four complementary tracks on hot topics, namely Surveillance and Security, Multimedia, Industrial and Human-centred applications. The last track has been further divided into Biometry and Medical Imaging subtracks.

The main conference consists of 49 regular papers, presented in non-overlapped oral sessions, and 89 poster papers. They have been selected among 241 submitted papers after a long and rigorous reviewing phase. We would like to deeply thank all the 10 Area Chairs, the 83 members of the Program Committee and the other experts which contributed to the reviews.

The conference program is organized as follows. The first day (Monday 10) is devoted to tutorials of prominent scientists. The three central days (from Tuesday to Thursday) constitute the main conference with four excellent keynote speakers: Prof. Rama Chellappa of the University of Maryland, Prof. Tsuhan Chen of Carnagie Mellon University, Prof. Stan Sclaroff of the Boston University and Prof. Prabir Bhattacharya of the Concordia University. The satellite workshop VMDL starts on Thursday evening with the special invited talk of Edward Chang Director of Research at Google China and last the whole day of Friday. The other workshop CCIW will conlude the ICIAP 2007 events.

We are truly indebted to the Italian Military Accademy for hosting our conference and for all the support given in these months. The Italian Military Accademy founded in 1669 is the oldest military school in the world and it is hosted in the magnificent Duke Palace specially opened to the ICIAP attendees.

We would like to heartily thank the University of Modena and Reggio Emilia and all the other sponsors for their help and financial support.

We hope that as well as having an enjoyable and stimulating time at the conference you will have time to explore the city and Italian countryside around.

Rita Cucchiara
2007 ICIAP General Chair

Andrea Prati
2007 ICIAP Program Chair

PROGRAM AT A GLANCE

Monday 10

Morning

Time	Event	
09.00-09.30	Registration	
09.30-11.00	Tutorials	MDP.CBIVR
11.00-11.20	Coffee break	
11.20-12.50	Tutorials	MDP.CBIVR

Afternoon

Time	Event	
14.30-16.10	Tutorials	VSM.ASL
16.10-16.30	Coffee break	
16.30-17.50	Tutorials	VSM.ASL
17.50-19.00	Registration	

Tuesday 11

Morning

Time	Event		
08.30-09.00	Registration		
09.00-09.30	Opening		
09.30-10.30	Keynote speech (Prof. Rama Chellappa)		
10.30-10.50	Coffee break		
10.50-11.50	Oral 1	Poster 1	Poster 2
11.50-12.50	Oral 2		

Afternoon

Time	Event		
14.30-15.40	Oral 3	Poster 3	Poster 4
15.40-16.00	Coffee break		
16.00-17.00	Oral 4		
17.00-18.20	Oral 5		
18.20-19.00	Guided visit		
19.00-20.00	Welcome cocktail		

Wednesday 12

Morning

Time	Event		
08.30-09.00	Registration		
09.00-10.00	Keynote speech (Prof. Tsuhan Chen)		
10.00-11.00	Oral 6	Poster 5	Poster 6
11.00-11.20	Coffee break		
11.20-12.20	Oral 7		
12.20-13.20	Oral 8		

Afternoon

Time	Event	
14.30-15.30	Keynote speech (Prof. Stan Sclaroff)	
15.30-16.30	Oral 9	Poster 7
16.30-16.50	Coffee break	
16.50-18.10	Oral 10	
18.20-19.00	GIRPR Meeting	
19.30-23.00	GALA DINNER	

Thursday 13

Morning

Time	Event		
08.30-09.00	Registration		
09.00-10.00	Keynote speech (Prof. Prabir Bhattacharya)		
10.00-11.00	Oral 11	Poster 8	Poster 9
11.00-11.20	Coffee break		VIDI-VIDEO European project meeting
11.20-12.20	Oral 12		
12.20-13.20	Oral 13		

Afternoon

Time	Event		
14.30-15.30	Oral 14	Poster 10	Poster 11
15.30-15.50	Coffee break		
15.50-17.10	Oral 15		
18.00-18.30	VMDL opening		
18.30-22.00	Keynote speech (Prof. Edward Y. Chang)		

Friday 14

Morning

Time	Event	
08.30-09.00	Registration	
09.00-10.10	VMDL	CCIW
10.10-10.30	Coffee break	
10.30-12.30	VMDL	CCIW

Afternoon

Time	Event	
13.30-15.10	VMDL	CCIW
15.10-15.30	Coffee break	
15.30-17.00	VMDL	CCIW

Legend for color coded cells:

- THEORY
- HUMAN-CENTRED APPLICATIONS: BIOMETRY
- HUMAN-CENTRED APPLICATIONS: MEDICAL IMAGING
- INDUSTRIAL APPLICATIONS
- MULTIMEDIA
- SURVEILLANCE AND SECURITY

Tutorials:

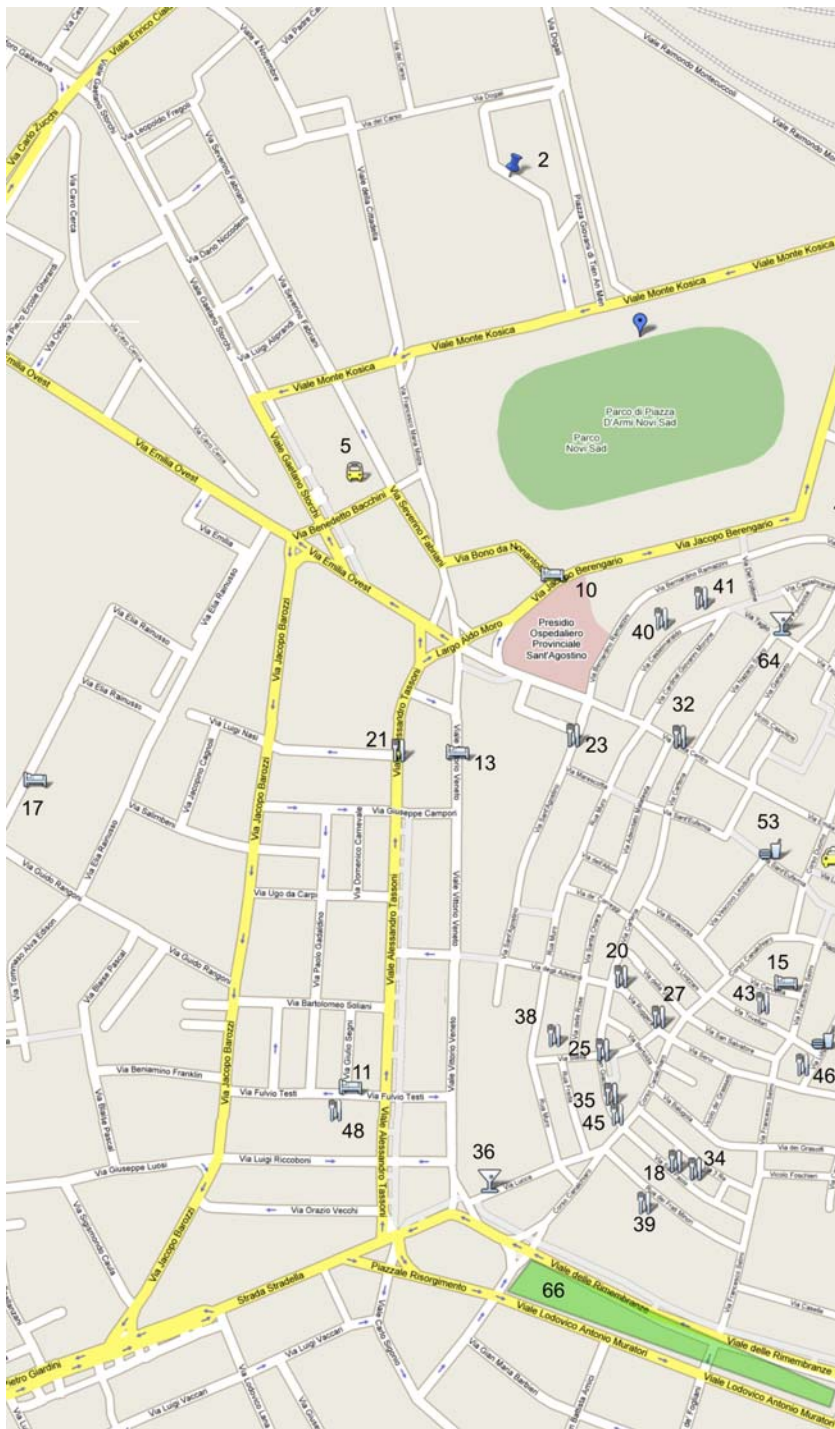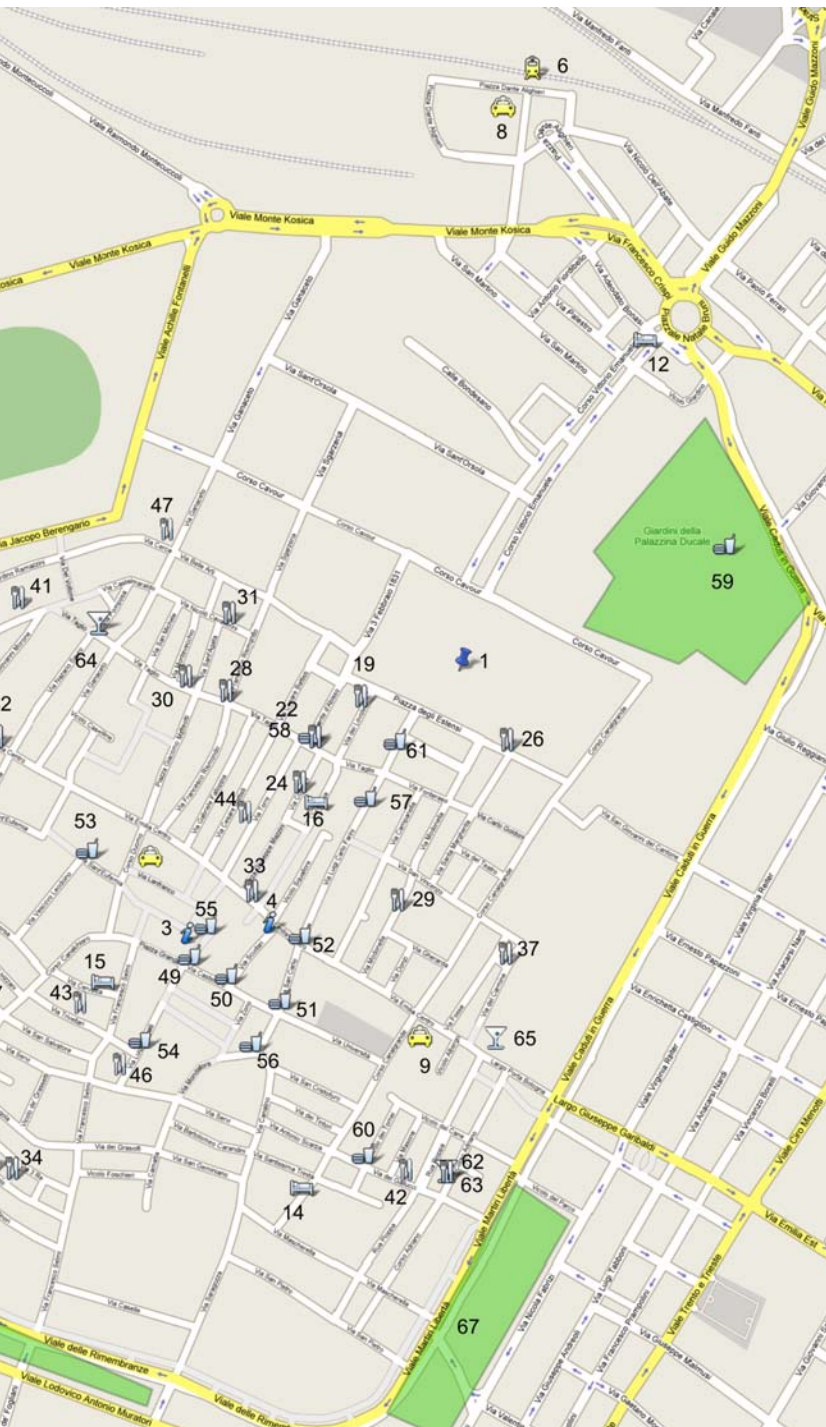|	
Odone, De Vito	Advances of statistical learning and applications to computer vision (ASL)
Shah	Video Surveillance and Monitoring (VSM)
Gevers, Sebe, Smeulders	Content-Based Image and Video Retrieval (CBIVR)
Stork	Computer vision and image analysis of master drawings and paintings (MDP)

Workshops:

CCIW : Computational Color Imaging Workshop
VMDL : International Workshop of the EU Network of Excellence DELOS on Visual and Multimedia Digital Libraries

Venue Map

Map Legend:

|			
	1	Conference Venue - Palazzo Ducale - Military Academy	
	2	Il Baluardo Della Cittadella (Keynote VMDL)	
	3	Informagiovani (info point)	
	4	Modenatur	
	5	Bus Station	
	6	Railway Station	
	7	Taxi	
	8	Taxi	
	9	Taxi	
	10	Albergo Estense	
	11	Albergo Europa	
	12	Albergo Principe	
	13	Central Park Hotel	
	14	Hotel Canalgrande	
	15	Hotel Cervetta 5	
	16	Hotel Liberta	
	17	Tiby Hotel	
	18	La Frasca	local cuisine €€
	19	Morsichino	local cuisine €€
	20	Osteria Ruggera	Sicilian cuisine €€
	21	Al Cenacolo	local cuisine €€€
	22	Aurora	fish €€
	23	Cucina Del Museo	local cuisine €€€
	24	Enzo	local cuisine €€
	25	L'Incontro	local cuisine €€
	26	Oreste	local cuisine €€
	27	Osteria Santa Chiara	local cuisine €€
	28	Pizzeria Al Grottino	€
	29	Pizzeria Da Italo	€
	30	Pizzeria La Mamma	€
	31	Pizzeria La Rascasse	€
	32	Pizzeria L'Aragosta	€
	33	Pizzeria Uva D'Oro	€
	34	Redecocca	local cuisine €
	35	Zelmira	local cuisine €€
	36	Stallo Del Pomodoro	local cuisine €€

	37	Del Giardinetto	local cuisine €€
	38	La francescana	local/creative cuisine €€€€
	39	Fini	local cuisine €€€€
	40	Osteria del Mare	fish €€€
	41	L'erba del Re	local/creative cuisine €€€
	42	Osteria Toscana	Tuscan cuisine €€
	43	Cervetta	local cuisine €€
	44	Omer	local cuisine €€€
	45	Churrasco	Mexican cuisine €€
	46	Aldina	local cuisine €
	47	Ermes	local cuisine €
	48	Taverna dei Servi	local cuisine €€
	49	Bar Al Tramezzino	
	50	Bar Aperitif Mana'	
	51	Bar Il Collegio	
	52	Bar Molinari	
	53	Bar Santeufemia	
	54	Bar Schiavoni	
	55	Caffè Concerto	
	56	Caffe' Del Mercato	
	57	Caffetteria Drogheria Giusti (wine bar)	
	58	Compagnia Del Taglio (wine bar)	
	59	Giardini ducali (Duke Garden of Modena)	
	60	I Picari Bar Ristorante	
	61	Pasticceria Remondini	
	62	Griffin's Irish Pub	
	63	Stallo Del Pomodoro	
	64	Juta Snc	
	65	Pane e Vino	
	66	Public Park (bar and icecream)	
	67	Public Park (bar and Icecream)	

Map and rules of the Military Accademy

The venue of ICIAP 2007 conference is the Military Accademy, subjected to formal rules of behavior.

The badge must be always visible. Short pants or too casual dresses are not allowed inside the Accademy. The passage on the "Cortile d'Onore" area is forbidden. Attendees should follow the path drawn in the following map. Smoking is forbidden inside the Accademy rooms but allowed in the outside.
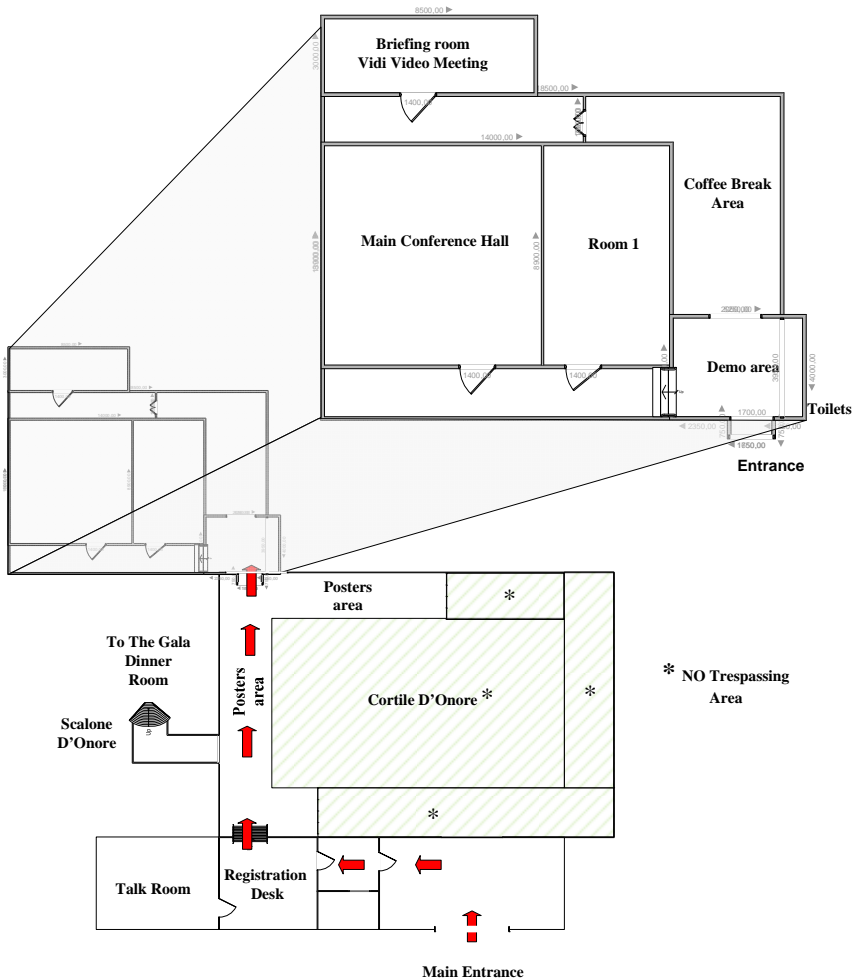
Social program

The **Welcome party** will be held on **Tuesday 11 September** from 18.30 to 21.00. The party will be held at the Hombre resort. This is a special place arranged on a former farm with the production of food specialities of Modena and a world-unique private collection of old cars and motorcycles, mainly Maserati. Guests will have cocktails and finger food on the unique frame walking in between rare cars with the aid of guides describing their characteristics.
Hombre resort is located outside Modena, so bus transportation will be provided to attendees. Bus pick up will be in the front of the Military Accademy main entrance at 18.30 and return is scheduled for 21.00.

The **Gala Dinner** will be held on **Wednesday 12 September** at the Military Accademy' "Salone d'Onore", starting at 19.30. Salone d'Onore is the magnificient Duke Palace ballroom, surrounded by fascinating ancient Estense rooms and a faboulos vault with astonishing paintings. The Gala Dinner requires a semi-formal evening wear (black tie).

The **Gala Dinner for VMDL workshop** will be held on **Thursday 13 September** at the "Baluardo della Cittadella", the Risorgimental prison of Modena recently restyled to host congress and music rooms and a restaurant.

During the conference the travel agency ModenaTur will be available at the registration desk for any inquire and for organizing social tours in Modena and surrounding.

Conference Topics

The conference topics for ICIAP 2007 have been organized into five main streams:

THEORY: Theory of Image Analysis and Processing
Segmentation; feature extraction and representation; shape, motion, texture analysis; morphology; structural and syntactical pattern recognition; HMM, SVM and neural networks for image analysis; evolutionary computation.

SURVEILLANCE AND SECURITY: Image Analysis and Processing for Surveillance and Security
Video surveillance; human activity monitoring; behaviour analysis and classification; people detection and tracking; threat detection; active and cognitive vision; steganography and Watermarking.

MULTIMEDIA: Image Analysis and Processing for multimedia.
Video analysis; shot detection and classification; image and video retrieval; video summarization; content description and indexing; compression and coding; video streaming; adaptive support for scalable media.

HUMAN-CENTRED APPLICATIONS: Image Analysis and Processing for multimedia.
Biometry, fingerprint analysis, face detection and recognition, human body analysis, humancomputer interfaces, medical imaging.

INDUSTRIAL APPLICATIONS: Image Analysis and Processing for industrial applications
Robot vision; mobile robots and visual navigation; remote sensing; augmented reality; visual inspection and process control; metrology; rapid prototyping; document processing.

Tutorials

Four half-day tutorials will be given on Monday, September 10.

Advances of statistical learning and applications to computer vision

Francesca Odone, Ernesto De Vito

The goal of this tutorial is to provide a comprehensive introduction to a large class of statistical learning algorithms in the supervised setting with applications to a variety of computer vision problems. As for the theoretical aspects, having as a guide regularized least squares, we will introduce a new class of algorithms de ned in terms of lter functions on the kernel matrix. We will give some examples and we discuss the theoretical and computational properties. Finally we will briefly present algorithms that enforce the sparsity of the solution by means of l1 constraints. As for the applications to computer vision we will suggest applications to some filter algorithms that are simpler to implement and to tune than other kernel methods (such as SVMs). We will also discuss how methods that enforce sparsity can be used for feature selection, and compare this approach to state-of-the-art feature selection (e.g., Adaboost) and dimensionality reduction methods (e.g., PCA) , on the well known face detection framework. We plan to balance theory and application aspects.

Video Surveillance and Monitoring

Mubarak Shah

Recently, computer vision has gradually been making the transition away from understanding single images to analyzing image sequences, or video understanding. Video understanding deals with understanding video sequences, e.g., recognition of gestures, activities, and facial expressions. The main shift in the classic paradigm has been from the recognition of static objects in the scene to motion-based recognition of actions and events. Since most videos are about people, this work has mainly focused on analysis of human motion. In particular, there has been a significant interest in the automated visual surveillance systems. Such systems have the advantage of providing continuous active warning capabilities and are especially useful in the areas of law enforcement, national defense, border control and airport security. The main steps in video understanding are: detection of objects of interest in video (e.g. people, vehicles), tracking of those objects from frame to frame, and recognition of their activities and behavior. In this tutorial, I will present our work in object detection, tracking and human activity recognition.

Content-Based Image and Video Retrieval

Theo Gevers, Nicu Sebe, Arnold Smeulders

The growing capacity of computers, the abundance of digital cameras and the increased connectivity of the world all point to large digital multimedia archives. They include images and videos from the World Wide Web, museum objects, flowers, trademarks, and views from everyday life. The faster they grow, the more prominently needed is the efficient access to the content of the images and videos. In this short course, we will give a survey of the most recent developments on image and video search engines. First, the important step of feature extraction will be discussed in detail such as color, shape and texture information, particularly paying attention to discriminatory power and invariance. Then, we focus on the concepts of indexing and genre classification as intermediate step to sort the data. We pay attention to (interactive) ways to perform browsing and retrieval by means of information visualization and relevance feedback. Methods are being discussed to localize the retrieved objects in images.

Computer vision and image analysis of master drawings and paintings

David G. Stork

This one-day tutorial will apply methods from image processing, computer vision and image analysis to problems in the history and understanding of master paintings. Some of these analysis techniques are built upon methods used in forensic image analysis of photographs but are tailored to specific contingencies of painting. Questions addressed include: How do we judge the sizes and positions of objects depicted and the geometry of structures such as architecture? Was the image created using a mechanical or optical aid? What were the sources of illumination and their color? What form of perspective was used? What is revealed by shadows and reflections depicted within a painting? Some of the analysis techniques require nothing more than a tutored and perceptive eye; others merely a ruler and pencil; yet others require advanced statistical estimation procedures and computer analysis. This course is based almost entirely on the analysis of images, not the physical or chemical analysis of pigments and media, the purview of traditional art conservators.

Keynote Speakers

Tuesday 11, September 2007 – 9.30-10.30

Looking for Patterns in Video
Rama Chellappa
Minta Martin Professor of Engineering
Department of Electrical and Computer Engineering and UMIACS
University of Maryland, College Park, MD.

Abstract

With the ubiquitous presence of inexpensive video cameras, new challenges to video-based pattern recognition problems are emerging. Video-based pattern recognition problems have applications in homeland security, healthcare, video indexing and anomaly detection. The single most important feature that distinguishes video-based pattern recognition problems from still-image based recognition problems is the dynamical nature of patterns in videos. This creates new intellectual challenges and provides opportunities for novel approaches. In this talk, I will first discuss some of the general principles for designing robust video-based pattern recognition systems using statistical, structural and syntactic methods. We first present the design of statistical parametric classifiers for face and gait-based human recognition, recognition of bee dances, human activity recognition and vehicle class recognition across non-overlapping cameras. Characterization of class-conditional densities using pattern appearance, shape, motion and behavior are discussed. A method for compensating for the variations in the rate at which patterns evolve and the role of quasi-invariants in activity recognition are then discussed. A non-parametric method based on a novel "human gait DNA" signature is then described for recognizing human motion patterns. We then present two examples of pattern recognition in video using attribute grammars and stochastic Petri nets. Finally, we discuss some theoretical issues and practical problems that remain to be addressed in this area.

Speaker Biography

Prof. Chellappa received the M.S.E.E. and Ph.D. Degrees in Electrical Engineering from Purdue University, West Lafayette, IN, in 1978 and 1981 respectively. Since 1991, he has been a Professor of Electrical and Computer Engineering and an Affiliate Professor of Computer Science at University of Maryland (UMD), College Park. He is also affiliated with the Center for Automation Research (Director) and the Institute for Advanced

Computer Studies (Permanent member). Recently, he was named a Minta Martin Professor of Engineering. Over the past 26 years, he has published numerous book chapters, peer-reviewed journal and conference papers. He has co-authored and edited many books in visual surveillance, biometrics, MRFs and image processing. His current research interests are in face and gait analysis, 3D modeling from video, surveillance and monitoring, hyper spectral processing, and computer vision. Prof. Chellappa served as the associate editor of many IEEE Transactions and as the Editor-in-Chief of IEEE Transactions on Pattern Analysis and Machine. Intelligence. He served as a member of the IEEE Signal Processing Society's Board of Governors and as its Vice President of Awards and Membership. He has received several awards, including an NSF Presidential Young Investigator Award, two IBM Faculty Development Awards, an Excellence in Teaching Award, a Technical Achievement Award from the IEEE Signal Processing Society, two conference paper awards from ICPR 1992 and 2006, an the Outstanding Innovator Award. He was elected as a Distinguished Faculty Research Fellow and as a Distinguished Scholar-Teacher at UMD. He is a Fellow of IEEE and the International Association for Pattern Recognition. He has served as a General and Technical Program Chair/Co-Chair for several IEEE international and national conferences and workshops. He is a Golden Core Member of IEEE Computer Society.

Wednesday 12, September 2007 – 9.00-10.00

From Image Analysis to Content Extraction: Are We There Yet?

Tsuhan Chen
Carnegie Mellon University

Abstract

Based on the bag-of-words representation, topic models have recently become a popular approach to object discovery, i.e., extracting the "object of interest" from a set of images in a completely unsupervised manner. In this talk, we will outline this approach, and extend it from still images to motion videos. We will propose a novel spatial-temporal framework that extends topic models for both appearance modeling and motion modeling. The spatial and temporal models are integrated so that motion ambiguities can be resolved by appearance, and appearance ambiguities can be resolved by motion. This framework finds application in video retrieval (e.g., for YouTube or Google Video) and video surveillance.

Speaker Biography

Tsuhan Chen has been with the Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, Pennsylvania, since October 1997, where he is currently Professor and Associate Department Head. From August 1993 to October 1997, he worked at AT&T Bell Laboratories, Holmdel, New Jersey. He received the M.S. and Ph.D. degrees in electrical engineering from the California Institute of Technology, Pasadena, California, in 1990 and 1993, respectively. He received the B.S. degree in electrical engineering from the National Taiwan University in 1987.

Tsuhan served as the Editor-in-Chief for IEEE Transactions on Multimedia in 2002-2004. He also served in the Editorial Board of IEEE Signal Processing Magazine and as Associate Editor for IEEE Trans. on Circuits and Systems for Video Technology, IEEE Trans. on Image Processing, IEEE Trans. on Signal Processing, and IEEE Trans. on Multimedia. He co-edited a book titled Multimedia Systems, Standards, and Networks.

Tsuhan received the Charles Wilts Prize at the California Institute of Technology in 1993. He was a recipient of the National Science Foundation CAREER Award, from 2000 to 2003. He received the Benjamin Richard Teare Teaching Award at the Carnegie Mellon University in 2006. He is elected to the Board of Governors, IEEE Signal Processing Society, 2007-2009. He is a member of the Phi Tau Phi Scholastic Honor Society. He is Fellow of IEEE, and a Distinguished Lecturer of the Signal Processing Society.

Wednesday 12, September 2007 – 14.30-15.30

Surveillance on Graphs

Stan Sclaroff
Professor and Chair
Department of Computer Science
Boston University, Boston, MA USA

Abstract

Graphical models provide a convenient representation for a number of surveillance problems. In the first part of the talk, I will describe a solution to the problem of learning and predicting traffic patterns within a collection of video cameras that are distributed over a wide area. Given an unknown video camera layout containing active, e.g., pan-tilt-zoom, cameras and people moving around, the goal is to predict a subset of cameras, respective camera parameter settings, and time windows that will most

likely lead to success of particular vision tasks when a camera observes an event of interest. We propose an adaptive probabilistic framework that learns temporal camera correlations over time as the cameras report observed events. No extrinsic, intrinsic or color calibration of cameras is required. In the second part of the talk, I will describe how graphical models can be used to simplify reasoning about occlusions of activities observed in monocular video streams. Layers of graphical models are instantiated in the image plane, such that these layers are consistent with the depth ordering of static and dynamic occluding objects in the observed scene. This framework is demonstrated in experiments with tracking human activities in parking lots, where there are many vehicles and people moving among vehicles, entering and exiting vehicles, etc. Given these graphical models, prediction and inference are achieved efficiently via Sequential Monte Carlo sampling across space and time. Other applications of graphical models in surveillance will be described as time allows.

Speaker Biography
Stan Sclaroff received his PhD from MIT in 1995. He is a Professor of Computer Science at Boston University, where he founded the Image and Video Computing research group. Prof. Sclaroff has coauthored numerous scholarly publications in the areas of tracking, video-based analysis of human motion and gesture, surveillance, deformable shape matching and recognition, as well as image/video database indexing, retrieval and data mining methods. He has served on the technical program committees of over 80 computer vision conferences and workshops. He received an ONR Young Investigator Award and an NSF Faculty Early Career Development Award in 1996. He has served as an Associate Editor for IEEE Transactions on Pattern Analysis, 2000-2004, and 2006-present. He is a Senior Member of the IEEE.

Thursday 13, September 2007 – 9.00-10.00

Iris Recognition Using Genetic Algorithm and Support Vector Machine
Prabir Bhattacharya
Concordia University, Montreal, Quebec, Canada

Abstract
Iris recognition has been regarded as one of the most reliable biometric technologies in recent years. We propose an iris recognition technique based on the zigzag collarette area localization and asymmetrical support

vector machine. The zigzag collarette area is one of the most important parts of the iris complex pattern since it is usually insensitive to the pupil dilation and less affected by the eyelids and the eyelashes. The collarette region captures only the most significant areas of the iris complex pattern and provides better recognition accuracy than the approach where the entire iris region is considered. The feature sequence extracted from the iris images using the log-Gabor filters is applied to train the support vector machine (SVM) as an iris pattern classifier. We use the multi-objective genetic algorithm (MOGA) to optimize the features and to increase the overall recognition accuracy based on the matching performance of the SVM. The proposed technique is computationally effective with recognition rates of 97.70 % and 95.60% on the ICE (Iris Challenge Evaluation, created by the University of Notre Dame) and the WVU (West Virginia University) iris data sets respectively.

Speaker Biography

Prabir Bhattacharya is a Professor at the Concordia University, Montreal, Canada where he holds a Canada Research Chair, Tier 1. He was earlier a Professor at the University of Nebraska-Lincoln, Department of Computer Science and Engineering, USA where he served during 1986-99. During 1999-2004, he worked as a Principal Scientist at the Panasonic Information Technologies Laboratory in Princeton, New Jersey, USA. He received his Ph.D. from the University of Oxford, UK. He is a Fellow of the IEEE, and the IAPR. He is the Associate Editor-in-Chief of the IEEE Transactions on Systems, Man and Cybernetics, Part B (Cybernetics). Also, he is an associate editor of three other technical journals. He holds 4 US Patents, and has co-authored about 200 publications including 90 journal papers.

Thursday 13, September 2007 – 18.30-19.30

Web-scale multimedia data management: challenges and remedies
Edward Y. Chang
Google Research

Abstract

Text-based search engines have been flourishing. However, despite increasing needs of tools for organizing and searching imagery and video content, we have not seen a successful deployment of a Web-scale multimedia search engine. This talk analyzes main technical challenges of

such a deployment, and presents remedies in three areas: feature extraction, similarity characterization, and scalability.

Speaker Biography

Professor Edward Chang received his M.S. in Computer Science and PhD in Electrical Engineering at Stanford University in 1994 and 1999, respectively. He joined the department of Electrical & Computer Engineering at University of California, Santa Barbara, in September 1999. He received his tenure in March 2003, and was promoted to full professor of Electrical Engineering in 2006. His recent research activities are in the areas of machine learning, data mining, high-dimensional data indexing, and their applications to image databases, video surveillance, and Web mining. Recent research contributions of his group include methods for learning image/video query concepts via active learning with kernel methods, formulating distance functions via dynamic associations and kernel alignment, managing and fusing distributed video-sensor data, categorizing and indexing high-dimensional image/video information, and speeding up Support Vector Machines via parallel matrix factorization and indexing. Professor Chang has served on several ACM, IEEE, and SIAM conference program committees. He co-founded the annual ACM Video Sensor Network Workshop and has co-chaired it since 2003. He co-chairs several conferences: Multimedia Modeling (2006), SPIE/IS&T Multimedia Information Retrieval (2006), ACM Multimedia (2006), IEEE Data Engineering (2007), and WWW 2007. He serves as an Associate Editor for IEEE Transactions on Knowledge and Data Engineering and ACM Multimedia Systems Journal. Professor Chang is a recipient of the IBM Faculty Partnership Award and the NSF Career Award. He is currently on leave from UC, heading Google Research at China.

Detailed Program

Tuesday 11 September 2007

09:00 - 09:30 Opening

09:30 - 10:30 Keynote Speech: Prof. Rama Chellappa (Univ. of Maryland - USA)

10:30 - 10:50 Coffee break

10:50 - 11:50 Oral session: Biometry I -- Session Chair: Paola Campadelli

10:50 - 11:10 Collarette Area Localization and Asymmetrical Support Vector Machine for Efficient Iris Recognition
Kaushik Roy, Prabir Bhattacharya
Concordia University, CA

11:10 - 11:30 Colour and Geometric based Model for Lip Localisation: Application for Lip-reading System
Salah Werda, Walid Mahdi
MIRACL: Multimedia Information systems and Advanced Computing Laboratory, TN / ISIMS, TN

11:30 - 11:50 Dynamic Score Selection for Fusion of Multiple Biometric Matchers
Roberto Tronci, Giorgio Giacinto, Fabio Roli
Università di Cagliari, IT

11:50 - 12:50 Oral session: Theory I -- Session Chair: Fabio Roli

11:50 - 12:10 Integrating Boundary Information in Pairwise Segmentation
Andrea Torsello, Marco Di Gesu`, Marcello Pelillo
Università di Venezia, IT

12:10 - 12:30 Kernelised Relaxation Labelling using Fokker-Plank Diffusion
Hong-Fang Wang, Edwin Hancock
University of York, UK

12:30 - 12:50 Spectral Generative Models for Graphs
Richard Wilson, David White
University of York, UK

10:30 - 12:50 Poster session: Theory II

Learning Repetitive Patterns for Classifying Non-Rigidly Deforming Texture Surfaces
Roman Filipovych, Eraldo Ribeiro
Florida Institute of Technology, US

Motion Estimation via Belief Propagation
Paolo Napoletano, Giuseppe Boccignone, Angelo Marcelli, Mario Ferraro
Università di Salerno, IT / Università di Torino, IT

Performance evaluation of Scale-Interpolated Hessian-laplace detector and Haar Descriptor for feature matching
Robert Laganiere, Akshay Bhatia, Gerhard Roth
University of Ottawa, CA / National Research Council of Canada, CA

Sparseness Achievement in Hidden Markov Models
Manuele Bicego, Marco Cristani, Vittorio Murino
Università di Sassari, IT / Università di Verona, IT

Grey Weighted Polar Distance Transform for Outlining Circular and Approximately Circular Objects
Kristin Norell, Joakim Lindblad, Stina Svensson
Swedish University of Agricultural Sciences, SE

Topology Preserving Marching Cubes-like Algorithms on the Face-Centered Cubic Grid
Robin Strand, Peer Stelldinger
Uppsala University, SE / University of Hamburg, DE

10:30 - 12:50   Poster session: Industrial Applications I

A method of clustering combination applied to satellite image analysis
Ivan Kyrgyzov, Henri Maitre, Marine Campedel
GET/Telecom Paris, FR

Ball Position and Motion Reconstruction from Blur in a Single Perspective Image
Giacomo Boracchi, Vincenzo Caglioti, Alessandro Giusti
Politecnico di Milano, IT

Calibration and Image Generation of Mobile Projector-Camera Systems
Koji Hamada, Jun Sato
Nagoya Institute of Technology, JP

Hybrid Stereo Sensor with Omnidirectional Vision Capabilities: Overview and Calibration Procedures
Stefano Cagnoni, Monica Mordonini, Luca Mussi, Giovanni Adorni
Università di Parma, IT / Università di Perugia, IT / Università di Genova, IT

Image Spam Filtering Using Visual Information
Battista Biggio, Giorgio Fumera, Ignazio Pillai, Fabio Roli
Università di Cagliari, IT

Localization of ahead vehicles with on-board stereo cameras
Michele Zanin
FBK-irst, IT

Rectification of 3D Data Obtained from Moving Range Sensors by using Multiple View Geometry
Kozuka Kazuki, Jun Sato
Nagoya Institute of Technology, JP

Subspace Reduction for Appearance-Based Navigation of a Mobile Robot
Luis Paya, Oscar Reinoso, Asunción Vicente, Arturo Gil, Jose Manuel Pedrero
Miguel Hernández University, ES

Unwarping scanned image of Japanese/English documents
Ali Zandifar
Epson R&D Inc., San Jose, US

12:50 - 14:20   Lunch

14:20 - 15:40   Oral session: Surveillance and Security I -- Session Chair: Gian Luca Foresti

14:20 - 14:40 A Dynamic Programming Technique for Classifying Trajectories
Simone Calderara, Rita Cucchiara, Andrea Prati
Università di Modena e Reggio Emilia, IT

14:40 - 15:00 Detection and Monitoring of Passengers on a Bus by Video Surveillance
Boon Chong Chee, Mihai Lazarescu, Tele Tan
Curtin University of Technology, AU

15:00 - 15:20 **Object Tracking at Multiple Levels of Spatial Resolutions**
Son Tran, Larry Davis
University of Maryland, US

15:20 - 15:40 **An information theoretic rule for sample size adaptation in particle filtering**
Oswald Lanz
ITC-IRST, IT

15:40 - 16:00 Coffee break

16:00 - 17:00 Oral session: Biometry II -- Session Chair: Rama Chellappa

16:00 - 16:20 **Face Shape Reconstruction from Image Sequence Taken with Monocular Camera using Shape Database**
Hideo Saito, Yosuke Ito, Masaaki Mochimaru
Keio University, JP

16:20 - 16:40 **Noise versus Facial Expression on 3D Face Recognition**
Chauã Queirolo, Maurício Segundo, Olga Bellon, Luciano Silva
Universidade Federal do Paraná, BR

16:40 - 17:00 **Using geodesic distances for 2D-3D and 3D-3D face recognition**
Stefano Berretti, Alberto Del Bimbo, Pietro Pala, F. Jose Silva Mata
Università di Firenze, IT / Centro de Aplicaciones de Tecnologias de Avanzada, CU

17:00 - 18:20 Oral session: Industrial Applications II -- Session Chair: Hideo Saito

17:00 - 17:20 **Optical Flow Computation on Compute Unified Device Architecture**
Yoshiki Mizukami, Katsumi Tadamura
Yamaguchi University, JP

17:20 - 17:40 **Transformation invariant SOM clustering in Document Image Analysis**
Simone Marinai, Emanuele Marino, Giovanni Soda
Università di Firenze, IT

17:40 - 18:00 **Verification of Handwritten Signatures: an Overview**
A. Ferrante, N. Greco, S. Impedovo, R. Modugno, G. Pirlo
Università di Bari, IT

18:00 - 18:20 **Visual feature group matching for autonomous robot localization**
Emanuele Frontoni, Primo Zingaretti
Università Politecnica delle Marche, IT

14:20 - 18:20 Poster session: Biometry III

Automatic Video-based Analysis of Athlete Action
Haojie Li, Shouxun Lin, Yongdong Zhang, Kun Tao
Institute of Computing Technology, Chinese Academy of Sciences, CN / ICT,CAS, CN

Becoming Visually Familiar
Modesto Castrillón-Santana, Oscar Déniz-Suárez, Javier Lorenzo-Navarro, Daniel Hernández-Sosa
University of Las Palmas de Gran Canaria, ES

Block Independent Component Analysis for Face Recognition
Lei Zhang, Quanxue Gao, David Zhang
The Hong Kong Polytechnic University, HK

Fingerprint scanner focusing estimation by Top Sharpening Index
Annalisa Franco, Davide Maltoni, Matteo Ferrara
Università di Bologna, IT

Fingerprints Recognition Using Minutiae Extraction: a Fuzzy Approach.
Anna Montesanto, Paola Baldassarri, Germano Vallesi, Guido Tascini
Università Politecnica delle Marche, IT

Generalization in Holistic versus Analytic Processing of Faces
Manuele Bicego, Albert Salah, Enrico Grosso, Massimo Tistarelli, Lale Akarun
Università di Sassari, IT / CWI, NL / Bogazici University, TR

Human Computer Interaction: Legibility and Contrast
Silvia Zuffi, Carla Brambilla, Giordano Beretta, Paolo Scala
Consiglio Nazionale delle Ricerche, IT / Hewlett-Packard Laboratories, Palo Alto, US

Real-time 3D Hand Shape Estimation based on Image Feature Analysis and Inverse Kinematics
Weiying Chen, Ryuji Fujiki, Daisaku Arita, Rin-ichiro Taniguchi
Kyushu University, JP

Real-time Gesture Recognition in Advanced Videocommunication Services
Oliver Schreer, Seinghor Ngongang
Fraunhofer Institute for Telecommunications, DE / Heinrich-Hertz-Institut, DE

Score-level fusion of fingerprint and face matchers for personal verification under "stress" conditions
Gian Luca Marcialis, Fabio Roli
Università di Cagliari, IT

Stereo-based 3D Face Modeling using Annealing in Local Energy Minimization
Besma Abidi, Shafik Huq, Mongi Abidi
University of Tennessee, US

14:20 - 18:20   Poster session: Industrial Applications III

Automatic extraction of LIDAR data classification rules
Primo Zingaretti, Emanuele Frontoni, Gianfranco Forlani, Carla Nardinocchi
Università Politecnica delle Marche, IT / Università di Parma, IT / Università di Roma "La Sapienza", IT

Automatic Handwriting Identification on Medieval Documents
Marius Bulacu, Lambert Schomaker
University of Groningen, NL / Rijksuniversiteit, NL

D-Calib: Calibration Software for Multiple Cameras System
Yuko Uematsu, Tomoaki Teshima, Hideo Saito, Cao Honghua
Keio University, JP

Efficient stereo vision for obstacle detection and AGV Navigation
Rita Cucchiara, Emanuele Perini, Giuliano Pistoni
Università di Modena e Reggio Emilia, IT

Real-Time SLAM with a High-Speed CMOS Camera
Peter Gemeiner, Wolfgang Ponweiser
Vienna University of Technology, AT

Reconstruction of a High Dynamic Range and High Resolution Image from a Multisampled Image Sequence
Harald Haraldsson, Masayuki Tanaka, Masatoshi Okutomi
Tokyo Institute of Technology, JP

18:20 - 19:00   Guided visit
19:00 - 20:00   Welcome cocktail

Wednesday 12 September 2007

08:30 - 09:00 Registration

09:00 - 10:00 Keynote speech: Prof. Tsuhan Chen (Carnegie Mellon Univ., USA)

10:00 - 11:00 Oral session: Surveillance and Security II -- Session Chair: Andrea Prati

10:00 - 10:20 Video Objects Segmentation by Robust Background Modeling
Andrea Colombari, Andrea Fusiello, Vittorio Murino
Università di Verona, IT

10:20 - 10:40 A Nonlinear-Shift Approach to Object Tracking Based on Shape Information
Majid Asadi, Andrea Beoldo, Carlo Regazzoni
Università di Genova, IT

10:40 - 11:00 Cooperative Object Tracking with Multiple PTZ Cameras
Ivo Everts, Nicu Sebe, Graeme Jones
University of Amsterdam, NL / Kingston University, UK

11:00 - 11:20 Coffee break

11:20 - 12:20 Oral session: Theory III -- Session Chair: Giuseppe Boccignone

11:20 - 11:40 Adaptive uncertainty estimation for particle filter-based trackers
Andrew Bagdanov, Alberto Del Bimbo, Fabrizio Dini, Walter Nunziati
Università di Firenze, IT

11:40 - 12:00 Surface Integration: Two Statistical Approaches
William A. P. Smith, Edwin R. Hancock
University of York, UK

12:00 - 12:20 Evaluating Classification Reliability for Combining Classifiers
Pasquale Foggia, Gennaro Percannella, Carlo Sansone, Mario Vento
Università di Napoli "Federico II", IT / Università di Salerno, IT

12:20 - 13:20 Oral session: Biometry IV -- Session Chair: Larry Davis

12:20 - 12:40 Distribution-Based Face Detection using Calibrated Boosted Cascade Classifier
Hiromasa Takatsuka, Masayuki Tanaka, Masatoshi Okutomi
Tokyo Institute of Technology, JP

12:40 - 13:00 Reactive Learning Strategy for AsymBoost Based Face Detectors
Ingrid Visentini, Christian Micheloni, Gian Luca Foresti
Università di Udine, IT / Università di Udine, IT

13:00 - 13:20 Video Biometrics
Rama Chellappa, Gaurav Aggarwal
University of Maryland, US

10:00 - 13:20 Poster session: Multimedia I

A Novel Anchorperson Detection Algorithm Based on Spatio-temporal Slice
Anan Liu, Sheng Tang, Yong-Dong Zhang, Jintao Li, Zhaoxuan Yang
Tianjin University, CN / Institute of Computing Technology, Chinese Academy of Sciences, CN

A robust measure for visual correspondence
Federico Tombari, Luigi Di Stefano, Stefano Mattoccia
Università di Bologna, IT

A Video-Browsing-Enhanced Personal Video Recorder
Ajay Divakaran, Isao Otsuka
Mitsubishi Electric Research Laboratories, US / ATC, Mitsubishi Electric Corporation, JP

Automatic generation of generic Bitstream Syntax Descriptions applied to H.264/AVC SVC encoded video streams
Davy Van Deursen, Wesley De Neve, Davy De Schrijver, Rik Van de Walle
Ghent University - IBBT, BE

Bringing Mobile Map-Based Access to Digital Audio to the End User
Robert Neumayer, Jakob Frank, Peter Hlavac, Thomas Lidy and Andreas Rauber
Vienna University of Technology, AT

Combining Features for Image Retrieval by Concept Lattice Querying and Navigation
Giuseppe Amato, Carlo Meghini
Consiglio Nazionale delle Ricerche, IT

Effective color space representation for wavelet based compression of HDR images
Masahiro Okuda, Nicola Adami
Faculty of Environmental Engineering, The University of Kitakyushu, Japan, JP / Università di Brescia, IT

Face3 a 2D+3D Robust Face Recognition System
Alessandro Colombo, Claudio Cusano, Raimondo Schettini
Università di Milano - Bicocca, IT

Fast and Effective Features for Recognizing Recurring Video Clips in Very Large Databases
Ina Döhring, Rainer Lienhart
University of Augsburg, DE

Fast Predictive Search Algorithm for Video Motion Estimation
Lei Chun Chou, Cheng Da Ye, Liu Yuan Chen, Bin Cheng Jhao
National Taipei University of Education, TW

10:00 - 13:20 Poster session: Biometry V

A Framework of Calculus on Facial Surfaces
Chafik Samir, Mohamed Daoudi, Anuj Srivastava
GET/INT, Telecom Lille1, FR

A trainable system for face detection in unconstrained environments
Augusto Destrero, Francesca Odone, Alessandro Verri
Università di Genova, IT

analysis of 3D face reconstruction
Hassan Amin Syed, Duncan Gillies
Imperial College London, UK

Automatic Detection of Facial Landmarks from AU-coded Expressive Facial Images
Yulia Gizatdinova, Veikko Surakka
University of Tampere, FI

Automatic Lip Contour Detection Using Level Set Segmentation Method
Abu Sayeed Md. Sohail, Prabir Bhattacharya
Concordia University, CA

Face and facial features detection for 3D face recognition under facial expression variations
Maurício Segundo, Chauã Queirolo, Olga Bellon, Luciano Silva
Universidade Federal do Paraná, BR

Face, Ear and Fingerprint: Designing Multibiometric Architectures
Andrea Abate, Michele Nappi, Maria De Marsico, Daniel Riccio
Università di Salerno, IT / Università di Roma "La Sapienza", IT

Gabor Saliency Map for Face Recognition
Annalisa Franco, Raffaele Cappelli, Dario Maio
Università di Bologna, IT

Robust Face Matching Under Large Occlusions
Georgy Gimel'farb, Patrice Delmas, John Morris, Al Shorin
University of Auckland, NZ

Robust Iris Localization and Tracking based on Constrained Visual Fitting
Carlo Colombo, Dario Comanducci, Alberto Del Bimbo
Università di Firenze, IT

13:20 - 14:30   Lunch

14:30 - 15:30   Keynote speech: Prof. Stan Sclaroff (Boston Univ., USA)

15:30 - 16:30   Oral session: Multimedia II -- Session Chair: Costantino Grana

15:30 - 15:50   Adding Gestures to Ordinary Mouse Use: a New Input Modality for Improved Human-Computer Interaction
Luca Lombardi, Marco Porta
Università di Pavia, IT

15:50 - 16:10   Semantic Video Search
A.W.M. Smeulders, J.C. van Gemert, B. Huurnink, D.C. Koelma, O. de Rooij, K.E.A. van de Sande, C.G.M. Snoek, C.J. Veenman, M. Worring
University of Amsterdam, NL

16:10 - 16:30   Appearance-based 3D object recognition with time-invariant features
Elisabetta Delponte, Nicoletta Noceti, Francesca Odone, Alessandro Verri
Università di Genova, IT

16:30 - 16:50   Coffee break

16:50 - 18:10   Oral session: Theory IV -- Session Chair: Vittorio Murino

16:50 - 17:10   Computing Epipolar Geometry from Unsynchronized Cameras
Ying Piao, Jun Sato
Nagoya Institute of Technology, JP

17:10 - 17:30   Fast extraction of multi-resolution Gabor features
Jarmo Ilonen, Joni Kämäräinen, Heikki Kälviäinen
Lappeenranta University of Technology, FI

17:30 - 17:50   On Genuine Connectivity Relations Based on Logical Predicates
Pierre Soille
EC JRC - Ispra, IT

17:50 - 18:10   Projective Transformations for Image Transition Animations
TzuYen Wong, Peter Kovesi, Amitava Datta
University of Western Australia, AU

15:30 - 18:10   Poster session: Surveillance and Security III

A Framework for False Positive Suppression in Video Segmentation
Min Han Tun, Geoff West, Tele Tan
Curtin University of Technology, AU

A Statistical Method for People Counting in Crowded Environments

Massimiliano Bozzoli, Luigi Cinque, Enver Sangineto

Hypercube S.r.L., IT / Università di Roma "La Sapienza", IT

Alignment of videos recorded from moving vehicles

Joan Serrat, Ferran Diego, F. Lumbreras, J.M. ´Alvarez

Universitat Autònoma de Barcelona, ES

An improvement of AdaBoost face-detection with motion and color information

Vincenzo Randazzo, Lisa Usai

ELSAG SpA, IT

Detecting Major Segmentation Errors for a Tracked Person Using Colour Feature Analysis

Christopher Madden, Massimo Piccardi

University of Technology, Sydney, AU

Exploiting Temporal Statistics for Events Analysis and Understanding

Christian Micheloni, Lauro Snidaro, Claudio Piciarelli, Gian Luca Foresti

Università di Udine, IT

Human Appearance Change Detection

Nagia Ghanem, Larry Davis

University of Maryland, US

Moving Object Detection for Real-Time Applications

Lucia Maddalena, Alfredo Petrosino

Consiglio Nazionale delle Ricerche, IT / Università di Napoli "Parthenope", IT

Panoramic mosaicing optimization

Lionel Robinault, Stéphane Bres, Serge Miguet

Université Lyon 2, FR

Sight enhancement through video fusion in a surveillance system

Andrea Masini, Francesco Branchitta, Marco Diani, Giovanni Corsini

Università di Pisa, IT

Video Surveillance and SOS Request

Roberto Marmo, Virginio Cantoni, Marco Zemblini

Università di Pavia, IT

Vision-based monitoring of pedestrian crossings

Rean I. Fedriga, Alessandra Fascioli, Stefano Ghidoni

Università di Parma, IT

16:30 - 19:00   GIRPR meeting
20:00 - 23:00   GALA DINNER

Thursday 13 September 2007

08:30 - 09:00   Registration

09:00 - 10:00   Keynote speech: Prof. Prabir Bhattacharya (Concordia Univ., Canada)

10:00 - 11:00   Oral session: Multimedia III -- Session Chair: Nicu Sebe

10:00 - 10:20   Document Image Mosaicing with Mobile Phones
Jari Hannuksela, Pekka Sangi, Janne Heikkila, Xu Liu, David Doermann
University of Oulu, FI

10:20 - 10:40   Improving the accuracy of automatic tennis video annotation by high level grammar
I. Kolonias, J. Kittler, W.J. Christmas, F. Yan
University of Surrey, UK

10:40 - 11:00   Shape Indexing through Laplacian Spectra
Fatih Demirci, Remco C. Veltkamp, Reinier van Leuken
Utrecht University, NL

11:00 - 11:20   Coffee break

11:20 - 12:20   Oral session: Theory V -- Session Chair: Mario Vento

11:20 - 11:40   A method for blur and similarity transform invariant object recognition
Ville Ojansivu, Janne Heikkil¨a
University of Oulu, FI

11:40 - 12:00   Corner Displacement from Motion Blur
Giacomo Boracchi, Vincenzo Caglioti
Politecnico di Milano, IT

12:00 - 12:20   Rigid Image Registration based on Pixel Grouping
Dimitrios Gerogiannis, Christophoros Nikou, Aristidis Likas
University of Ioannina, GR

12:20 - 13:20   Oral session: Theory VI -- Session Chair: Prabir Bhattacharya

12:20 - 12:40   A Consistency Result for the Normalized Eight-Point Algorithm
Wojciech Chojnacki, Michael Brooks
University of Adelaide, AU

12:40 - 13:00   An Uncalibrated View-Synthesis Pipeline
Andrea Fusiello, Luca Irsara
Università di Verona, IT

13:00 - 13:20   Vanishing Point Detection in Complex Man-made Worlds
Horst Wildenauer, Markus Vincze
Vienna University of Technology, AT

10:00 - 13:20   Poster session: Theory VII

Facing Imbalanced Classes through Aggregation of Classifiers
Mario Molinara, Maria Teresa Ricamato, Francesco Tortorella
Università di Cassino, IT

A High Performance Exact Histogram Specification Algorithm
Alessandro Bevilacqua, Pietro Azzari
Università di Bologna, IT

Characterising Range Image Features via Gradient Operators
Sonya Coleman, Shanmugalingam Suganthan, Bryan Scotney
University of Ulster, UK

Cosegmentation for Image Sequences

> Dong Seon Cheng, Mario Figueiredo
> *Università di Verona, IT / Instituto Superior Técnico, PT*

Fast convergence for spectral clustering

> Marco Aiello, Andreozzi Francesco, Ezio Catanzariti, Francesco Isgro, Matteo Santoro
> *Università di Napoli "Federico II", IT*

Integrated Edge and Corner Detection

> Sonya Coleman, Bryan Scotney, Dermot Kerr
> *University of Ulster, UK*

Multidimensional Histogram Equalization

> Anthony McCollum, William Clocksin
> *Oxford Brookes University, UK*

Parsing Silhouettes without Boundary Curvature

> Ralf Juengling, Lakshman Prasad
> *Portland State University, US / Los Alamos National Laboratory, US*

Surface Segmentation through Concentrated Curvature

> Mohammed Mostefa Mesmoudi, Leila De Floriani, Emanuele Danovaro, Umberto Port
> *Mostaganem, DZ / Università di Genova, IT / Free University of Bolzano, IT / University of Maryland, US*

Tensor Voting Fields: Direct Votes Computation and New Saliency Functions

> Paola Campadelli, Gabriele Lombardi
> *Università di Milano, IT*

10:00 - 13:20   Poster session: Medical Imaging I

A Hybrid Multi-Expert Systems for HEp-2 Staining Pattern Classification

> Paolo Soda, Giulio Iannello
> *Università Campus Biomedico, Roma, IT*

CT-PET Landmark-based Registration Using a Dynamic Lung Model

> Antonio Moreno, Sylvie Chambon, Anand Santhanam, Jannick Rolland, Elsa Angelini, Isabelle Bloch
> *Ecole Nationale Superieure des Telecommunications, FR / ODALab, US / University of Central Florida, US*

Two-way interactive refinement of segmented medical volumes

> Alberto Signoroni, Riccardo Leonardi
> *Università di Brescia, IT*

13:20 - 14:30   Lunch

14:30 - 15:30   Oral session: Theory VIII -- Session Chair: Edwin Hancock

14:30 - 14:50   Multi-resolution Morse-Smale complexes for terrain modeling

> Emanuele Danovaro, Leila De Floriani, Maria Vitali
> *Università di Genova, IT / Free University of Bolzano, IT / University of Maryland, US*

14:50 - 15:10   Efficient and optimal block matching for motion estimation

> Stefano Mattoccia, Federico Tombari, Luigi Di Stefano, Marco Pignoloni
> *Università di Bologna, IT*

15:10 - 15:30   Orientation Adaptive Discrete Packet Wavelet Decomposition via Shifting Operators for Image Compression

> Stefano Andriani, David Taubman
> *Università di Padova, IT / University of New South Wales, AU*

15:30 - 15:50   Coffee break

15:50 - 17:10   Oral session: Medical Imaging II -- Session Chair: Luigi Cinque

15:50 - 16:10   **A new and reliable Poisson noise estimator for radiographic images**
Iuri Frosio, Mirko Lucchese, Alberto Borghese
Università di Milano, IT

16:10 - 16:30   **Automatic liver segmentation from abdominal CT scans**
Elena Casiraghi, Paola Campadelli, Gabriele Lombardi
Università di Milano, IT

16:30 - 16:50   **Edge Tracking of subjective contours in Biomedical Imaging**
Giovanni Garibotto, Valentina Garibotto
ELSAG SpA, IT / Università di Milano "Bicocca", IT

16:50 - 17:10   **Multi-modal non-rigid registration of medical images based on mutual information maximization**
Edoardo Ardizzone, Orazio Gambino, Marco La Cascia, Liliana Lo Presti, Roberto Pirrone
Università di Palermo, IT

14:30 - 17:10   Poster session: Theory IX

Using Bayesian Network for Combining Classifiers
Claudio De Stefano, Angelo Marcelli, Alessandra Scotto di Freca, Ciro D'Elia
Università di Cassino, IT / Università di Salerno, IT

A Clustering Approach to Object Estimation,
Luca Bianchi, Alessandro Martinelli
Università di Pavia, IT

A New Stereo Algorithm Integrating Luminance, Gradient and Segmentation Informations in a Belief-Propagation Framework
Massimiliano Spertino, Giuseppe Pettiti, Luca Piovano, Nello Balossino, Maurizio Lucenteforte
Consiglio Nazionale delle Ricerche, IT / Università di Torino, IT

Computation of Binary Objects Sides Number using Discrete Geometry, Application to Automatic Pebbles Shape Analysis
Tristan Roussillon, Laure Tougne, Isabelle Sivignon
University of Lyon, FR

Image Enhancement Using Elastic Manifolds
Vadim Ratner, Yehoshua Zeevi
Technion - Israel Institute of Technology, IL

Matching Relational Structures using the Edge-Association Graph
Andrea Torsello, Andrea Albarelli, Marcello Pelillo
Università di Venezia, IT

14:30 - 17:10   Poster session: Multimedia IV

A System for the Automatic Identification of Music Works
Nicola Orio
Università di Padova, IT

Interval-Based Linear Hybrid Dynamical System for Modeling Cross-Media Timing Structures in Multimedia Signals
Hiroaki Kawashima, Takashi Matsuyama
Kyoto University, JP

K-dimensional Size Functions for Shape Description and Comparison
>Silvia Biasotti, Daniela Giorgi, Andrea Cerri
>*Consiglio Nazionale delle Ricerche, IT / Università di Bologna, IT*

Natural scenes categorization by hierarchical extraction of typicality patterns
>Alessandro Perina, Marco Cristani, Vittorio Murino
>*Università di Verona, IT*

Object-Based Indexing of Compressed Video Content: from SD to HD Video
>C. Morand, J. Benois-Pineau, J.-Ph. Domenger and B. Mansencal
>*University of Bordeaux I, FR*

Quality Assessment of Gaussian Blurred Images Using Symmetric Geometric Moments
>Chong-Yaw Wee, Raveendran Paramesran, Ramakrishnan Mukundan
>*University of Malaya, MY / University of Canterbury, NZ*

Query translation based on equivalence classes for heterogeneous multimedia repositories using XML and
semantic annotation
>Marco Aguzzi, Maria Grazia Albanesi, Marco Ferretti, Mauro Garlaschelli
>*Università di Pavia, IT*

Recording, Indexing, Summarizing, and Accessing Meeting Videos: An Overview of the AMI Project
>Alejandro Jaimes, Herve Bourlard, Steve Renals
>*IDIAP Research Institute, CH / University of Edinburgh, UK*

Segmenting Moving Objects in MPEG Videos in the Presence of Camera Motion
>Ralph Ewerth, Martin Schwalb, Paul Tessmann, Bernd Freisleben
>*University of Marburg, DE*

SIFT Features Tracking for Video Stabilization
>Sebastiano Battiato, Giovanni Gallo, Giovanni Puglisi, Salvo Scellato
>*Università di Catania, IT*

Wavelet domain watermark embedding strategy
>Achraf Makhloufi, A. Ouled Zaid, A. Bouallegue
>*ENIT School, SYSCOM Laboratory, TN*

Window Detection in Facades
>Haider Ali, Christin Seifert, Nitin Jindal, Lucas Paletta, Gerhard Paar
>*Vienna University of Technology, AT / Joanneum Research, AT*

18:00 - 18:30   VMDL opening

18:30 - 22:00   Keynote speech: Prof. Edward Y. Chang (Google, China)

Workshops

International Workshop on VISUAL AND MULTIMEDIA DIGITAL LIBRARIES (VMDL07)
Modena, Italy, September 13-14, 2007

Sponsored by: **GIRPR Gruppo Italiano Ricercatori Pattern Recognition**

Supported by: **EU DELOS Network of Excellence, EU MUSCLE Network of Excellence, Fondazione Rinascimento Digitale**

Chairs: Alberto del Bimbo, Università di Firenze, I
           Rita Cucchiara, Università di Modena e Reggio Emilia, I
           Nozha Boujemaa, INRIA Roquencourt, F

Scientific Program
September 13th
17.00   Welcome address
17.30   SESSION 1:   Emerging Media Digital Libraries
      Audio - ORAL DEMO (2)
Bringing Mobile Map-Based Access to Digital Audio to the End User
           Andreas Rauber
           Technical University Wien, A
A System for the Automatic Identification of Music Works
           Nicola Orio
           Università di Padova, I
      3D Object - ORAL DEMO (2)
Shape Indexing through Laplacian Spectra
           Fatih Demirci, Remco C. Veltkamp, Reinier van Leuken
           University of Utrecht, NL
A Framework of Calculus on Facial Surfaces
           Chafik Samir[1], Mohamed Daoudi[1], Anuj Srivastava[2]
           [1] *GET/Telecom Lille1, LIFL , F*
           [2] *Florida State University Tallahassee, USA*
19.30   Closing

20.00   Invited LECTURE
Web Scale Multimedia Data Management Challenges and Remedies
           Edward Chang
           Google Research, China
20.45   Dinner, After Dinner

September 14th

9.00   SESSION 2:   Image Digital Libraries

Image - ORAL DEMO (3)

A Semiotic Framework for the Semantics of Digital Multimedia Learning Objects

Michael May

Technical University of Denmark, DK

On the Scalability and Adaptability for Multimodal Retrieval and Annotation

Z. Zhang[1], Z. Guo[1], C. Faloutsos[2], E.P. Xing[2], J.-Y. Pan[3]

[1] *SUNY Binghamton, USA*

[2] *School of Computer Science, Carnegie Mellon University, USA*

[3] *Google Inc., Pittsburgh, PA, USA*

Clustering by Random Projections: Application to Image Segmentation

Thiery Urruti, Chabane Djeraba, dan A. Simovici

Telecom Lille1, LIFL , F

10.30   SESSION 3:   Video Digital Libraries

Video - ORAL DEMO (4)

Semantic Video Search

A.W.M. Smeulders, J.C. van Gemert, B. Huurnink, D.C. Koelma, O. de Rooij, K.E.A. van de Sande, C.G.M. Snoek, C.J. Veenman, M. Worring

University of Amsterdam, NL

Recording, Indexing, Summarizing, and Accessing Meeting Videos: an Overview of the AMI Project

Alejandro Jaimes[1], Herve Bourlard[1], and Steve Renals[2]

[1] *IDIAP Resarch Institute, SW*

[2] *University of Edinburgh, UK*

Fast and Effective Features for Recognizing Recurring Video Clips in Very Large Databases

Ina Döhring, Rainer Lienhart

Universitat Augsburg, D

Object-Based Indexing of Compressed Video Content: from SD to HD Video

C. Morand, J. Benois-Pineau, J.-Ph. Domenger and B. Mansencal

LaBRI, UMR CNRS/Université Bordeaux1, F

12.30   Quick Lunch

13.30   Open Session

Present and Future of Audio-visual Digital Libraries Applications

Organized by Fondazione Rinascimento Digitale

15.30 SESSION 4:   Digital Libraries Architectures

                           3D Object Digital Libraries

               Image Digital Libraries

               Video Digital Libraries

Architecture - POSTER DEMO (2)

Distributed Multimedia Digital Libraries on Peer-to-peer Network

Edoardo Ardizzone; Luca Gatani; Marco La Cascia; Giuseppe Lo Re; Marco Ortolani

Università di Palermo, I

DelosDLMS – a Next-generation Digital Library Management System

Gert Brettlecker[1], Paola Ranaldi[1,2], Heiko Schuldt[1]
[1] University of Basel, SW
[2] University of Constance, D

3D Object Digital Libraries - POSTER DEMO (2)

A Novel Prototype for Documentation and Retrieval of 3D Objects

Efstathios Onasoglou, Athanasios Mademlis, Katsikas Dimitrios, Petros Daras, Michael Strintzis
Informatics and Telematics Institute Thessaloniki, GR

Using Geodesic Distances for 2D-3D and 3D-3D Face Recognition

Stefano Berretti, Alberto Del Bimbo, Pietro Pala, Francisco Jose Silva Mata
Università di Firenze, I

Image - POSTER DEMO (5)

Region-based Image Indexing and Retrieval Inspired by Text Search

Giuseppe Amato, Vanessa Magionami, Pasquale Savino
CNR ISTI, Pisa, I

Combining Features for Image Retrieval by Concept Lattice Querying and Navigation

Giuseppe Amato, Carlo Meghini
CNR ISTI, Pisa, I

Design and Development of a Digital Archive of Illuminated Manuscripts

Maristella Agosti, Nicola Ferro, Nicola Orio
Università di Padova, I

Digitization and Multispectral Analysis of Historical Books and Archival Documents: Two Exemplary Cases

Giuseppe Maino
ENEA C.R. E. Clemente, Bologna, I

Facial Expression Recognition: a Fully Integrated Approach

Roberto Valenti, Nicu Sebe, Theo Gevers
University of Amsterdam, NL

Video - POSTER DEMO (6)

K-Space Content Management and Retrieval System

Ebroul Izquierdo, Krishna Chandramouli, Marcin Grzegorzek, and Tomas Piatrik
Queen Mary, University of London, UK

A Video-Browsing-Enhanced Personal Video Recorder

Ajay Divakaran[1], Isao Otsuka[2]
[1] Mitsubishi Electric Research Laboratories, Cambridge, USA
[2] ATC, Mitsubishi Electric Corporation, Kyoto, J

Semantic Video Segmentation using Probabilistic Relaxation

Arne Jacobs, George Ioannidis
Univrersitat Bremen, D

Hybrid Ontology and Visual-based Retrieval for Cultural Heritage Multimedia Libraries

Stefanos Vrochidis, Charalambos Doulaverakis, Lambros Makris, Anastasios Gounaris, Evangelia Nidelkou, Ioannis Kompatsiaris and Michael G. Strintzis
Informatics and Telematics Institute Thessaloniki, GR

Improving the Accuracy of Automatic Tennis Video Annotation by High Level Grammar
W.J. Christmas, I. Kolonias, J. Kittler and F. Yan
University of Surrey, UK

Sports Video Annotation using Enhanced HSV Histogram in Multimedia Ontologies
M. Bertini[1], A. Del Bimbo[1], C. Torniai[1], C. Grana[2], R. Vezzani[2], R. Cucchiara[2]
[1] *Università di Firenze, I*
[2] *Università di Modena e Reggio Emilia, I*

17.00   Closing

Computational Color Imaging Workshop (CCIW2007)
Modena, Italy, September 14, 2007

Chairs: Raimondo Schettini, University of Milano Bicocca, Italy
          Rastislav Lukac, Epson Canada Ltd., Canada
          Alain Tremeau, LIGIV -Université Jean Monnet, France

Scientific Program
September 14th

9.00   Session 1
    Color Constancy by Local Averaging
        A. Gijsenij, Th Gevers
    Combining Strategies for Automatic White Estimation in Real Images
        S. Bianco, F Gasparini, R. Schettini
    Cone Ratio in Color Vision Models
        T. Jetsu, V. Heikkinen, A. Pogosova, T. Jaaskelainen, J. Parkkinen

10.30   Session 2
    Mathematical Morphology in any color space
        O. Lezoray, A. Elmoataz, C. Meurie
    Gamut Expansion for Video and Image Sets
        E. Garcia, M.R. Gupta
    Safe Red-Eye Correction Plug-in using Adaptive Methods
        L. Marchesotti, M. Bressan, G. Csurka
    Adaptive Filtering for Color Image Sharpening and Denoising
        T. Horiuchi, K. Watanabe, S. Tominaga

12.30   Lunch

13.30   Session 3
    JPEG Adaptive Chromatic Post-Processing
        G Spampinato, A. Castorina. A Bruna, A. Capra
    Animation Movie Abstraction: Key Frame Adaptative Selection based on Color Histogram Filtering
        L. Ott, P. Lambert, B. Ionescu, D. Coquin
    Color image segmentation by compacigram analysis
        C. Botte-Lecocq, O. Losson, L. Macaire
    Semantics driven resampling of the OSA-UCS
        G. Menegaz, A. Le Troter, J. M. Boi, J. Sequeira
    A Gamut Preserving Color Image Quantization
        A. Tremeau, J-B. Thomas

16.15 – 17.00   Open discussion

Conference committees

General chair   **Rita Cucchiara**
                       Università di Modena e Reggio Emilia, Italy
Program chair   **Andrea Prati**
                       Università di Modena e Reggio Emilia, Italy
Local organizers   Costantino Grana, Roberto Vezzani,
                       Simone Calderara, Giovanni Gualdi

Steering commitee
V. Cantoni, Università di Pavia (Italy)
L. Cordella, Università Federico II, Napoli (Italy)
A. Del Bimbo, Università di Firenze (Italy)
V. di Gesù, Università di Palermo (Italy)
M. Ferretti, Università di Pavia (Italy)
P. Mussio, Università di Milano (Italy)
G. Sanniti di Baja, Istit. di Cibernetica "E. Caianiello" del CNR, Napoli (Italy)
G. Vernazza, Università di Genova (Italy)

Area chairs
THEORY:
    Giuseppe Boccignone, Università di Salerno (Italy)
    Edwin Hancock, University of York (UK)
SURVEILLANCE AND SECURITY:
    Gianluca Foresti, Università di Udine (Italy)
    Graeme Jones, University of Kingston (UK)
MULTIMEDIA:
    Alberto Del Bimbo, Università di Firenze (Italy)
    Arnold Smeulders, University of Amsterdam (NL)
HUMAN-CENTRED APPLICATIONS:
    Paola Campadelli, Università di Milano (Italy)
    AK Jain, Michigan State University (USA)
INDUSTRIAL APPLICATIONS:
    Vittorio Murino, Università di Verona (Italy)
    Hideo Saito, Keio University (Japan)

Tutorial chair: Andrea Fusiello (Univ. di Verona, Italy)

Scientific Committee

J. Aggarwal (USA)
E.Ardizzone (Italy)
P. Bhattacharya (Canada)
A. Broggi (Italy)
I. Cohen (USA)
L.d.F. Costa (Brasil)
C. De Stefano (Italy)
R. Fisher (UK)
G. Garibotto (Italy)
E. Hancock (UK)
J. Kittler (UK)
S. Maybank (UK)
S. Messelodi (Italy)
F. Pereira (Portugal)
M. Pietikainen (Finland)
F. Roli (Italy)
O. Schreer (Germany)
M. Shah (USA)
S. Soatto (USA)
G. Tascini (Italy)
E. Trucco (UK)
A. Verri (Italy)
M. Worring (NL)

MG. Albanesi (Italy)
E.J. Bayro-Corrochano (Mexico)
P. Bouthemy (France)
L. Cinque (Italy)
C. Colombo (Italy)
L. De Floriani (Italy)
L. Di Stefano (Italy)
A. Fusiello (Italy)
C. Grana (Italy)
A.K. Jain (USA)
Jia Li (USA)
G. Medioni (USA)
M. Pelillo (Italy)
M. Piccardi (Australia)
C. Regazzoni (Italy)
R. Schettini (Italy)
N. Sebe (The Netherlands)
P. Soille (EU)
D. Stork (USA)
K. Tombre (France)
M. Vento (Italy)
J. Villanueva (Spain)
H. Yeshurun (Israel)

Notes