INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION

IAPR Newsletter

Volume 29 Number 3
July 2007

In this issue...

Calls for Papers

DGCI 2008
14th International Conference on
Discrete Geometry for Computer Imagery
Lyon, France
Deadline: September 18, 2007
April 16-18, 2008

CIP 2008
1st IAPR Workshop on
Cognitive Information Processing
Santorini, Greece
deadline: January 5, 2008
June 9-10, 2008

ICFHR 2008
11th International Conference on
Frontiers in Handwriting Recognition
Montreal, Quebec, Canada
Deadline: January 15, 2008
August 19-21, 2008

DAS 2008
8th International Workshop on
Document Analysis Systems
Nara, Japan
deadline: March 1, 2008
September 17-19, 2008

ICPR 08
19th International Conference on Pattern Recognition
Tampa, Florida
deadline: April 8, 2008
December 8-11, 2008

Call for Submissions

IAPR Newsletter

Articles, announcements, book reviews, conference and workshop reports

Contact the editor: *logorman@avaya.com*

IAPR Newsletter

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Feature Article

Global Pattern Recognition Series:

China's National Laboratory of Pattern Recognition

By Professor Cheng-Lin Liu, Deputy Director

nlpr-web.ia.ac.cn/english/

The National Laboratory of Pattern Recognition (NLPR), affiliated with the Chinese Academy of Sciences' Institute of Automation (CASIA), Beijing, China, was founded in 1987 to become one of the first state key laboratories in China. The founding director was Professor Songde Ma, and the current director is Professor Tieniu Tan. The mission of the NLPR is to conduct cutting-edge research in the broad area of pattern recognition, to develop key technologies, and to train postgraduate students. Currently (as of June 2007), the NLPR has 35 staff members, including 30 staff researchers. In addition, it has 130 PhD students, 92 master students, 10 postdoctoral fellows, and about 40 visiting scholars from both China and overseas.

As a state key laboratory, the NLPR receives regular funds from various departments of the Chinese government, primarily, the Ministry of Science and Technology and the Chinese Academy of Sciences (CAS). It also attracts funds through R&D projects from many other public sources, such as the National Natural Science Foundation of China (NSFC), the National Hi-Tech R&D Program (the 863 Program), and the National Key Fundamental Research Program (the 973 Program). Such government-sponsored projects account for about 90% of funds, with the remaining 10% from the industry.

The research activities at the NLPR are performed in four groups: pattern recognition and its cognitive mechanisms (PRCM), visual information processing, speech and language technology, and biometric information processing. The PRCM group is also part of LIAMA (the Sino-French Laboratory for Computer Science, Automation and Applied Mathematics), which was founded in 1997 and is jointly funded by the CAS, China and INRIA, France. The LIAMA regularly receives visiting researchers and students from France and possibly, all other countries, to perform collaborative research.

The research themes of the PRCM group include the fundamental issues of pattern recognition and machine learning, brain imaging and cognitive disorders, computer graphics, as well as the applications to eco-informatics, remote sensing images, document analysis, virtual reality, and so on. The common interest in machine learning (statistical learning, ensemble, Bayesian networks, etc.) and the interaction between pattern recognition and cognition are the main features of this group. On one hand, advanced pattern recognition techniques can play an essential role in the study of cognitive disorders based on brain imaging, especially in finding biomarkers for early prediction and diagnosis of various cognitive disorders. On the other hand, the findings in brain imaging and cognitive disorders can stimulate innovation in new pattern recognition methods.

Computer vision has been a major theme of the NLPR since its founding, and is a research focus in the visual

(Continued on page 4)

(Continued from page 3)

information processing group. Major research activities include: (1) new computational theories and methods of vision based on human perception and cognition, i.e. physiology based disparity modeling and its application in robotics; (2) fast and robust algorithms for motion detection and 3D reconstruction, including image matching, camera calibration, visual metrology, and vision based quality inspection; (3) content-based multimedia retrieval and particularly its application to sports field; (4) vision-based prototype systems development, including fast motion capture system, traffic accidents analysis system, and so on.

The research interests of the speech and language group include natural language parsing, machine translation, information extraction, speech recognition and synthesis, computational auditory scene analysis, affective computing, and multi-modal human-computer interaction. The study of principled methods (such as semantic modeling, discriminative learning and weakly-supervised learning of HMMs) and the development of prototype systems are seriously considered. This group leads the Chinese Linguistic Data Consortium, which plays a crucial role in sharing Chinese language corpora for promoting research.

The biometric information processing group, also called the Center for Biometrics and Security Research (CBSR), was formed in 2003. It aims to conduct research on cutting-edge biometrics and intelligent video surveillance technologies and applications, and to develop biometric standards, databases and protocols for biometric product testing and system evaluation. Major research activities include: (1) applied basic research in image pattern recognition, including statistical learning, feature extraction, and multi-modal fusion; (2) biometrics, including face, iris, fingerprint, palmprint, gait, handwriting, etc.; (3) video analysis for intelligent surveillance; (4) webpage filtering and information security. A comprehensive database of multi-modal biometrics is publicly available. Particularly, the CASIA iris database released by the CBSR has received tremendous attention.

The Global Pattern Recognition Series:

PR in Two National Labs, Jan. ‘06

Feature Articles on uses of Pattern Recognition (PR)

PR in Digital Libraries, Jul. ‘06
PR at the US Postal Service: A Decade of Achievement, Apr. ‘06
PR in Two National Labs, Jan. ‘06
PR in Traffic Engineering, Jul. ‘05
PR in Astronomy and Photonics, Apr. ‘05
PR in Origami, Jan. ‘05
PR in Defense Applications, Jan. ‘04
PR in Maps, Sep. ‘03
PR in Security and Entertainment, Jun. ‘03
PR in Sports, Apr. ‘03

News from the
IAPR Executive Committee

By Denis Laurendeau

The ExCo held its mid-term meeting on July 2-3, 2007 in Vienna, Austria. The Past President, Walter Kropatsch graciously offered to host the meeting at the PRIP center in Vienna. Many topics were on the agenda of the ExCo for the meeting, and a brief overview of the different issues that were discussed in Vienna is given in this column.

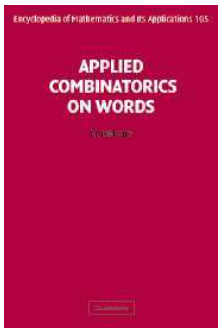
First, the ExCo has reviewed the current status of the IAPR and the future actions that are planned for the next year. A major action will be the opening of the new website that will be put in service as soon as possible once last details on the design and contents are settled. The website, in addition of being visually more appealing, will be easier to manage and will gradually offer more services to the IAPR community.

Secondly, TC Chairs and Standing Committee Chairs were asked to submit a status report to the ExCo with respect to the activities that have taken place since the last GB meeting and on the plans for the next year. Overall, a majority of TCs have been active and many are planning to maintain this level of activity in the year to come. It is relevant to note that many TCs have significantly increased the offer of Web-based services to their members and that some TCs have started to include a significant amount of educational content on their Websites. This is perfectly in line with IAPR's current plan of using the Web to increase the level of activities in its TCs. The standing committees have also been active and have started to address the different topics that were discussed at the last GB meeting in Hong Kong.

It is our pleasure to inform the community that, following the result of the GB ballot on this question, the Asociación Chilena De Reconocimiento De Patrones (ACHIRP) has been admitted in the IAPR. Dr. H. Allende Olivares from ACHIRP is finalizing the admission process in cooperation with Ms. Linda O'Gorman IAPR Secretariat and Dr. Michal Haindl Chair of the Membership Committee.

The GB ballot on the Statement of Ethics that was prepared by the members of the Advisory Committee has been initiated by the IAPR Secretary. The result of the ballot could not be disclosed to the IAPR Community because quorum was not reached for the ballot. The ballot will be initiated again in the fall of 2007 which seems a more appropriate period for initiating a ballot. The ballot will be joined with other ballots on different topics that need to be approved by the GB. These topics will be described in detail in the near future.

Ms. Linda O'Gorman has been collecting membership lists/counts and preparing annual dues invoices for IAPR member societies. Please note that according to the Constitution and Bylaws, a member society whose dues have not been paid by the first day in May in the year following that in which the dues are invoiced will lose all voting privileges and its membership will be cancelled at the next Governing Board. It would be greatly appreciated that the dues be paid rapidly in order to avoid delays that generate extra work for the Secretariat. The invoicing process is a very time consuming activity and the ExCo greatly appreciate Linda's efforts in leading the process and the Member Societies' treasurers efforts to be responsive to her requests for dues.



Applied Combinatorics on Words

by M. Lothaire
Cambridge University Press, 2005

Reviewed by: L. Venkata Subramaniam

In recent times there has been a lot of interest in text processing. Numerous books have been written on the different aspects of text processing such as information retrieval, information extraction, natural language processing, linguistics and bioinformatics. *Applied Combinatorics on Words* is unique in that it looks at the mathematics underlying the different operations on words. These words can either be from a natural language, from biological sequences or from other probabilistic and deterministic sequences. This book is the third of a series of books on combinatorics on words. The current volume does not assume any knowledge of the earlier volumes by the reader. Interestingly, M. Lothaire is not a single author but a *nom de plume* for a group of authors who originally comprised of former students of Marcel-Paul Schützenberger. This group has, after the first edition, grown to include a broader community of authors coordinated by the editors of the Encyclopedia of Mathematics and its Applications.

The overall structure of the book is given in Figure 1. I have taken this figure from the preface of the book as it explains the general organization of the book succinctly. The book starts by covering the core algorithms used through-

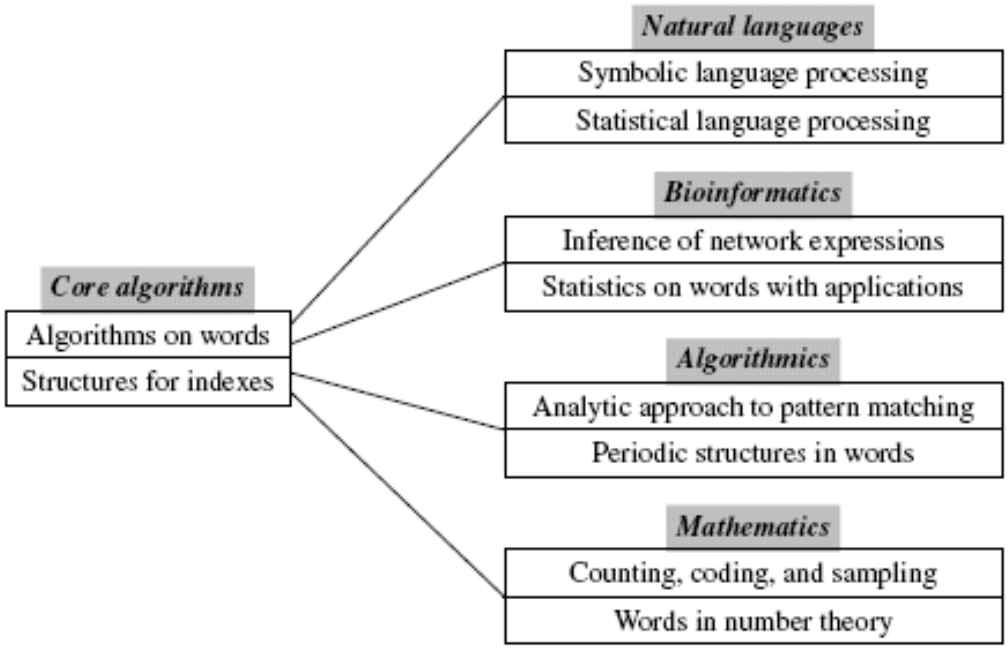


Figure 1. Overall Structure of *Applied Combinatorics on Words*

(Continued from page 6)
out the book. Chapter 1 contains a comprehensive exposition of basic algorithms on words, automata and transducers and probability on words. Chapter 2 presents data structures for the compact representation of the suffixes of a text and their use for the construction of indexes. The remaining chapters discuss four applications.

Chapters 3 & 4 cover the application to linguistics. In this part of the book, the different parts of a language like letters, words, morphological elements and syllables are considered and it is shown how each builds into the other. Chapter 3 surveys the basic operations of interest for language processing and the formal notions and tools involved in these operations. Chapter 4 looks at various weighted transducer algorithms that play a crucial role in the construction of modern statistical natural language processing systems. In particular it looks at their application in real-time speech recognition systems.

Chapters 5 & 6 cover the application to bioinformatics. This part of the book is concerned with analysis of word occurrences, pattern matching and connections with genome analysis. Chapter 5 introduces various mathematical models and combinatorial algorithms that are used to infer network expressions that appear repeated in a word or are common to a set of words. Chapter 6 considers the statistical and probabilistic properties of finite words. It looks at two main aspects of word occurrences in biological sequences: where do they occur and how many times do they occur.

Chapters 7 & 8 comprise the algorithmics block. Chapter 7 considers the pattern matching problem in a probabilistic framework. In this chapter, it is shown how general laws of pattern occurrences can be discovered by applying the analytic tools of combinatorics and analysis of algorithms. Chapter 8 looks at periodic structures in words. It deals with the algorithmic problem of detecting, counting and enumerating repetitions in a word. The problem of efficiently identifying repetitions in a given word has recently gained a lot of importance because of its need in DNA sequence analysis. This chapter presents a general, efficient approach for computing different periodic structures in words.

Chapters 9 & 10 are concerned with applications to mathematics. Chapter 9 focuses on three aspects of enumeration: counting elements of a family according to their size, generating them uniformly at random and coding them compactly. Chapter 10 shows some examples of applications of combinatorics on words to number theory. The interconnection between combinatorial properties of infinite words and transcendental numbers is considered. Various applications in Diophantine approximation and in simultaneous approximation using the Tribonacci word are also presented.

The danger of publishing a volume having different authors for different chapters is the difference in style and treatment of the topics among the various contributions. This is not the case here. Each chapter connects to the first two chapters which give the core algorithms. Each chapter also gives a general introduction to the topic, introduces the mathematical models by using the common notation of the book and connects to algorithms in other parts of the book. There are notes at the end of each chapter that discuss related work. This is very helpful in both placing the work of the chapter in context and for looking up related work to gain better understanding. There is a common bibliography at the end of the book.

Now let me come to the parts that I particularly liked in the book. Chapter 1 is definitely my favorite. Not only does this chapter lay the foundation for the whole book, it also presents some basic operations on words in a mathematical way. Typically students working in text engineering are not introduced to any rigorous mathematical notions about the text and its properties. I think this chapter can form a good basis for such training. This chapter contains numerous examples and is very

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readable. In Chapter 3 I liked the mention of ways of handling word errors. In informal writing, people make mistakes in spelling and grammar. Many of the difficulties associated with language processing for different languages find a mention in this chapter, and the authors also present ways of addressing some of these. The first three chapters are a must read for anyone working on text. In Chapter 4, I especially liked the part on application to speech recognition. However, I would have liked to see a more detailed coverage of some of the topics under this heading with a few examples. Also, Chapter 3 & 4 do not contain any problems at the end.

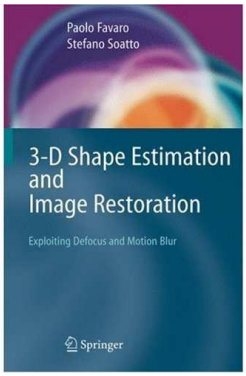
I think natural language processing students and researchers are one major audience for this book. I think the authors must add relevant problems at the end of the linguistics block of chapters. Again, I have the same complaint regarding Chapters 5 & 6 from the bioinformatics block. Problem solving is one definite way of gaining good understanding. A good set of problems will help teachers use this book as part of their courses. Chapters 5 & 6 do a very good job of covering some of the pertinent issues in bioinformatics. Again, the easy exposition of mathematical rigor is commendable. The notes at the end of Chapter 6 are very detailed and very useful for one to understand this field where a lot of prior work exists. I thought Chapter 7 considers some of the most important problems in pattern matching in a very general setting without casting them in the light of any particular application. I found the treatment for various types of probabilistic sources unique. A lot of the content in Chapter 8 was new to me. I am sure algorithmics folks will find this chapter interesting. Again the content and treatment in Chapters 9 & 10 were new to me. But, I thoroughly enjoyed reading them.

In summary, I would recommend this book to students and researchers working in areas as diverse as text processing, biology and mathematics. I believe it would be a useful foundation for those working on information retrieval, information extraction, natural language processing, linguistics, bioinformatics and combinatorics. I would particularly recommend it to graduate students working on any form of text processing, as it would give them a robust grounding on the mathematics of words. Particularly information retrieval and information extraction suffer from a lack of mathematical thoroughness. I believe this stems from the kind of training students in this area undergo. I did a search on Google for university courses that use this book. Very sadly, I found few! I think a course based on this book would give a solid foundation to students wanting to work on text engineering, natural language processing and bioinformatics. Many of the chapters also contain problems at the end that can be prescribed as exercises to students. The figures and overall presentation are good. The writing style of the book makes useful and interesting reading. A website (*www-igm.univ-mlv.fr/%7Eberstel/Lothaire/index.html*) maintained by one of the editors of the book provides implementations of some of the algorithms and solutions to problems given in the book.

The TestLothaire website, maintained by one of the editors, has implementations of some of the algorithms and solutions to problems given in the book.

http://www-igm.univ-mlv.fr/~berstel/Lothaire/

BOOKSBOOKSBOOKS



3D Shape Estimation and Image Restoration, Exploiting Defocus and Motion Blur

by Paolo Favaro & Stefano Soatto
Springer, 2007

Reviewed by: Elisa H. Barney Smith

This book is based on the premise that 3D shape and motion information of objects in scenes can be determined from 2D images. While the idea that this is possible by taking binocular or multiple monocular images over a range of locations is intuitive, this book aims to use images taken from a single camera in a single spatial location to accomplish this goal. The authors contend that while research and development puts a lot of effort into developing methods to remove defocus and motion blur artifacts from images because they are treated as nuisances, these same artifacts contain extra information that can be used to extract 3D shape and motion information.

The book is structured with a general introduction to vision and vision fields in Chapter 1. Chapter 2 contains summaries of the mathematical models used throughout this book. Future chapters refer back to Chapter 2 often. The third chapter discusses under which conditions one could expect to be able to reconstruct 3D shapes from blurred images and the mathematics that accompany these assumptions.

Chapters 4-9 present the 6 specific reconstruction problems this book addresses:

- Shape from defocus using least squares
- Shape from defocus using minimized I-divergence
- Shape from defocus using diffusion process notation
- Estimating motion from defocus & motion blur
- Estimating motion with multiple moving objects
- Shape or image reconstruction in the process of occlusions.

Each of these chapters have a similar structure that facilitates reading them. First the mathematics of the applicable model is introduced. This relies heavily on the discussions in Chapters 2 & 3 and makes good references to the appropriate sections. Based on these models the path to derive a solution that will provide the desired image information is described. The details of parts of the derivation are available in an appendix. Next the theory is converted to a concise algorithm. This is then supplemented by Matlab code that implements the algorithm provided in another appendix. Examples running these algorithms are provided first using synthetic images, then with real images. The error for the synthetic images is provided quantitatively and the results for the real images is provided qualitatively through mesh images of the resulting depth maps.

The structure of this book makes it easy to follow. Readers with a strong mathematical foundation will be able to get more from this book, but others will still be able to see the gist of how and why the algorithms work to make applying the algorithms and code more than a blind exercise. The authors also use this

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application in their conclusion to call for returning continuous mathematics to the forefront of the Computer Science curriculum.

The weaknesses of this book are in relying on artificially heavily textured objects in the image scenes. They provide justification for this constraint in the foundation chapters, but don't provide adequate discussion on what range of problems with average texture these algorithms are likely to be able to solve. Chapter 1 contains many references to related work in general and the authors do specifically reference other foundational work for areas outside of their scope, however this book would be a better reference for researchers if more references to other work applying these algorithms and variants of them were provided as each topic is introduced and examples for each are presented. Understanding the examples requires not only knowing the method but also knowing the image versus camera geometry and configuration. The discussion of the geometry and physical configuration examples for 3D shape and occlusion is presented well, but the configuration for the motion examples relies heavily on the imagination of the reader.

In summary, I think this is a good book if one is interested in a different view on how to extract 3D and motion information from monocular images.

Non-IAPR Workshop Report: AAPR2007

31st Workshop of the Austrian Association for Pattern Recognition

3-4 May 2007
Schloss Krumbach, Austria

Report prepared by
Wolfgang Ponweiser, Chair

The more than 800 year-old castle in the middle of the *Bucklige Welt* in the south of Lower Austria provided the ambiance for the traditional meeting of the AAPR members and their international friends. It was organized by Wolfgang Ponweiser and Markus Vincze (Automation and Control Institute, Vienna University of Technology) and Csaba Beleznai (Advanced Computer Vision GmbH - ACV, in Vienna).

40 scientists from seven different countries participated to discuss the 19 selected papers representing the great variety of ongoing research in the field of pattern recognition and computer vision in and around Austria. These papers were selected out of 28 submissions (that is an acceptance rate of 68%) from seven countries due to the judgment of three reviewers each. Michael Zillich from the School of Computer Science, University of Birmingham, UK was honored with the best paper award for his contribution on "Incremental Indexing for Parameter-Free Perceptual Grouping".

In addition to the regular papers, the highlights of the workshop were an invited talk by Cordelia Schmid (INRIA Rhône-Alpes) "Beyond bag-of-features: adding spatial and shape information" sponsored by Advanced Computer Vision GmbH - ACV, Austria, and a special session for three representatives of neighboring countries to give an overview of their respective research communities with the idea to initiate further collaboration

Conference Proceedings

pies of the conference proceedings can be ordered from: *books@ocg.at*

Wolfgang Ponweiser, Markus Vincze, Csaba Beleznai (eds.)
Performance Evaluation for Computer Vision
31st AAPR/OAGM Workshop 2007
Published by Oesterreichische Computer Gesellschaft
ISBN 978-3-85403-224-3

in the heart of Europe. Speakers at the special session were Dmitry Chetverikov (MTA SZTAKI, Budapest) "Computer Vision and Image Processing Activities in Hungary", Vaclav Hlavac (CMP, Czech Technical University, Prague) "R&D in Pattern Recognition and Image Analysis in the Czech Republic" and Danijel Skocaj (University of Ljubljana) "Pattern recognition and computer vision in Slovenia". All of these presentations can be downloaded via the conference homepage: oeagm07.acin.tuwien.ac.at/

The next AAPR workshop will be organized by Arjan Kuijper from the Johann Radon Institute for Computational and Applied Mathematics (RICAM), Austrian Academy of Sciences and will be held in May 2008 around Linz. Further details will be announced at the AAPR homepage: www.aapr.at/

Conference Report: MVA 2007

10th IAPR Conference on Machine Vision Applications

16-18 May 2007
Institute of Industrial Science, The University of Tokyo, Japan

General Chair
Johji Tajima
Nagoya City University

Program Chair
Hiroshi Sako
Hitachi

Report prepared by
Hiroshi Ishikawa, Local Arrangements Chair

The Tenth IAPR Conference on Machine Vision Applications (MVA2007) was co-sponsored by the MVA Conference Committee, IAPR TC-8, and the Institute of Industrial Science (IIS) at the University of Tokyo. The venue was the newly built convention hall at IIS. The oral sessions were held in the hall, with the capacity of 250; the posters were presented in the front foyer. We would like to thank Prof. Katsushi Ikeuchi, the host, for providing a comfortable environment to the participants, with both wired and wireless network.

There were 252 participants from 36 countries. The topics of the conference were algorithms and architectures of machine vision applications. From 220 submissions, 41 oral presentation and 96 poster presentations were selected. In addition to the accepted papers, there were three IAPR invited talks: “Computational Cameras” by Prof. Shree K. Nayar of Columbia University, USA; “Video Mosaicing for Non-Chronological Time Editing” by Prof. Shmuel Peleg of the Hebrew University of Jerusalem, Israel; and “Development of Laparoscopic Surgery Training System Using VR Technology” by Prof. Yoichi Miyake of Chiba University, Japan.

IAPR Invited Talks

Professor Shree K. Nayor

Professor Shmuel Peleg

Professor Yoichi Miyake

The first MVA workshop was held in Tokyo in 1988, and at every MVA conferences after MVA’98, the Most Influential Paper over the Decade Award is given to the authors of papers appearing in the conference 10 years earlier which have been recognized as having had the most significant influence on machine vision technology over the subsequent decade. At MVA2007, three papers presented at MVA’96 were selected for this award: “Visual Tracking Using Active Search for Color” by Vinod Vasudevan and Hiroshi Murase; “A System for Non-Intrusive Human Iris Acquisition and Identification” by Keith J. Hanna, Robert Mandelbaum, Deepam Mishra, Vince Paragano, and Lambert E. Wixson; and “Using Computer Vision in Real Applications: Two Success Stories” by Gérard Medioni.

The awards were handed out at the banquet held at the Komaba Eminence, where an event commemorating the 10th MVA also took place. Dr. Masakazu Ejiri, the Chair of the MVA Organization

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Advisory Board, gave a memorial address in honor of the late Prof. Mikio Takagi of the University of Tokyo (later Science University of Tokyo and Shibaura Institute of Technology), who led the MVA throughout its history. Also, the MVA Distinguished Contribution Award, a special award for the occasion, was presented to Prof. Masao Sakauchi of the University of Tokyo (now of National Institute of Informatics) and Prof. Roberto Cipolla of the University of Cambridge, in recognition of their active paper publication and participation in MVA over the years. As another commemorative effort, the Tenth MVA Commemorative DVD, which contains all the papers in the proceedings of the nine previous MVA's, was given to all participants free of charge. The DVD can still be obtained for a price by contacting mva2007@cvl.iis.u-tokyo.ac.jp.

We are looking forward to having excellent papers and discussions with more researchers from all over the world at the next MVA conference.

Dr. Vinod Vasudevan Prof. Hiroshi Murase

Co-authors of "Visual Tracking Using Active Search for Color", one of three papers given the Most Influential Paper over the Decade Award

Professor Masao Sakauchi (right)
One of the recipients of the
MVA Distinguished Contribution Award

Workshop Report: MCS 2007

Workshop Chairs:
Michal Haindl
Josef Kittler
Fabio Roli

7th International Workshop on Multiple Classifier Systems

23-25 May 2007
Prague, Czech Republic

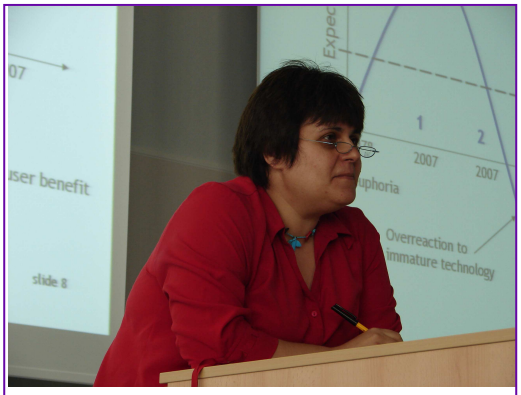
Report prepared by the Workshop Chairs

MCS was organized by the Institute of Information Theory and Automation of the Academy of Sciences, Czech Republic, the University of Surrey, United Kingdom and the University of Cagliari, Italy.

MCS is a well-established series of meetings that provides an international forum for the discussion of issues in multiple classifier system design. The workshop achieved its objective to bring together 65 researchers from 22 countries of 4 continents, from diverse communities concerned with this topic, including neural network, pattern recognition, machine learning, and statistics. The Prague workshop was a successful continuation of six previous workshops organized in Italy, UK and USA.

This three day IAPR workshop was focused on the application of multiple classifier systems to biometrics. This particular application area exercises all aspects of multiple classifier fusion, from intramodal classifier combination, through confidence-based fusion, to multimodal biometric systems.

MCS 2007's technical programme



Lucy Kuncheva, Session Chair of panel discussion "Multiple Classifier Systems - 10 years on: are we any wiser? "

was constituted by 49 regular papers, selected from more than 80 submissions. The presentations were grouped into nine sections: Kernel-Based Fusion, Boosting, Cluster and Graph Ensembles, Applications, Feature Subspace Ensembles, Multiple Classifier System Theory, Intramodal and Multimodal Fusion of Biometric Experts, Majority Voting, and Ensemble Learning. An interesting panel discussion entitled *Multiple Classifier Systems - 10 years on: are we any wiser?* chaired by Lucy Kuncheva, University of Bangor, UK, helped to reflect on the current state of the art, progress made over the last decade, as well as to list open problems in the MCS field. The "icing on the cake" was contributed by the three invited speakers: Dr Samy Bengio from Google, Professor Pramod Varshney from the Syracuse University, USA, and Professor Jon Benediktsson from the University of Iceland.

The MCS2007 workshop was co-sponsored by the International Association for Pattern Recognition and its Technical Committee TC1: Statistical Pattern Recognition, CSKI, and the European Union Network of Excellence in Biometrics *Biosecure* and in Multimedia Information Retrieval *Muscle.* The workshop proceedings were published in the Lecture Notes on Computer Science volume 4472 under the title *Multiple Classifier Systems*. The financial contribution of IAPR was used to fund four scholarships.

Proceedings of MCS 2007 are available in the Springer Lecture Notes in Computer Science Series, Volume 4472

Conference Report: CRV 2007

Conference Co-chairs:
Greg Mori
Richard Vaughan

4th Canadian Conference on Computer and Robot Vision

28-30 May 2007
Montreal, Canada

Report prepared by the CRV 2007 Co-chairs

The CRV conference series provides a high-quality forum for the Canadian and International Computer and Robot Vision communities to share their work. As usual, our conference was sponsored by CIPPRS/ACTIRF (Canadian Image Processing and Pattern Recognition Society/Association Canadienne de Traitment d'Images et de Reconnaissance des Formes) and endorsed by IAPR (International Association for Pattern Recognition). CIPPRS/ACTIRF is a special interest group of the Canadian Information Processing Society (CIPS) and is the official Canadian member of the Governing Board of the IAPR. The goal of CIPPRS/ACTIRF is to promote research and development activities in Computer Vision, Robot Vision, Image Processing, Medical Imaging and Pattern Recognition.

We were delighted to present our distinguished invited speakers Dr. Martial Hebert of Carnegie Mellon University, Dr. Larry Matthies of the NASA Jet Propulsion Laboratory and Dr. Michael Black of Brown University. These excellent researchers perfectly represent the combination of computer and robot vision that is the unique flavor of this conference series.

The papers that appeared were each reviewed by at least two reviewers from a 60 member program committee comprised of internationally recognized vision and robotics researchers. This year we received a total of 102 submissions, of which 26 papers were accepted for oral presentation (25 percent), while another 31 papers were accepted as poster papers (30 percent).

At the conference banquet, we were pleased to present four paper awards:

Greg Mori presents IAPR Best Paper Award to John Zelek for the paper he co-authored with Ehsan Fazl Ersi, “Local Graph Matching for Object Category Recognition”.

- Yehia T. Kotb, Steven S. Beauchemin, and John L. Barron received the Best Robotics Paper award for their paper titled "Petri Net-Based Cooperation in Multi-Agent Systems."
- Vincent Chapdelaine-Couture and Michael Langer received the Best Vision Paper award for their paper titled "Can Lucas-Kanade be used to estimate motion parallax in 3D cluttered scenes?"
- The IAPR Best Student Paper award was given to Mohand Said Allili, Nizar Bouguila and Djemel Ziou for their paper "Finite Generalized Gaussian Mixture Modeling and Applications to Image and Video Foreground Segmentation."

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- The IAPR Best Paper award for CRV 2007 went to Ehsan Fazl Ersi and John S. Zelek for their paper "Local Graph Matching for Object Category Recognition."

In addition, Steven Beauchemin from The University of Western Ontario received the CIPPRS award for research and service. We thank the IAPR for their sponsoring these paper awards. In addition to the main paper and poster sessions, our single-track program also featured a special session for the International Workshop on Video Processing and Recognition, organized by Robert Laganiere and Qiang Ji. The Point Grey Research best student paper award for the workshop was presented to Ayman El-Sawah, Chris Joslin, Nicolas D. Georganas, and Emil M. Petriu for their paper "A Framework for 3D Hand Tracking and Gesture Recognition."

These conference proceedings were published by the IEEE Computer Society, and will be available on-line through IEEE Xplore and the IEEE/IEE (Institution of Electrical Engineers) Electronic Libraries (IEL). The proceedings are also indexed through the INSPEC indexing service. Thus the papers are highly visible and available, ensuring proper exposure to our authors.

Many people collaborated to organize this meeting. We want to thank the members of our program committee for their work in reviewing papers. We gratefully acknowledge and thank Tal Arbel and Gary Gudbranson of Precarn, who did a great job of arranging and synchronizing the co-located conferences, and our publisher Bob Werner of the IEEE Computer Society. We thank CIPPRS Treasurer John Barron at the University of Western Ontario, and CIPPRS President Gregory Dudek for their ongoing guidance and support. Thanks also to last year's CRV co-chair Ioannis Rekleitis for leaving things in good shape.

Finally, and crucially, many thanks to the authors who submitted papers, and to the attendees of CRV'07 in the wonderful city of Montreal. We look forward to seeing you at next year's CRV!

The CRV 2007 proceedings were published by the IEEE Computer Society.

See:
IEEE Xplore

Conference Report: IbPRIA'2007

General Chairs:
Joan Martí
José Miguel Benedí
Ana Maria Mendonça
Joan Serrat

3rd Iberian Conference on Pattern Recognition and Image Analysis

6-8 June 2007
Girona, Spain

Report prepared by Joan Martí

The third Iberian Conference on Pattern Recognition and Image Analysis (IbPRIA'2007 http://ibpria2007.udg.cat) brought together about 200 researchers from more than 20 countries at the beautiful city of Girona, in Spain. This time, the IbPRIA Conference was hosted by the Computer Vision and Robotics Group of the University of Girona, and followed the two successful previous editions hosted by the Universitat de les Illes Balears (2003), and the Institute for Systems and Robotics and the Geosystems Center of the Instituto Superior Técnico (2005). IbPRIA is an international event co-organized every two years by AERFAI and APRP, the Spanish and Portuguese chapters of the IAPR-International Association for Pattern Recognition (IAPR).

A record number of 328 full paper submissions from 27 countries were received. Each of these submissions was reviewed in a blind process by two reviewers. The review assignments were determined by the four General Chairs, and the final decisions were made after the Chairs meeting in Girona, giving an overall acceptance rate of 47.5 percent. Because of the limited size of the conference, we regret that some worthy papers were probably rejected. All the accepted papers are published in the Springer LNCS 4477 and 4478 volumes.

In keeping with the IbPRIA tradition of having a single track of oral presentations, the number of oral papers remained in line with the previous IbPRIA editions, with a total of 48 papers. The number of poster papers was settled to 108.

Proceedings of IbPRIA'2007
are available in the
Springer Lecture Notes in Computer
Science Series
Volume 4477 and Volume 4478

In addition to presentations by the authors of submitted papers, there were also invited talks presented by three prominent researchers:

- "Know unknowns: Novelty detection in condition monitoring" by Christopher K.I. Williams of University of Edinburgh, United Kingdom;
- "Seeing the invisible and predicting the unexpected" by Michal Irani of The Weizmann Institute of Science, Israel; and
- "Vision-based SLAM in real-time" by Andrew J. Davi-

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son of Imperial College London, United Kingdom.

For the first time, some relevant related events have been scheduled in parallel to the IbPRIA main Conference according to the Call for Tutorials and Workshops: Antonio Torralba from MIT, USA, and Aleix Martínez from Ohio State University, USA, taught relevant tutorials about Object Recognition and Statistical Pattern Recognition, respectively, while “Supervised and Unsupervised Ensemble Methods and Their Applications” workshop and the first edition of the “Spanish Workshop on Biometrics” were successfully developed.

The Best Paper Prize, sponsored by IAPR, was selected out of a short list of 9 papers which received the highest scores during the review process, while the final decision was taken by a Committee of eight experts after attending their oral presentations during the two first days of the IbPRIA'2007 Conference. Finally, two papers were ex-aequo awarded with such prize and a cash prize of 300 Euros each one. Congratulations to the awarded authors for their work!

A highlight of the Conference was also the banquet, which was held in a very nice Catalan restaurant near Girona. As many conference participants assessed, the excellent quality of the food provided by “El Celler de Can Roca” was the perfect apogee of a high quality scientific conference.

Sergio Escalera, coauthor (with Alicia Fornés, Josep Lladós, Gemma Sánchez, Petia Radeva, and Oriol Pujol) of the awarded paper, "Handwritten Symbol Recognition by a Boosted Blurred Shape Model with Error Correction", accepts the Best Paper Prize from Nicolas Perez de la Blanca, current president of AERFAI, and Ana Maria Mendonça, organizer of the 4th edition of IbPRIA in Porto, Portugal next 2009.

Conference Report: SCIA 2007

General Chair:
Peter Johansen

15th Scandinavian Conference on Image Analysis

10-13 June 2007
Aalborg, Denmark

Report prepared by Peter Johansen

159 Participants from 25 countries gathered in Aalborg, Denmark for SCIA 2007. The Scandinavian countries take turn hosting the conference every second year, the first having been in Sweden in 1980. The proceedings appeared in Springer lecture notes as volume 4522, and were available at the conference. Claus B. Madsen did a splendid job acting as local chair.

SCIA 2007 invited speakers

Bjarne Kjær Ersbøll chaired the program committee. 228 papers were submitted, and 99 accepted as orals or as posters. We took pride in arranging a one track conference, and could not accept more contributions.

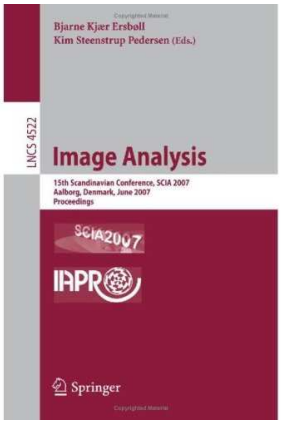
The conference was preceded by two tutorials. A tutorial by Henrik Wann Jensen described the ray tracing and photon mapping algorithms for rendering complex scenes with reflections, indirect illumination, caustics, participating media, and subsurface scattering. The other tutorial: "Visual Recognition of People, Places, and Things" was given by Jitendra Malik. Jitendra gave a historical account of the development of computer vision. One highlight was his description of the Caltech 101 image database and the attempts to search an image database with an image as a query.

We had an exquisite selection of invited speakers:

- Paul Debevec, University of Southern California, USA
- Henrik Wann Jensen, University of California at San Diego, USA and Technical University of Denmark
- Jitendra Malik, University of California at Berkeley, USA
- Henrik I. Christensen, Georgia Institute of Technology, USA and Royal Institute of Technology, Sweden
- Aapo Hyvärinen, University of Helsinki, Finland

Their insightful lectures made the conference a success.

Proceedings of SCIA 2007
are available in
Springer Lecture Notes in Computer Science Volume 4522



ICPR 2008

www.icpr2008.org/

Call for Papers

ICPR 2008 is the **nineteenth conference** of the **International Association for Pattern Recognition (IAPR)**.

ICPR 2008 will be an international forum for discussions on recent advances in the fields of C**omputer vision, Pattern recognition (theory, methods and algorithms), Image, speech and signal analysis, Multimedia and video analysis, Biometrics, Document analysis, and Bioinformatics and biomedical applications**.

Important dates

Paper submission deadline:	**8 Apr 08**
Tutorial submission deadline:	**5 May 08**
Workshop submission deadline:	**15 Jan 0**

e-mail contact: *Secretary@icpr2008.org*

Free Books!

I have a number of books that need to be reviewed. If you have interest and some knowledge in the topic, let me know. I will send you the book — which you will be able to keep — and expect in return a review for the *Newsletter*. If you think you might like to review a book, but need more information, just go to the web site of the publisher or a web book seller to see more book detail.

Below are some of the books I'd appreciate help reviewing:

Bioinformatics by Andrzej Polanski and Marek Kimmel (Springer - May 29, 2007)

Classification and Learning Using Genetic Algorithms: Applications in Bioinformatics and Web Intelligence, by Sanghamitra Bandyopadhyay and Sankar K. Pal (Springer - May 2007)

The Dissimilarity Representation for Pattern Recognition: Foundations And Applications (Machine Perception and Artificial Intelligence) by Elzbieta Pekalska and Robert P. W. Duin (World Scientific - Dec 23, 2005)

Rippling: Meta-Level Guidance for Mathematical Reasoning, by Alan Bundy, David Basin, Dieter Hutter, and Andrew Ireland (Cambridge - Aug 8, 2005)

Please email me at *logorman@avaya.com*,

Larry O'Gorman, *IAPR Newsletter* Editor

Conference Planner

*NOTE: This is not an exhaustive list of conferences. It is a list of conferences sponsored or endorsed by IAPR plus additional conferences that have been brought to the attention of the editor (these non-IAPR events are denoted with an *). The IAPR web site has more up-to-date information about IAPR conferences and a link to USC's Institute for Robotics and Intelligent Systems list of Computer Vision Conferences (L. O'Gorman, ed.)*

Highlighting indicates that paper submission deadline has not yet passed.			
2007			
CAIP 07	*12th International Conference on Computer Analysis of Images and Patterns*	Vienna, Austria	27-29 Aug 07
ICB2007	*2nd International Conference on Biometrics*	Seoul, Korea	27-29 Aug 07
VIIP 2007*	*The 7th IASTED International Conference on Visualization, Imaging, and Image Processing*	Palma de Mallorca, Spain	29-31 Aug 07
Biometrics 2007*	*Conference on Biometrical Feature Identification and Analysis*	Göttingen, Germany	6-8 Sep 07
ICANN'07*	17th International Conference on Artificial Neural Networks	Porto, Portugal	9-13 Sep 07
ICIAP 2007	*14th International Conference on Image Analysis and Processing*	Modena, Italy	10-14 Sep 07
CCIW07	*2007 Computational color Imaging Workshop*	Modena, Italy	14 Sep 07
GREC 2007	*7th IAPR International Workshop on Graphics Recognition*	Curitiba, Brazil	20-21 Sep 07
ICDAR 2007	*9th International Conference on Document Analysis and Recognition*	Curitiba, Parana, Brazil	23-26 Sep 07
ENC 2007*	*Current Trends in Computer Science Scalable Pattern Recognition Track*	Morelia, México	26-28 Sep 07
PRIB 2007	*2007 IAPR International Workshop on Pattern Recognition in Bioinformatics*	Singapore	1-2 Oct 07
PRIA-8-2007*	*8th International Conference on Pattern Recognition and Image Analysis: New Information Technologies*	Yoshkar-Ola, Russian Federation	8-13 Oct 07
VIPImage 2007*	*ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing*	Porto, Portugal	17-19 Oct 07
CORES 2007	*5th International Conference on Computer Recognition Systems*	Wroclaw, Poland	22-25 Oct 07
CIARP 2007	*12th Iberoamerican Congress on Pattern Recognition*	Viña del Mar-Valparaíso, Chile	13-16 Nov 07
DICTA 2007	*Digital Image Computing: Techniques and Applications*	Adelaide, Australia	3-5 Dec 2007
ICMB'2007	*The International Conference on Medical Biometrics*	Hong Kong	12-14 Dec 07
PReMI'07	*2nd International Conference on Pattern Recognition and Machine Intelligence*	Kolkata, India	18-22 Dec 07
2008			
DGCI 2008	*14th International Conference on Discrete Geometry for Computer Imagery*	Lyon, France	16-18 Apr 08
CIP 2008	*1st IAPR Workshop on Cognitive Information Processing*	Santorini, Greece	9-10 Jun 08
ICFHR 2008	*11th International Conference on Frontiers in Handwriting Recognition*	Montreal, Quebec, Canada	19-21 Aug 08
DAS 2008	*8th International Workshop on Document Analysis Systems*	Nara, Japan	17-19 Sep 08
ICPR 08	*19th International Conference on Pattern Recognition*	Tampa, Florida, USA	8-11 Dec 08