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Newsletter of the International Association for Pattern Recognition Inc
(An affiliate member of the International Federation for Information Processing)

LETTER FROM THE PRESIDENT Professor R Kasturi



The year was 1984. The venue was the magnificent Queen Elizabeth Hotel in Montreal where the Seventh ICPR was being held. The place where I first met many pioneers in pattern recognition and image processing: Presidents of IAPR, editors-in-chief of prestigious periodicals, researchers whose names are associated with well-known algorithms, and authors of textbooks from which I had learned the fundamentals. I do not recall speaking with any of them especially since none of them knew me. But still it was an inspiring experience and many of them became my instant role models. That was the beginning of not only my professional research career but also my long association with IAPR.

It took me four more years to garner enough courage to approach Professor Herb Freeman at the Ninth ICPR in Rome and ask if there was anything I could do to help IAPR in its activities. I had noticed in the proceedings that IAPR had a Technical Committee, TC 10, called Map and Line Drawing Processing - a topic of interest to both of us. I was lucky; it turned out that TC 10 was indeed in need of a chairman. He recommended me to President Martin Levine who appointed me to chair the TC. Pretty soon I was onto other roles leading up to my current position.

Volunteer Your Services

The reason I am writing about all this here is to encourage you, in particular young researchers, to consider becoming active participants in IAPR. Perhaps all that you need to do is to make it known that you are willing to contribute. I realize that this is difficult for some of you, especially for those who are brought up in cultures that encourage modesty and stress the importance of doing what you do best and wait until you are discovered by your seniors.

I would like to make it easier for you to become an active participant in IAPR activities. I have encouraged Technical Committees to consider identifying candidates, particularly those from the younger generation of researchers, to serve as vice chairs; there are many other opportunities as well in helping with conference and workshop organization, publications, membership drives etc. Feel free to discover other roles that would enhance IAPR's activities and visibility in your region. Encourage your friends and colleagues to join your member society which automatically makes them an IAPR member.

Communicate Frequently

I would like to hear your ideas on how IAPR can better serve the needs of the profession. The Executive Committee and I need your suggestions and recommendations now when we still have time to implement them and report on the results before the end of our term. I encourage all of you to communicate frequently with IAPR officers and committee chairs; you will find our contact information in this Newsletter and on our web site <http://www.iapr.org>. On our part it is our promise to keep you informed of the progress we are making on various initiatives through the "From the ExCo" column in the Newsletter; as a part of an openness initiative, we will be posting excerpts of our Executive Committee meeting minutes on the web site to keep all our members informed.

Planning for the Future

I strongly believe that every organization should have a well-articulated plan to guide in its activities. Since much of IAPR's activities occur at the committee level, the ExCo is working with committee chairs to define such a

plan and identify priorities. I have requested chairs of all Standing and Technical Committees to provide a brief plan of their proposed activities. The ExCo would then review these plans to identify ways in which it can help to realize the stated goals. We will keep you informed as we make progress.

I am indebted to many individuals for their constant encouragement throughout my career. I would like to thank the Governing Board for its confidence in me and for electing me to serve as the President. It is indeed an honor to work with a group of dedicated and enthusiastic volunteers serving on the Executive Committee and in various other committees. Before I conclude I would like to particularly thank my predecessor President Gabriella Sanniti di Baja for her long service to IAPR and for her friendly advice and support on numerous occasions.



NOTICE BOARD

IAPR NEWSLETTER

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<http://www.iapr.org>



DEADLINE WINTER EDITION

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Please Note:

**All material and photographs for the Winter
Edition to be sent to the new Editor
Dr Lawrence O'Gorman**

Editorial Office

from 15 October 2002

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!Attention!

Countries having individual mailing:

Please make sure that Dr O'Gorman receives a new, updated
address list from you no later than
15 November 2002

Lists should be sent to:

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YOUR NEW EXECUTIVE COMMITTEE FOR 2002 - 2004



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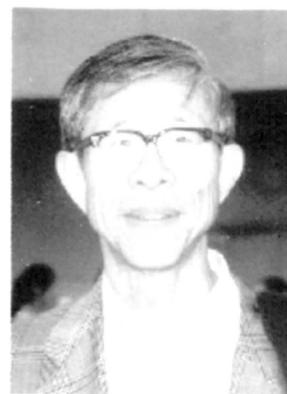
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The details of appointments to Standing Committees and Technical Committees will be published in full in the next edition.
Current information is available on the web site as appointments are made: www.iapr.org

FROM
THE



NEW EXECUTIVE COMMITTEE

The newly appointed Executive Committee started immediately work on a number of issues. As usual, an urgent task in the months after ICPR is to set up the standing committees for this new term. According to IAPR's constitution and bylaws, the Nominating Committee and the KS Fu Prize Committee need a vote by the Governing Board. This vote is still going on, and we will report on its result in the next newsletter. For all committees, please refer to the association's web page, www.iapr.org for the latest update of the IAPR directory, with the names and contact information of all the standing committee members.

ICPR 2002 – QUEBEC CITY

Let us take this opportunity to extend our warmest thanks to the organizers of ICPR'02 in Québec, for their outstanding and intense work, which leaves all ICPR attendees with pleasant memories. We now wish good luck to the ICPR'04 organizers and look forward to coming together again in Cambridge. Another team is also on the start line for a 4 years period of intense work – ICPR'06 will be held in Hong Kong in September 2006. The ExCo will work in the coming months on various initiatives to enhance the IAPR's involvement with the organization of its conferences, starting with its major event, the ICPR. This includes work on a stable conference management software solution, and issues such as liability and management.

CONSTITUTION & BYLAWS

The Governing Board meeting in Québec voted a number of amendments to the IAPR's Constitution and Bylaws. These have now been incorporated into the text which can be found on the association's web site. We are also very pleased to welcome a new member society, the Greek Association of Image Processing and Digital Media, which was admitted as a new member of the IAPR by the Governing Board at its Québec meeting.

TECHNICAL COMMITTEES

Several Technical Committees have new chairpersons; you will find their names in the next issue, with details on the IAPR web pages. The Technical Committees are an important place where the association's day-to-day scientific activity takes place; the ExCo wants to encourage the new generations of researchers to get involved in IAPR activities in general, through conference and workshop organization, but also by getting involved in our Technical Committees. We would especially encourage Technical Committees to appoint vice chairs, the idea being to encourage continuity from one term to the other, to enhance diversity in geographical distribution, and to involve younger scientists in the life of the committees. The ExCo plans to provide additional services to the TCs in the near future: we are working on a list server solution to manage all the association's mailing lists in a more efficient way.

To help foster a longer term vision in the various fields of activity, all chairs of technical committees and Standing Committees have been asked to submit a short strategic plan for the next two years. These plans, once accepted, will be posted on the respective web pages.

IAPR WEB SITE

As some of you may have noticed, the association's web site has been reorganized to include some new pieces of information. One of these enhancements is an area where summaries of all ExCo meetings and decisions will be posted, to help the members at large get a better and more continuous grasp on the IAPR's activities.

FINANCE

Our financial situation is good, and will allow us to continue the policy of help for travel to the ICPR through stipends. A number of researchers, most of them junior scientists, benefited from this measure for the ICPR in Québec.

NEWSLETTER

Last, but not least, we would like to extend our warmest thanks to Michael Duff for his service to the IAPR as the editor of this newsletter. We are also happy to introduce the new editor, Larry O'Gorman, who will take over starting from the next Newsletter issue; we know that he will keep on the tradition of quality set by his predecessors.

FROM THE RETIRING EDITOR:

It is now time for me to say farewell as the Editor of this Newsletter. The four years I have spent in this position have been very rewarding for me and I have enjoyed the quarterly challenge of producing a publication which I know is destined to circulate all round the world.

Any publication can only be as good as the material within it and I want to take this opportunity to thank all the many contributors who have responded so readily to my requests for articles, news and photographs. I would especially like to mention our eight Regional Correspondents and the Book Reviews Editor, also the Web Site Director for his helpful collaboration. The efficient and high quality printing we have enjoyed is due to the efforts of the K&N Press Limited, who have never let us down and the Newsletter distribution has been handled unfailingly reliably by Weston Marketing.

Finally, my thanks to my wife Susan who accepted responsibility for the layout of the Newsletter and also for its distribution, thus making my job very much easier than it otherwise would have been.

As announced above, the new Editor will be Dr Lawrence O'Gorman (whose address is given on the Page 2 Notice Board of this Newsletter). I would like to wish him every success in this appointment.

Michael Duff



16 ICPR

QUEBEC CITY

AUGUST 2002

The 16th International Conference on Pattern Recognition was held in the Québec City Convention Center in Canada, 11-15 August. The Conference was hosted by IAPR's Canadian member, the Canadian Image Processing and Pattern Recognition Society, in co-operation with the Institute of Electrical and Electronics Engineers. As usual, this important meeting attracted much interest and 1240 papers were submitted by authors from all round the world. Of these, 250 were selected for oral presentation and 555 as posters.

The Conference Organising Committee was led by the General Chairman Dr Ching Suen (Concordia University), assisted by two General Co-Chairs: Dr Rangachar Kasturi, of Penn State University (Technical Program) and Dr Réjean Plamondon of Ecole Polytechnique (Sponsorship & Publicity). The Chair for Tutorials & Demonstration was Dr Denis Poussart and the Chair for Local Arrangements was Dr Denis Laurendeau (both from Université Laval). Following ICPR, members of the organizing committee presented a plaque to Professor Suen *In Recognition of Outstanding Contributions and Leadership as General Chair of ICPR 2002*.



The Québec City Convention Center, is a capacious building conveniently linked by underground passageways to both the Hilton Québec and the Radisson Hotel Québec Centre. The social proceedings started on Sunday with a Welcome Cocktail in the Convention Center and the business of the conference commenced with the opening ceremony at 8.30 on the following Monday morning. After the formal speeches, the K S Fu lecture was delivered by this year's prize winner; Professor Thomas S Huang, (below).



As usual, the social highlight of the ICPR was the Conference Banquet, this year held in the Convention Center Ballroom. This provided a splendid location for an excellent dinner and for the various events which took place during the evening including the presentation by the President, Dr Sanniti di Baja, of Certificates of Appreciation to various IAPR members in recognition of their services to IAPR during the past two years. This first set of awards went to Walter Kropatsch (IAPR Treasurer), Rangachar Kasturi (IAPR Vice-President), Karl Tombre (IAPR Secretary) and Michael Duff (IAPR Newsletter Editor).

Plaques were presented by the Conference Chairman, Dr Ching Suen, to local organisers of the Conference, Dr Réjean Plamondon and Dr Denis Laurendeau in gratitude for their efficient and thorough organisation. Dr Laurendeau's award was described as a *one-foot-kick award*; subsequent enquiries revealed this to have the meaning (originating from Hong Kong) *doing everything necessary to make things work* and, certainly, all the local arrangements, for which Dr Laurendeau was the Chairman, proceeded with the greatest efficiency. Dr Laurendeau wanted to record the contributions from the Local Arrangement Committee (Marc Parizeau and Robert Bergevin), Monique Debroux (Conference Management), José Fleurent (Registration) and Bruno Pagé and Jérôme Bégin from the Convention Center.



After a delicious dinner we were entertained by the extraordinary Patrice Painchaud Musical Family Quartet who managed to persuade Réjean Plamondon to dress as a lumberjack and *play* a violin! (seen above) Also, in the course of the evening, at the instigation of Dr Suen, a small IAPR participant quartet, playing miniature violins, performed for the assembled company. (Technical Program reports by the Track Chairmen follow.)

Track 1 - Computer Vision and Robotics



The Computer Vision and Robotics track at this year's ICPR featured many strong papers by a wide range of authors. Much in evidence were continuing contributions on tracking and motion analysis, face pose estimation and recognition, and perceptual organization and grouping. The vision track has traditionally been very popular at ICPR. This year was no exception. A total of 401 papers were received of which 87 were accepted for oral presentation (a rate of 21.2%) and 141 papers were accepted for poster presentation. The total acceptance rate was 56%, consistent with earlier years.

The oral presentations and posters were divided into traditional topics such as structure, shape, and recognition, but we also note an increase in system-oriented topics. In particular, issues related to the analysis of humans for intelligent interfaces and biometrics have become highly popular; it is thus no surprise that the conference had multiple sessions on face recognition, pose estimation, and human motion analysis. It is encouraging to see that vision is maturing to allow deployment in real applications. The oral sessions were a great success and in many cases the room was filled to the point where people were standing in the hallway to get a glimpse of the action in the lecture hall. In addition, the convention center at Quebec offered excellent facilities for poster sessions and there was always a buzz in the poster hall, with very high attendance and lots of discussion.



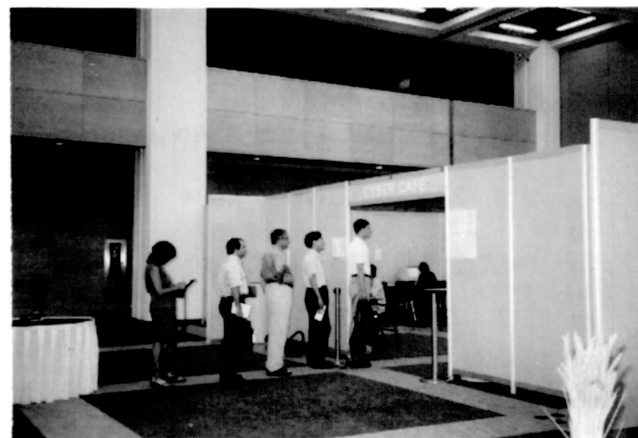
The Track offered three invited talks which were given by Prof. Yuichi Ohta of Tsukuba University, Japan; Prof. Avi Kak of Purdue University, USA; and Prof. Heinrich Bülthoff of the Max Planck Institute for Biological Cybernetics. All offered their perspectives based on their extensive research contributions over the years.

The first of these talks, by Prof. Ohta, was entitled "Pattern Recognition and Understanding for Visual Information Media". In it, Prof. Ohta showed extensive results on the integration of real sensed data with virtual objects in a mixed-reality setting. He showed how such an approach, using novel see-through head-mounted displays, could augment human-human interactions by, for example, high-lighting the

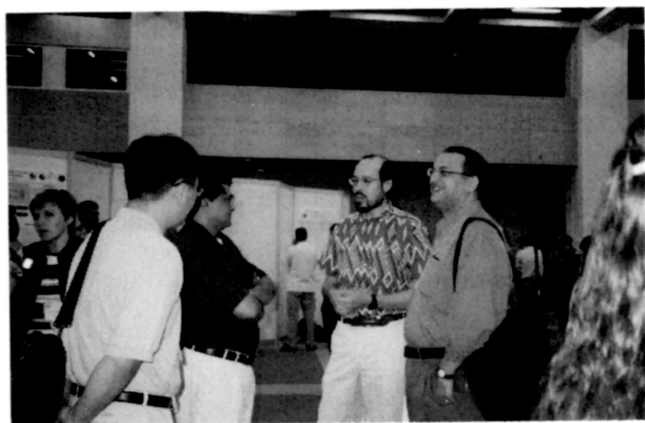
specific object to which one is pointing. This work involves extensive, fast 3D scene reconstruction, and his results in the World Cup football stadium were most impressive. There were also results in which one person's face was applied to another person's facial expressions while speaking. But the crowd favourite was undoubtedly the scene in which a young man played with a ball as a virtual poster from Florida hung on the wall and the room filled with virtual water – complete with a floating pool toy!



The second talk, by Prof. Kak, addressed the question: "Robotic Vision: What Happened to the Visions of Yesterday?" In this lively presentation, Prof. Kak offered his views on why the stunning laboratory successes of the 1980's did not translate to corresponding success on the factory floor. He opened by showing three notable results from his own laboratory: bin-picking from stereo, bin-picking from range data, and visual servoing. Prof. Kak's contention is that these laboratory successes have failed to scale because the construction of vision models, as opposed to CAD models, for instance, is extraordinarily difficult; it is in the construction of such vision models that significant progress must be made before we can realize our goals for robotic automation. Nevertheless, he remains optimistic and shares what he calls the "current excitement" for the future of robotic vision systems based on more realistic assumptions including: visual servoing, human assisted feature delineation, and human-assisted 3D model acquisition.



Prof. Heinrich Bülthoff's presentation, "View-Based Dynamic Object Recognition Based on Human Perception," considered biologically inspired methods for appearance-based object recognition. The key result, inspired by psychophysics, is that the exploitation of temporal information can improve object recognition rates considerably. This work extends the appearance-based school of recognition through the use of image contiguity in the temporal domain. The idea is to mimic the human brain's apparent representation of objects as a series of interconnected views. In so doing, a number of the limitations of the appearance-based approach are mitigated.



In summary, a recurring theme at the meeting was the inclusion of "humans-in-the-loop" and other human-machine interactions facilitated by computer vision systems. Professor Thomas S. Huang pointed out in his K.S. Fu Lecture that, while vision systems do not always work correctly, humans can (and should) tolerate some degree of error; similarly, many vision processes can accept humans in the processing loop and still offer real value. This finding is consistent with those of the Track 1 invited lecturers and many of the other researchers in attendance. Certainly, these observations don't imply that we, as a community, should give up on the goal of completely autonomous computer and robotic vision systems; they simply mean that there are numerous nearer-term applications that can benefit from hybrid human-computer vision systems, human-assisted model design, and intelligent vision-based interfaces – and we should be willing to explore them.

Kim Boyer, Henrik Christensen, Yoshiaki Shirai

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CAMBRIDGE, ENGLAND

23 – 26 AUGUST 2004

Pattern Recognition in the Digital World

Information:

<http://www.ee.surrey.ac.uk/icpr04>

IAPR FELLOWS HONOURED 2002

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**Dr. Prabir Bhattacharya**

Panasonic Information and Networking Technologies  
Laboratory (Princeton, USA)

**Prof. Hans Burkhardt**

University of Freiburg (Freiburg, Germany)

**Prof. Terrence M. Caelli**

University of Alberta (Alberta, Canada)

**Prof. Larry S. Davis**

University of Maryland (College Park, USA)

**Dr. Robert P.W. Duin**

Delft University of Technology (Delft, Netherlands)

**Prof. Charles R. Dyer**

University of Wisconsin-Madison (Madison, USA)

**Prof. Jan-Olof Eklundh**

Royal Institute of Technology, KTH (Stockholm, Sweden)

**Dr. Ramesh C. Jain**

University of California (San Diego, USA)

**Prof. Ales Leonardis**

University of Ljubljana (Ljubljana, Slovenia)

**Dr. Gerard G. Medioni**

University of Southern California (Los Angeles, USA)

**Prof. Heinrich Niemann**

University of Erlangen-Nurnberg (Erlangen, Germany)

**Prof. Sankar K. Pal**

Indian Statistical Institute (Calcutta, India)

**Prof. Jussi P.S. Parkkinen**

University of Joensuu (Joensuu, Finland)

**Prof. Franc Solina**

University of Ljubljana (Ljubljana, Slovenia)

**Dr. Johji Tajima**

NEC Corporation (Kawasaki, Japan)

**Prof. Gianni L. Vernazza**

University of Genoa (Genoa, Italy)

**Prof. Max A. Viergever**

University Medical Center Utrecht (Utrecht, The Netherlands)

**Prof. Lei Xu**

The Chinese University of Hong Kong (Hong Kong)

## TRACK 2 - Pattern Recognition, Neural Networks, and Document Analysis



**P**attern recognition is one of the most fundamental endeavours of science; in fact one can say that it is the essence of all science. For most of the participants at ICPR'16, however, pattern recognition is a specialisation in its own right: the discipline dedicated to using computers to solve sensory-perception problems that are so well performed by humans – from recognising handwriting, matching shapes, and classifying fingerprints to codifying machine “learning” methodologies and applying structural or statistical techniques for the computer solution of practical problems in our technological society.



Pattern Recognition, Neural Networks, and Document Analysis was chaired by Drs. Horst Bunke (University of Bern, Switzerland) and Gabriella Sanniti di Baja (Istituto di Cibernetica, Italy). This Track received 474 papers from different countries, confirming the intense and growing activities in these areas, worldwide. The review process resulted in the selection of 340 papers, 92 oral and 248 poster, (*typical busy poster session pictured above*), which was done by program committee members together with additional qualified reviewers. This track was organized in several oral and poster sessions. The distribution of all accepted papers of the 34 countries is as follows:

Australia 6, Austria 1, Belarus 1, Belgium 1, Brazil 4, Canada 23, China 41, Czech Rep. 3, Finland 8, France 22, Germany 14, Greece 3, India 3, Iran 1, Israel 1, Italy 14, Japan 36, Korea 19, Macedonia 1, Mexico 4, Netherlands 8, New Zealand 2, Portugal 2, Russia 3, Singapore 8, Spain 14, Sweden 5, Switzerland 13, Taiwan 7, Turkey 3, U.K. 10, USA 54, Venezuela 1, Vietnam 1

These papers can be categorised to the following topics (some papers in this track were more related to other tracks and vice-versa so the statistics are somewhat fuzzy on some topics).

➤ Applications : 224 out of 340 papers with a clearly identified application.

48 Handwriting, 39 Facial (detection, expression, recognition, etc), 37 Document analysis (structure from document, OCR, word segmentation, etc), 23 Motion/Video/Gesture, 19 Shape (analysis, transform, recognition), 18 Image analysis from different domains including medical, archeology, satellite, range, galaxies, iris, meteorology, industrial defect), 16 3D objects recognition, 14 Finger prints, 14 Image techniques without any a priori domain (edge, segmentation, etc), 14 Image retrieval and classification, 8 Licence plate recognition, 6 Texture classification, 6 Drawing analysis, 5 Speech, 1 Olfaction.

➤ Frameworks: More than 300 identified frameworks out of 340 papers using general techniques.

34 Clustering (EM, K-NN, classifier design, hierarchical clustering, B&B, etc), 31 HMM, 22 Graph techniques (including also trees and strings), 22 Neural nets, 21 Probabilistic models, 19 Multiscale / Scale space and wavelets, 17 Support Vector Machines, 15 ICA/PCA, 14 Digital geometry, 11 LDA, 11 Image processing (smoothing, filtering, transform, etc), 9 Strokes detection and analysis, 9 Error analysis, 8 Genetic and evolutionary, 7 Learning, 7 Energy models, 7 Feature extraction, 6 Matrix and Eigen techniques, 6 Hough, 6 Gabor, 5 Morphology, 4 Fuzzy, 4 Self organising map, 3 Bayesian network

In summary, most of papers presented in this track used already well known techniques, however, there were intense activities/discussion around the posters sessions.

**F**inally, we would like to take this opportunity to once again thank the organisers of this event, Horst Bunke and Gabriella Sanniti di Baja, (*pictured below*), for their excellent work for this track.



*Adnan Amin, Jean-Michel Jolion*

## Track 3: Image and Signal Processing



A total of 211 papers were reviewed by Track 3. Of that total, 43 were accepted for oral presentation and 87 were accepted for presentation as a poster. From the outset, any attempt to define precise subject boundaries between Track 3 and other tracks was seen as counter-productive. With only one or two exceptions, papers whose authors submitted their work to Track 3 were reviewed by Track 3. The result was an exciting range of papers of interest to the signal and image processing community, broadly defined.

The titles of the oral presentation sessions reflect the range of topics covered in Track 3. The session titles (in order) were: Color and Texture; Audio and Image Processing; Coding, Compression and Enhancement; Human Factors; Image Transformations; Sensors and Applications I; Segmentation; and Applications II. There also were three distinct Track 3 poster sessions. All the poster sessions were well attended. Interaction during poster sessions was facilitated, in part, by the proximity of the posters to the refreshments.

One Track 3 highlight was the panel session on *Applications of Image and Signal Processing in the Preservation of the Environment*. Panel presenters were John Taylor, Paul Gader and C. Chen. Each presentation featured a topic relevant to the overall theme of the conference. The Track 3 Co-Chairs thank their session chairs for helping each session to run smoothly and on-time. The session chairs were: A. Bruckstein, M. Cheriet, J. Clark, M. Haindl, E. Hancock, H. Ip, T. Kasvand, A. Kryzak, M. Kunt, F. Nouboud, M. Petrou, G. Stamon, T. Tan, J. Thiran, P. Vandergheynst and D. Ziou.



The Track 3 Co-Chairs especially thank the reviewers for their hard work. Reviews typically were thoughtful, thorough and on-time. This made the work of the Track 3 Co-Chairs a lot easier than it might otherwise have been. Track 3 reviewers were: A. Alimi, J. Barron, A. Basu, J. Biemond, Boufama, T. Bui, V. Cappellini, F. Castanie, M. Cheriet, J. Clark, Cohen, P-Y. Coulon, G. Dudek, F. Ferrie, A. Figueiras-Vidal, D. Fleet, D. Gatica-Perez, T. Gevers, D. Goodenough, R. Gosine, P. Ioannis, H. Ip, M. Jenkin, M. Lagunas, R. Lepage, C. Leung, X. Li, Z-N. Li, B. Macq, H. Maitre, B. Manjunath, S. Marcel, G. Matas,

E. Meijering, R. Mersereau, J. Meunier, E. Milios, A. Mitiche, J. O'Ruanaidh, T. Pappas, M. Pawlak, P. Regalia, C. Regazzoni, G. Roth, O. Silven, C-L. Tan, J-P. Thiran, J. Vaisey, L. van Vliet, R. Wilson and H. Yang. Finally, the Track 3 Co-Chairs thank all the authors, presenters and conference attendees. The signal and imaging processing community was well represented and ICPR 2002 was a great success!

*Murat Kunt & Bob Woodham*



### ICPR 2002 Message Received from the Prime Minister's Office

*It is with great pleasure that I extend my warmest greetings to all those attending ICPR 2002. I would also like to welcome all of the international participants who have travelled to Canada to take part in this event.*

*As you gather with fellow delegates in Quebec City, you will have a wonderful opportunity to exchange ideas and information on issues of mutual concern. The thought-provoking presentations and informative workshops and exhibits are sure to provide valuable insight into this year's theme: "Pattern Recognition for Humankind and the Environment." I would like to commend the conference organizers for their efforts in making this event both enlightening and enjoyable for all those in attendance.*

*Please accept my best wishes for a memorable and productive four days.*

*Jean Chrétien*



## Track 4 - Biomedical and Multimedia Applications



There were a total of seven oral sessions and three poster sessions in this track. The two medical sessions covered medical image analysis, including microscopic image analysis. The five multimedia sessions covered indexing and retrieval, video, 3D, applications, and performance.

We had two outstanding guest speakers: James Duncan from Yale and Hiroshi Ishii from MIT. Professor Duncan spoke on the topic of Geometrical and Physical Models for the Recovery of Quantitative Information from Medical Image Analysis. He included some history of the field and brought us up-to-date on the latest, state-of-the-art techniques. In particular, he showed examples of the extraction of quantitative information from various modalities of cardiac images (Ultrasound and Magnetic Resonance Images) using geometric and adapted biomechanical models. Professor Duncan also showed the use of combined real-time stereoscopic imagery with biophysical models in order to track the volumetric deformation of the brain during neurosurgery, a prerequisite to correctly fusing together pre-operative and intra-operative images.

Professor Ishii spoke on Tangible Bits: Designing the Boundary between People, Bits and Atoms. The goal of this work is to change the way humans interact with computers by giving physical form to digital information. Professor Ishii demonstrated some of his interface creations, including musical bottles as containers and controls for digital information, toys called *Curlybots* that can record and play back physical motion, and *Sensetable*, a system that tracks the position of multiple objects on a flat display surface and can be used in interactive applications such as urban design and business supply chain visualization.

*Nicholas Ayache, Linda Shapiro*



### Letter from an SPR-SSPR Participant

In 1998 the technical committees TC1 for statistical methods and TC2 for structural methods of the IAPR decided to put their workshops together, to have the invited talks and some presentations of interest for both groups in a joint plenum and to discuss the posters of both workshops in the same place. This has now been repeated every other year in close geographic and temporal connection to the ICPR. This year the joint SPR and SSPR was located in Windsor (English speaking Canada). And there was just one weekend between it and the ICPR in Quebec (French speaking Canada). So many of the participants in Windsor later met again in Quebec gaining experience of both sides of this huge and friendly country.

As a participant to this workshop, I take the opportunity to once again thank the organizers of this inspiring event - Terry Caeli, Majid Ahmadi and many of their staff - for their

excellent work. The proceedings again appeared with Springer LNCS and were ready and distributed on site. The reviewers made valuable comments to the papers, so that the already quite high quality could be improved to a very reasonable level. Of approximately 130 papers handed in, 41 were finally accepted as poster presentations and 46 as oral presentations. Both, the papers and the presentation on site, be it poster or oral, seem to improve every other year, though the people are going to have a hard time topping this again in 2004.

The "Yorkist Manifesto" that Edwin Hancock gave in his invited talk, and that also was evident in the other seven presentations of himself and his staff, set one of the major topics of the workshop. Is it possible to transform the serious NP-hard graph matching problem into a graph-eigen-spectrum matching problem for some applications? Can we thus apply techniques of the SPR to problems of the SSPR? Also the invited talk of Sven J. Dickinson presented such an approach: It has become popular to describe shapes of objects in terms of their shock-graphs. Thus recognizing shapes is equivalent to a structure comparison. Can this type of structure matching be approximated by the graph-eigen-spectrum technique?



In the SPR every other year a Pierre Devijver lecture is held to recall the spirit and work of this founder of the field. This year the honor was given to Anil K. Jain. After all the methodological work it was a pleasure to hear something about a real application. We heard about markets and laws that enforce the use of biometrics. Fingerprints are an old issue in pattern recognition. Now face and iris recognition also claim success. This gives a good example of how science becomes state of the art, and new markets emerge. Thomas G. Dietterich - well-known in the machine learning community - was invited to talk about the string matching techniques used in his field. There are many similarities with the pattern recognition community. In some of the other talks of the workshop the machine learning tool C4.5 was applied to pattern recognition tasks. More contact is desirable.

## THE 2ND INTERNATIONAL WORKSHOP ON PATTERN RECOGNITION FOR REMOTE SENSING (PRRS2002)

*Maria Petrou, Workshop Chair*

The 2nd International Workshop on Pattern Recognition for Remote Sensing took place immediately after the end of ICPR 2002 and attracted 24 participants. After a meeting with more than 1000 delegates and four parallel tracks, it was refreshing to find oneself in a cosy, almost family type atmosphere of a small workshop. What was most gratifying about the workshop was the sense of *not-a-waste-of-time* it offered to its organisers and its participants, who left feeling that they took something away, they learned something useful for their research. The participants ranged from well known people from the Pattern Recognition, Artificial Intelligence and Geography communities, to first year PhD students. The small number of participants allowed people to interact in a very constructive way, with plenty of time devoted to discussions. Touching base with Geographers was an experience for many PR theoreticians. There is nothing more educational than being confronted with real situations from the end-user's point of view.

The workshop included two generously supplied coffee breaks and a buffet lunch which was too tempting for dieting! Several of the participants savoured local delicacies in the evening at a local seafood restaurant, and had the chance to see downtown Niagara Falls by night, which reminded one very much of Las Vegas. From the sight-seeing point of view, the most thrilling bit was a trip with the boat at the foot of the falls, where you are surrounded by the most magnificent expression of the might of Nature, with thousands of litres of water per second roaring down around you and the boat engines in full speed struggling to keep the boat steady against the tremendous power of the river. No wonder the natives had called the Falls *Thunder of the Water*.



Members discussed the future activities of TC7 and the participants agreed that they do not wish the meeting to become larger than about 30, as otherwise it will lose its role as a forum of direct interactions between different experts in the area. Oxford was chosen as the venue for the next meeting planned for August 27, which is the Friday after the end of ICPR 2004. The proceedings of the workshop were published by BMVA Press (ISBN 1 901725 18 9) and there will be a special issue of Pattern Recognition Letters next year with selected papers from the Workshop.

## A new IAPR Technical Committee TC 18 on DISCRETE GEOMETRY

*Annick Montanvert and Stina Svensson*

Discrete geometry plays an essential role in the field of image analysis, computer graphics, pattern recognition, shape modelling, computer vision, and document analysis. The main reason is, of course, that all data in the computer is unavoidably discrete. Discrete geometry is not a new discipline, but has appeared as a main field of computer imagery since more than 40 years. The foundations of discrete geometry are from the need of definitions and transformations based on the discrete space, rather than application of continuous and Euclidean notions.

Discrete geometry provides both a theoretical and a computational framework for digital images. It has some well known and used concepts, new results regularly appear, and useful theorems and developments have still to be proposed. Moreover, the development of efficient devices for image or video acquisition and processing, the increasing number of applications for both specific domains (medicine and biology, remote sensing, control, design) and common uses (DVD, Internet, HDTV, etc) are important motivations and reasons to develop new results for the discrete space.

Consequently, dealing with images implies developing discrete models to be used in the above mentioned fields. Several more precise topics of research dealing directly with discrete spaces can be given such as topology, digitized objects, shape representation and understanding, geometrical transforms, metrics, coding and compression, curves, surfaces and volumes, shape recovery, image reconstruction, visualisation, and feature extraction.

There exists a large community working on Discrete Geometry and the main aim for TC18 is to promote interactions and collaboration between researchers working in the field. A TC18 web page and electronic newsletters will, in combination with TC meetings, facilitate this.

The conference Discrete Geometry for Computer Imagery (DGCI), will become the main conference. The 11th DGCI will be held in Naples, Italy, 19 to 21 November 2003, with Gabriella Sanniti di Baja as General Chair and Stina Svensson, as Program Chair. More information can be found on the web page for DGCI: <http://dgci.cib.na.cnr.it/> A TC18 meeting will be held during the conference.

TC18 is for the following two years chaired by Annick Montanvert, LIS Laboratory, Grenoble, France (chair) and Stina Svensson, Centre for Image Analysis, Uppsala (co-chair). More information on the TC and how to become a member can be found on the TC18 web page: <http://www.cb.uu.se/TC18/>

We welcome you to become a member of TC18 and look forward to receiving your comments on how to continue the work with the TC in the best possible way.

# FORTHCOMING IAPR SPONSORED CONFERENCES

CHECK ON THE IAPR WEB SITE FOR FULL AND UPDATED DETAILS OF THE FOLLOWING MEETINGS

## **Third International Workshop on Pattern Recognition and Information Systems (PRIS)**

**22-23 April 2003 - Angers, France**

The workshop is held in conjunction with the Fifth International Conference on Enterprise Information Systems, ICEIS 2003. Proceedings will be published before the meeting and will be distributed to participants at the workshop.

### **Further Information:**

Email: [w1-secretariat@iceis.org](mailto:w1-secretariat@iceis.org)  
Website: <http://www.iceis.org>

**Submission deadline:** 15/12/2002  
**Acceptance notification:** 15/02/2003

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4th International Conference on Audio and Video Based Biometric Person Authentication (AVBPA)

9-11 June 2003 - Guildford, UK

The interest in security and in using multi-modal biometric signal processing for security applications has been increasing and the growth of internet and mobile telephony has been an important factor; automatic authentication of persons is an important element of security. This meeting will bring together leading biometric signal analysis researchers and practitioners.

Further information:

Email: avbpa@eim.surrey.ac.uk
Website: <http://avbpa2003.ee.surrey.ac.uk>

Submission deadline: 10/01/2003
Acceptance notification: 01/04/2003

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## **Fourth International Workshop on Multiple Classifier Systems (MCS)**

**11-13 June 2003 - Guildford, UK**

The workshop series is aimed to create a common international forum for researchers of the diverse communities working in the field. (Information on previous editions can be found on: [www.diee.unica.it/mcs](http://www.diee.unica.it/mcs))

### **Further information:**

Email: [mcs2003@eim.surrey.ac.uk](mailto:mcs2003@eim.surrey.ac.uk)  
Website: <http://www.diee.unica.it/mcs>

**Submission deadline:** 10/01/2003  
**Acceptance notification:** 01/04/2003

## **13<sup>th</sup> Scandinavian Conference on Image Analysis (SCIA)**

**June 29 – 02 July 2003 - Göteborg, Sweden**

The ambition of SCIA is to bring together leading researchers in the field of image analysis and present and exciting and advanced scientific program reflecting the state-of-the-art of the discipline.

### **Further information:**

Email: [SCIA2003@chalmers.se](mailto:SCIA2003@chalmers.se)  
Website: <http://www.hh.se/scia2003>

**Submission deadline:** 22/01/2003  
**Acceptance notification:** 08/05/2003

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Fourth International Workshop on Energy Minimisation Methods in Computer Vision & Pattern Recognition (EMMCVPR)

7-9 July 2003 - Lisbon, Portugal

Many problems in computer vision and pattern recognition (CVPR) are couched in the framework of optimisation. The minimization of a global quantity, often referred to as the energy, forms the bulwark of most approaches to CVPR. Disparate approaches often have optimisation or energy minimization as a common theme. This workshop aims to bring together researchers with interests in these areas.

Further information:

Email: anand@cise.ufl.edu
Website: <http://www.emmcvpr.org>

Submission deadline: 10/01/2003
Acceptance notification: 01/04/2003

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## **12<sup>th</sup> International Conference on Image Analysis & Processing (ICIAP)**

**17-19 September 2003 - Mantova, Italy**

The major topics discussed at this meeting will be the use of image processing techniques and tools in standard application environments and in the new scenario on internet based delivery of information.

### **Further information:**

Email: [marco.ferretti@unipv.it](mailto:marco.ferretti@unipv.it)  
Website: <http://www.iciap2003.unipv.it>

**Submission deadline:** 28/02/2003  
**Acceptance notification:** 30/05/2003



# IAPR SPONSORED CONFERENCES & WORKSHOPS

Please check updated information on: <http://www.iapr.org>

| 2000           | Event                                                                          | Location           | Deadlines                                                  | Contact                                                                                                                                                                    |
|----------------|--------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2-13 Dec       | Soft Computing Approach to Pattern Recognition & Image Processing              | Kolkata<br>India   | <i>Deadlines Passed</i>                                    | <a href="mailto:cimpa@isical.ac.in">cimpa@isical.ac.in</a><br><a href="http://www.isical.ac.in/~cimpa2002">http://www.isical.ac.in/~cimpa2002</a>                          |
| 11-13 Dec      | 2002 IAPR International Workshop, p on Machine Vision Applications             | Nara<br>Japan      | <i>Deadlines Passed</i>                                    | <a href="mailto:ki@iis.u-tokyo.ac.jp">ki@iis.u-tokyo.ac.jp</a> <a href="http://www.cvl.iis.u-tokyo.ac.jp/mva">http://www.cvl.iis.u-tokyo.ac.jp/mva</a>                     |
| 16-18 Dec      | Indian Conference on Computer Vision, Graphics & Image Processing 2002         | Ahmedabad<br>India | <i>Deadlines Passed</i>                                    | <a href="mailto:icvgip@ee.iitb.ac.in">icvgip@ee.iitb.ac.in</a><br><a href="http://www.ee.iitb.ac.in/~icvgip">http://www.ee.iitb.ac.in/~icvgip</a>                          |
| 2003           | 2003                                                                           | 2003               | 2003                                                       | 2003                                                                                                                                                                       |
| 1-3 April      | 3rd International Conference on Computer Vision Systems                        | Graz<br>Austria    | Abstract:<br>15/10/2002<br>Final Manuscript:<br>15/01/2003 | <a href="mailto:vm@itee.uq.edu.au">vm@itee.uq.edu.au</a><br><a href="http://dlb.joanneum.at/ICVS03">http://dlb.joanneum.at/ICVS03</a>                                      |
| 21-23 May      | 7th International Conference on Pattern Recognition and Information Processing | Minsk<br>Belarus   | Abstract:<br>15/12/2002<br>Final Manuscript:<br>15/02/2003 | <a href="mailto:VKrasnoprosin@mml.unibel.by">VKrasnoprosin@mml.unibel.by</a><br><a href="http://www.prip.bsu.by">http://www.prip.bsu.by</a>                                |
| 9-11 June      | 4th Int Conference on Audio & Video Based Biometric Person Authentication      | Guildford<br>UK    | Abstract:<br>10/01/2003<br>Final Manuscript:<br>01/04/2003 | <a href="mailto:avbpa@eim.surrey.ac.uk">avbpa@eim.surrey.ac.uk</a><br><a href="http://www.avbpa2003.ee.surrey.ac.uk">http://www.avbpa2003.ee.surrey.ac.uk</a>              |
| 29 June-2 July | 13th Scandinavian Conference on Image Analysis                                 | Goteborg<br>Sweden | Abstract:<br>22/01/2003<br>Final Manuscript:<br>08/05/2003 | <a href="mailto:SCIA2003@gbg.congrex.se">SCIA2003@gbg.congrex.se</a><br><a href="http://www.hh.se/scia2003">http://www.hh.se/scia2003</a>                                  |
| 5-7 July       | Int Workshop on Machine Learning and Data Mining in Pattern Recognition        | Leipzig<br>Germany | Abstract:<br>10/01/2003<br>Final Manuscript:<br>01/05/2003 | <a href="mailto:ibaiperner@aol.com">ibaiperner@aol.com</a><br><a href="http://www.ibai-research.de/MLDM2003">http://www.ibai-research.de/MLDM2003</a>                      |
| 7-9 July       | Fourth Int Workshop on Energy Minimization                                     | Lisbon<br>Portugal | Abstract:<br>06/01/2003<br>Final Manuscript:<br>01/04/2003 | <a href="mailto:anand@ciise.ufl.edu">anand@ciise.ufl.edu</a> <a href="mailto:mtf@ix.it.pt">mtf@ix.it.pt</a><br><a href="http://www.emmcpvr.org">http://www.emmcpvr.org</a> |
| 17-19 Sept     | 12th International Conference on Image Analysis and Processing                 | Mantova<br>Italy   | Abstract:<br>28/02/2003<br>Final Manuscript:<br>30/05/2003 | <a href="mailto:marco.ferretti@unipv.it">marco.ferretti@unipv.it</a><br><a href="http://www.iclap2003.unipv.it">http://www.iclap2003.unipv.it</a>                          |
| 19-21 Nov      | 11th Int Conference on Discrete Geometry for Computer Imagery                  | Naples<br>Italy    | Abstract:<br>15/03/2003<br>Final Manuscript:<br>30/07/2003 | <a href="mailto:dgci@dgci.cib.na.cnr.it">dgci@dgci.cib.na.cnr.it</a><br><a href="http://dgci.cib.na.cnr.it/">http://dgci.cib.na.cnr.it/</a>                                |

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