

# IAPR Newsletter

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## Books, Books, Books

How important is a textbook to a field? There are some fields whose texts seem to be synonymous with their identities: Gray's *Anatomy*, Samuelson's *Economics*, Abrams et al.'s *Norton Anthology of English Literature* and Tzu's *Art of War*. There are some fields in which no one involved would fail to have a copy of the text at least for reference: Peterson's *Field Guide to Birds*, Strunk and White's *Elements of Style*, Mayer's *Artist's Handbook* and Rombauer's *Joy of Cooking*. And, of course, there are classic engineering texts that include Knuth's *Art of Computer Programming*, Press et al.'s *Numerical Recipes* and Kernighan and Ritchie's *C Programming Language*. Such is the importance of some of these books that it is difficult to say whether they mirror the field or mold it.

I wondered if there were a comparably authoritative book in our own field of pattern recognition. Of course, it couldn't have the history of Tzu's *Art of War* (circa 400 BC), nor have sold as many copies as *Economics* (over 3.5 million copies), nor be known

to as many people as the *Joy of Cooking*. But I wondered if any pattern recognition book dominated our field, as do these others. To obtain opinions from experts in a broad spectrum of specialties in our field, I started with the list of IAPR Technical Committee chairs. Since I wanted only those currently teaching a course in this area, I contacted professors from this list and asked that they either respond to the survey or pass it along to someone who could. My survey questions were the following:

- If you teach a pattern recognition course, would you tell me the textbook(s) that you use?
- What are the strengths of the book(s)?
- What are the weaknesses of the book(s)?

I sent out 40 email requests and received about 30 responses. As a scientist, I am obliged to state that the statistical sampling is not without bias nor is it large enough to yield results of high confidence.

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[www.iapr.org](http://www.iapr.org)

# NEWS FROM IAPR SOCIETIES



## First Mexican Association to Join the IAPR: MACVNR

The members of the new Mexican Association for Computer Vision, Neural Computing and Robotics (MACVNR) [www.gdl.cinvestav.mx/~geovis/macvnr](http://www.gdl.cinvestav.mx/~geovis/macvnr) were honored to become an IAPR member society. The MACVNR has got 32 members, and it joined IAPR in April, 2004. Our community plans to participate in IAPR activities, bringing to Mexico sponsored international workshops and conferences in the fields of pattern recognition, computer vision, robotics, neural computing, artificial intelligence, intelligent control, virtual reality and geometric computing.

Our members are looking forward to getting involved with the technical committees.

The economic, technical and scientific presence of Mexico in the international arena is growing rapidly, so that it was urgent for Mexico to be presented as a potential IAPR member. In Mexico there are 24 PhD programs in Electrical Engineering and 17 PhD programs in Computer Science credited officially by the Ministry of Education and CONACYT (Comite Nacional de Ciencia y Tecnología). There are also 12 PhD programs in Mathematics and 15 PhD programs in Physics. The work of research groups in pattern recognition, artificial intelligence, robotics, image analysis and processing, and computer vision is mainly related to these graduate programs and focuses on basic and applied research in the listed fields. The groups interact and cooperate by joint supervision of theses, organization of workshops and conferences, and participation in research projects founded by the Ministry of Education and CONACYT. Many researchers in these groups are known internationally and participate actively in conferences and committees throughout the country and abroad.

The MACVNR would like to express its happiness in being the first Mexican association to join the IAPR and to invite all of the IAPR members to participate in our scientific activities for health, technological progress, preservation of environment and heritage, aerospace, and non-military research. We hope to establish scientific cooperation and deep friendship and be able to welcome you to our warm and ancient country.

.....  
*Prof. Dr. Eduardo Bayro-Corrochano*



## New Society in Singapore

In February of this year, the Pattern Recognition and Machine Intelligence Association (PREMIA) was officially registered with the Registrar of Societies, Singapore. The goal of forming PREMIA is to form an association of scientists and engineers in Singapore who are interested in the field of pattern recognition and machine intelligence. Specifically, the topics of research interests include computer vision, image processing, speech analysis, robotics, multimedia, document analysis, character recognition, knowledge engineering, fractal analysis and intelligent control, statistical techniques, neural networks, evolutionary programming, fuzzy logic, machine learning, and hardware implementation.

PREMIA will thus be a forum for these professionals to get together to exchange research ideas and to promote research collaboration. This will be done through seminars and dissemination of useful information among members. PREMIA has two classes of membership, namely, ordinary members and student members. Members come from institutes of higher learning, such as universities and polytechnics, and from research institutes. Professionals from the industry working in the field of pattern recognition and machine intelligence are

welcome to join, too.

Currently, we have about 60 members, and our first Annual General Meeting (AGM) will be held in the coming August. Meanwhile, a Pro Tem Committee has been formed. The following are the office bearers in the Pro Tem Committee:

### *President*

Chew Lim Tan, National University of Singapore

### *Vice-President*

Charles Graham Leedham, Nanyang Technological University

### *Treasurer*

Terence Sim, National University of Singapore

### *Secretary*

Teck Khim Ng, National University of Singapore

### *Committee Members*

Kai Kuang Ma, Nanyang Technological University

Daming Shi, Nanyang Technological University

Ji He, National University of Singapore

## Books

(Continued from page 1)

The single textbook that received the most comments by far was by Duda, Hart, and Stork, *Pattern Classification* (2<sup>nd</sup> edition published in 2000 by John Wiley and Sons), an update of Duda and Hart's *Pattern Classification and Scene Analysis*, published in 1973. Comments on the book were largely favorable. "This

provides a systematic treatment of the field with the emphasis on methodological issues." "This book offers a beautiful treatment of classification." "DHS is excellently researched and written with clear informative examples." "This book is based on a 'classic' from 1973, where the Pattern Classification material is much extended and modernized, and the Scene Analysis section is omitted completely." "It has many excellent illustrations, examples, and exercises." "I use this as a pattern recognition reference text for my computer vision course." And, the only complaint, "This book is too heavily focused on classification."

In answer to the only complaint I received about DHS, the textbook *Statistical Pattern Recognition* by Webb (published in 2002 by John Wiley and Sons) was said to offer a broader treatment than pattern classification. "We were looking for a broader view [than DHS] as we want to be close to applications. The engineering approach by Webb better fit our needs."



Two other pattern recognition books received mention. Fukunaga's *Introduction to Statistical Pattern Recognition* (2<sup>nd</sup> edition published in 1990 by Academic Press) is a completely revised edition of the original published in



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# From the ExCo

We are coming close to the ICPR conference in Cambridge; by the time you receive this newsletter, you will probably be preparing your travel to England – or maybe you will read this newsletter at the conference site! We all look forward to this exciting opportunity to meet colleagues from many places and to get a grip on the global orientations of our field through the scientific program which has been set up to our common benefit.

As announced in the last newsletter, the ExCo had made known that it would hand out a number of travel stipends of 500 USD each to authors of papers accepted at ICPR. We received 102 applications, and after careful examination, we decided to give 43 stipends (an increase of 8 stipends since 2002) to attendees – most of them graduate or PhD students – from the following countries: Australia, Belarus, Canada, China (including Hong Kong), India, Japan, Korea, (Former Yugoslav Republic of) Macedonia, Mexico, New Caledonia, New Zealand, Russia, Serbia/Montenegro, Singapore, Slovenia, and USA. We wish the lucky recipients, and all other authors and participants, a very pleasant and fruitful attendance at ICPR, and we do hope that the money spent in this way will have a good scientific impact on the authors' own research and that of their respective institutions.

The K.S. Fu Prize Committee recommended Professor Jake K. Aggarwal for this year's K.S. Fu Prize. The committee was impressed by his pioneering contributions towards establishing the fundamentals of structure and motion from image sequences and their applications to robot vision and human motion. The Governing Board approved this nomination by majority vote. The ExCo extends its warmest congratulations to Prof. Aggarwal.

The ICPR in Cambridge will also be the official time for the transfer of the IAPR Secretariat. After many years of faithful and dedicated service, Susan Duff hands the task over to Linda O'Gorman. Let us use this opportunity to thank Susan very warmly, not only on behalf of the present Executive Committee and Governing Board, but on behalf of the whole IAPR community, for all these years where various IAPR officers have benefited from her efficient and kind service, and where ICPR attendees could experience a smiling and welcoming person at the IAPR stand. We also wish Linda "welcome aboard", and look forward to fruitful and efficient collaboration in the future.

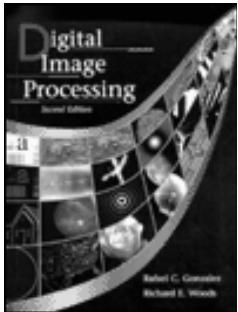
This is the last "From the ExCo" column written by the outgoing Executive Committee. We all feel that it has been a pleasure and a honor to serve the IAPR community these last two years, and we wish all the best to the new committee that will be elected at the Governing Board meeting in Cambridge. We look forward to meeting many of you in Cambridge this summer. In the meantime, we hope that you will take the time, in between your ongoing research on pattern recognition and the practical preparations of your trip to Cambridge, to enjoy the summer weather (at least for the IAPR members in the northern hemisphere) and take some days off.

## Books

(Continued from page 3)

1972. Only one person commented on this book, saying, "I recommend it for any student inquiring about the field." The final book focusing on pattern recognition that received a comment was *Discrimination and Classification* by Hand (published in 1981 by John Wiley and Sons). The comment on this book was, "...an excellent text covering statistical classification and the key problems of learning. Quite readable, but mathematically focused."

There were plenty of other books whose advocates offered comments, though most of these were in the field of image processing, suggesting that these two areas are often taught jointly. Because I didn't ask for image processing books per se in my request, comments received on this topic are fewer. However, there was much enthusiasm for



*Digital Image Processing*, by Gonzalez and Woods (2<sup>nd</sup> edition published in 2002 by Addison-Wesley). A typical comment was, "It has good coverage

of the field and is accessible at the undergraduate level." Jahne's *Digital Image Processing* (4<sup>th</sup> edition published by Springer Verlag) received the comment, "I find this good as a general research reference book." The book, *Image Processing, Analysis, and Machine Vision*, by Sonka, Hlavac, and Boyle (published in 1993 by Chapman and Hall) had these comments. "This is a good choice for a computer vision course." "This encompasses a very good breadth of topics at a level that can be used for both learning and future reference. A big plus is the

inclusion of practical aspects and algorithm outlines." "I use it because it covers a wide area without too much detail." Other image processing texts that were recommended were *Image Processing and Data Analysis*, by Starck, Murtagh, Bijaoui (Cambridge University Press, 1998); *Image Processing: The Fundamentals*, by Petrou and Bosdogianni (John Wiley, 1999); and *Feature Extraction in Computer Vision and Image Processing*, by Nixon (Newnes, 2002).

Some of the responses offered comments on machine and computer vision books. I don't want to risk running even further afield by relaying comments on these. For those interested in this area, Bruce Maxwell, a professor at Swarthmore College, wrote two survey papers (in 1998 and 2000) on computer vision courses offered in computer science departments. In these papers, he included feedback from survey participants on textbooks used and reasons why. Professor Maxwell's papers can be downloaded from his web page,

[www.palantir.swarthmore.edu/maxwell/papers/](http://www.palantir.swarthmore.edu/maxwell/papers/).

A few books with specialized

areas overlapping that of pattern recognition were also mentioned. *Data Mining on Multimedia Data* by Perner (Springer Verlag, 2002) ιντροδυχεσ χονχεπτοσ οφ μ ινινγ μ υ λ α μ ε δ ι α δ α τ α; Σ τ α τ ι σ τ ι χ α λ α ν δ Ν ευ ρ α λ Χ λ α σ σ ι φ ι ε ρ σ β ψ Ρ α υ δ ψ σ (Σ π ρ ι ν γ ε ρ ς ε ρ λ α γ 2001) ω α σ σ α ι δ τ ο ι ν χ λ ω δ ε α γ ο ο δ ρ ε ω ι ε ω ο φ χ λ α σ σ ι φ ι ε ρ σ; Σ ψ ν τ α χ τ ι χ α ν δ Σ τ ρ υ χ τ υ ρ α λ Π α τ τ ε ρ ν Ρ ε χ ο γ ν ι τ ι ο ν: Τ η ε ο ρ η α ν δ Α π π λ ι χ α τ ι ο ν σ ε δ ι τ ε δ β ψ Β υ ν κ ε α ν δ Σ α ν φ ε λ υ (Ω ρ ο λ δ Σ χ ι ε ν τ ι φ ι χ, 1990) ι ν χ λ ω δ ε σ π α π ε ρ σ ο ν β ο τ η σ ψ ν τ α χ τ ι χ α ν δ σ τ ρ υ χ τ υ ρ α λ π α τ τ ε ρ ν ρ ε χ ο γ ν ι τ ι ο ν. Α ν δ Κ. Σ. Φ υ σ χ λ α σ σ ι χ τ ε ξ τ Σ ψ ν τ α χ τ ι χ Μ ε τ η ο δ σ ι ν Π α τ τ ε ρ ν Ρ ε χ ο γ ν ι τ ι ο ν ω α σ χ ι τ ε δ α σ, χ ο ν τ α ι ν ι ν γ τ η ε ο ρ ε τ ι χ α λ α σ π ε χ τ ο σ ο ν γ ρ α μ μ α ρ σ τ η α τ α ρ ε σ τ ι λ λ υ σ ε φ υ λ 30 ψ ε α ρ σ α φ τ ε ρ τ η ε β ο ο κ ω α σ ω ρ ι τ τ ε ν.

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## IAPR Newsletter

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**The deadline for submission of material  
for the next issue is  
17 September 2004.**

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# Conference & Workshop Reports

## Workshop Report: DIAL 2004

### **1st International Workshop on Document Image Analysis for Libraries** 23-24 January 2004, Palo Alto, California, USA

DIAL 2004 brought together more than sixty researchers, end-users, practitioners, and businesspeople interested in new technologies to assist the full integration of imaged documents within digital libraries (DLs) so that, ideally, everything that can now be done with digitally encoded data will someday be easy to do also with scanned hardcopy documents.

Academia, industry, and government in twelve countries were represented by researchers from the DL, document image analysis (DIA), library science, information retrieval, data mining, and humanities fields. Through talks, panels, debates, and group discussions, the workshop attempted to stimulate closer cooperation between the DL and DIA communities.

Michel Lesk of Rutgers LCIS Department, former NSF Program Director for Intelligent Information Systems, gave the keynote address. Twenty-nine regular papers, published in the on-site hardcopy proceedings (some copies available, contact dial2004@cedar.buffalo.edu), established the framework of discussion.



Lists of the participants and the regular papers, details of the program, and slides for some of the talks are available at [www.cedar.buffalo.edu/DIAL2004](http://www.cedar.buffalo.edu/DIAL2004). Summaries of the working group discussions will also be posted there.

The workshop was organized by Henry Baird of Lehigh University and Venu Govindaraju of the University at Buffalo, State University of New York. Local arrangements at PARC were assisted by Prateek Sarkar, Kris Popat, and Jeanette Figueroa. Secretariat services were provided by Ranga Setlur and Eugenia Smith of CEDAR.

At the end of the workshop a DIAL Steering Committee was formed to encourage follow-on events. This Committee cordially invites proposals for a 2nd DIAL Workshop and will offer every assistance to its organizers. Please send inquiries and proposals to baird@cse.lehigh.edu or to govind@cedar.buffalo.edu.

*Henry Baird*

## Conference Report: CRV 2004

### **1st Canadian Conference on Computer & Robot Vision** 17-19 May 2004, University of Western Ontario, London, Ontario, Canada

The Canadian Conference on Computer & Robot Vision (CRV04, formerly known as Vision Interface, VI) is held annually in conjunction with its sister conferences Graphics Interface (GI) & Artificial Intelligence (AI). CRV04 was sponsored by the Canadian Society for Image Processing and Pattern Recognition (CIPPRS) and the International Association for Pattern Recognition (IAPR) and was held this year in cooperation with the IEEE Computer Society, meaning that the proceedings are easily accessible via the IEEE digital database.

The CIPPRS annual general meeting elected a new society president, Greg Dudek from McGill University. The best paper was awarded to "Estimating Camera Motion through a 3D Cluttered Scene" by Richard Mann from the University of Waterloo and Michael Langer from McGill University. The best student paper was awarded to "Texture Analysis Using Gaussian Weighted Grey Level Co-occurrence Probabilities" by Rishi Jobanputra (student



From left to right, co-chairs John Zelek and John Barron, new CIPPRS society president Greg Dudek, and Richard Mann (winner of the best paper).

and David Clausi, both from the University of Waterloo. Coincidentally the two major annual CIPPRS awards were presented to the two CRV04 co-chairs. John Barron was awarded the Senior Investigator award while John Zelek was presented with the Young Investigator award.

Excellent keynote talks were given by Hong Zhang of the University of Alberta, John Tsotsos of York University and Greg Dudek. An engaging and interactive poster session and lively banquet resulted in much interaction among participants. It appears that the new name that better describes the conference content was a success in its first installment. Next year, in early May 2005, CRV05 will be held, again in conjunction with GI05 and AI05, in Victoria, British Columbia. We welcome regular and new participants to CRV05 to engage in what is becoming an interesting information exchange forum for researchers in this exciting area.

*John Zelek*



## TC15: Graph-based Representations

The Fourth IAPR-TC15 Workshop on Graph-based Representations took place in the city of York, England. There were about 30 participants coming mainly from Europe. Due to the wonderful organization of Edwin Hancock and his team, we had lively and fruitful discussions on graphs. It was apparent that our community had been extremely active during the two years leading up to the workshop.

The workshop was divided into 6 sessions with an informal session on recent developments related to graphs and their applications. A total of 25 presentations were given.

The first session was dedicated to graph data structures and representations like combinatorial as well as stochastic pyramids of graphs and graphs with unique node labels. L. Brun presented a construction scheme for combinatorial pyramids defining two methods to build a contraction kernel. The new methods were applied to a segmentation framework. H. Bunke described an application for graphs characterized by unique node labels. With their simple label alphabet such graphs are easy to handle. He showed that there exist numerous applications in pattern recognition using such graphs.

In the second session, graph segmentation techniques were discussed. J. Marchadier demonstrated how images can be efficiently encoded using functional graphical models to construct hypergraphs, graphs that are also relevant for many other structural pattern recognition techniques. A. Braquelaire presented a comparison of two topological models for three-dimensional image segmentation.

The relation between the two models was defined, allowing the transformation between the models. Then, an approach allowing the unification of both models was presented.

A. Torsello presented in the third session a method for the estimation of operation costs for tree edit distance. In this approach a generative model of tree structures is fit to a set of sample trees. A new error-tolerant graph matching procedure that is characterized by also providing node splitting and merging operations was introduced by H. Bunke. The method was applied to the problem of diatom classification. M. Neuhaus presented a framework for learning graph edit distance costs from a corpus of sample graphs. The system is based on self-organizing maps which are iteratively adapted in order to minimize the distance between graphs that are required to be similar.

In the session on graph matching, C. Irniger presented a thorough analysis of the performance of graph matching algorithms if used in combination with database filtering methods. C. Guidobaldi described three algorithms for maximum common subgraph detection. It was pointed out that nothing or very little is known about the performance of these algorithms. He provided a thorough comparison of these algorithms on a large database of synthetically generated labeled graphs.

The fifth session was dedicated to matrix methods. A. Robles-Kelly combined string matching methods and spectral seriation to compute graph edit distance. He proposed to use the leading eigenvector of the

adjacency matrix to convert graphs to strings. It was emphasized that the benefit of this approach is that graph edit distance computed this way incorporates the strong formality of the well studied string edit distance. R. Glantz and M. Pelillo developed and investigated a new graph polynomial for undirected graphs. They plan to further exploit the theoretical results in graph matching and related problems.

Section 6 focused on clustering techniques for graphs. Work by A. Schenker related to clustering of document collections was presented. Schenker developed a new method extending classical clustering methods for vectors to graph structures. The new method was compared to a conventional vector-model approach, and it was shown that the graph-based approach performs as well as vector-based methods. A. Hlaoui proposed an approximate algorithm for computing the median graph. After a node reduction process the search for the median graph is carried out on the reduced subset of node labels. The approach is used for content-based image retrieval.

Besides the stimulation of valuable discussions, York also offers a wide variety of cultural activities. The workshop was held at King's Manor close to the astounding old town of the City of York. The committee organized an excursion to the impressive Castle Howard and parts of the Yorkshire area. Afterwards, the conference dinner took place at Melton's, where the participants were served a very enjoyable meal in a comfortable atmosphere.

*Christophe Irniger  
Michel Neuhaus*

## TC19: Computer Vision for Cultural Heritage Applications

The goal of the newest IAPR Technical Committee, TC19, is to promote Computer Vision Applications in Cultural Heritage and their integration, spanning all aspects of IAPR activities. It aims at stimulating the development of components (both hardware and software) that can be used by researchers in cultural heritage like archaeologists, art historians, and curators and by institutions like universities, museums, and research organizations.

Cultural heritage is intersected by many interests, including those of arts, sciences, resource planning and development, and monument preservation, and is exposed not only to the danger and even destruction of the building industry and tourism, but also to its own aging process. Since the intensity of these risks is continually increasing, preservation and research are especially urgent. New technologies, especially scanning and reconstruction, are proving useful in helping to preserve and study culture heritage.

TC19 is particularly interested in topics related to the following problems:

- Design methods for cultural heritage documentation systems and components.
- 3D reconstruction of cultural heritage objects and fragments.
- Reassembly of artefacts from fragments.
- 3D architectural site reconstruction or representation from imagery and other data.
- Shape representation for free-form modelling (statues, bones, etc.).
- Automated trench recordings from images.
- Shape matching/indexing in large databases (for a single site and across multiple sites).
- Automated architectural drawing.
- Surface modelling from various sensing modalities, to represent 3D texture, BRDF etc. of walls, sculpture etc.
- Texture modelling from imagery, remote sensing, models etc. (to model large surfaces, backgrounds).
- Excavation's historical documentation from multimedia data.

- Vision-based Augmented Reality for site exploration (educational, scientific, tourism).
- Colour vision for visualization and/or preservation and/or recovery.
- Shape-based completion for preservation and/or recovery.
- 3D object geometry and surface painting and relief matched across archaeological sites.
- Archaeography (Analysis of historical documents)
- Testing hardware and software components and tools.
- Surveying the scope and limits of current hardware and software environments.

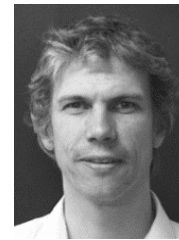
Currently we are setting up a web-site, [www.iapr-tc19.gr](http://www.iapr-tc19.gr), which will be used as a bulletin board. It will contain general information, such as announcements of events, and an updated electronic mailing list of IAPR members interested in TC19 activities and in the research topics listed above. It will include links to accomplished or running projects in universities, companies, and organizations.

Furthermore IAPR-TC19 wants to increase the awareness of Cultural Heritage Applications at ICPR conferences and in other well-established worldwide conferences and workshops like: CAA (Computer Applications and Quantitative Methods in Archaeology), VAST (Virtual Reality, Archaeology, and Cultural Heritage), ACVA (IEEE/CVPR Workshop on Applications of Computer Vision in Archaeology), and 3DIM (3-D Digital Imaging and Modeling).

We would like to invite you to join TC19 by registering at our web site: [www.iapr-tc19.gr](http://www.iapr-tc19.gr).



*Robert Sablatnig*



*Luc Van Gool*

**ICPR is 23-26 August 2004.**

**Don't miss the October special issue of the  
IAPR Newsletter on ICPR2004.**



**For the most current information on  
IAPR-sponsored conferences and workshops visit  
[www.iapr.org/iapr-conf.html](http://www.iapr.org/iapr-conf.html)**

(Information in this table is current as of 9 June 2004.)

Conference or Workshop	Date and Location	Deadline (if still open)
<b>2004</b>		
<b>SSPR+SPR 2004</b> <i>Joint IAPR International Workshops on Structural and Syntactical Pattern Recognition and Statistical Pattern Recognition</i>	18-20 August 2004 Lisbon, Portugal	
<b>ICPR 2004</b> <i>17th International Conference on Pattern Recognition</i>	23-26 August 2004 Cambridge, United Kingdom	
<b>PRRS'04</b> <i>3rd International Workshop on Pattern Recognition in Remote Sensing</i>	27 August 2004 Kingston upon Thames, United Kingdom	
<b>DAS 2004</b> <i>6th International Workshop on Document Analysis Systems</i>	8-10 September 2004 Florence, Italy	
<b>AMDO 2004</b> <i>III Workshop on Articulated Motion and Deformable Objects</i>	22-24 September 2004 Palma de Mallorca, Spain	
<b>IWFHR 04</b> <i>9th International Workshop on Frontiers in Handwriting Recognition</i>	26-29 October 2004 Tokyo, Japan	
<b>CIARP'2004</b> <i>Ninth Iberoamerican Congress on Pattern Recognition</i>	26-29 October 2004 Tonanzintla, Puebla, Mexico	
<b>IWCIA04</b> <i>10th International Workshop on Combinatorial Image Analysis</i>	1-3 December 2004 Auckland, New Zealand	1 August 2004
<b>ICVGIP'04</b> <i>Fourth Indian Conference on Computer Vision, Graphics and Image Processing</i>	16-18 December 2004 Kolkata, India	
<b>2005</b>		
<b>GbR 2005</b> <i>Workshop on Graph-based Representation in Pattern Recognition</i>	11-13 April 2005 Poitiers, France	1 October 2004
<b>MVA 2005</b> <i>2005 IAPR Conference on Machine Vision Applications</i>	16-18 May 2005 Tsukuba Science City, Japan	8 November 2004
<b>PRIP'05</b> <i>8th International Conference on Pattern Recognition and Information Processing</i>	18-20 May 2005 Minsk, Belarus	15 January 2005
<b>IbPRIA 2005</b> <i>2nd Iberian Conference on Pattern Recognition and Image Analysis</i>	7-9 June 2005 Estoril, Portugal	12 November 2004
<b>SCIA 2005</b> <i>14th Scandinavian Conference on Image Analysis</i>	19-22 June 2005 Joensuu, Finland	28 February 2005
<b>MLDM2005</b> <i>International Conference on Machine Learning and Data Mining in Pattern Recognition</i>	9-11 July 2005 Leipzig, Germany	10 January 2005

*The views expressed in this newsletter represent the personal views of the authors  
and not necessarily those of their host institutions or of the IADD*