



International Association for Pattern Recognition Inc

An affiliate member of the International Federation for Information Processing

# NEWSLETTER

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## From the Editor's Desk

Dear Everybody,

I often read with interest the various initiatives for technology transfer from Universities to Industry and I often find it incredible how short-sighted they can be! Demosthenes, 2300 years ago, when addressing the Athenian public said the famous: "Money therefore is needed, and without it, nothing of what has to be done, will be done!" People in need of money throughout the centuries! Nothing new about that! Society in need of technology throughout the centuries. Nothing new about that either! People with brilliant ideas throughout the millenia. Nothing new again. Ideas, technology, progress. Where does the money come in? But obviously in braking this chain! Example, the Remote Sensing

sector. There is a lot of progress in the development of automatic vision systems for monitoring agriculture, the environment, the forests, the desert, the climate. Researchers come up with propositions of ingenious systems that may continually receive and analyze the images from satellites and be able to forecast at a click of a button the latest predictions on agricultural yields, on the current state of land use, the instant identification of a forest fire. Has ever any such system really been developed beyond the demonstrator level and installed? To the best of my knowledge, never! How can it possibly happen when an image costs UK £1000 or UK £2000 each, and for a large scale system the images could be needed at a rate of 1 per hour? Why images are so expensive? Because satellites that obtain them have an average life span of a few years and their cost plus profit have to be covered over their life span. Why profit? Because they are privately owned. Companies cannot possibly operate with the idea of investing millions today, to make people realize the potential of their technology, allow researchers to develop the necessary methodology, and start profiting in 20, 30, 40 years' time! Governments, whole Societies, can do that if they view it as an investment for the future generat-



Please note that due to a mischievous gremlin, the address of the home page of IAPR was printed wrongly in the last issue of the newsletter. The correct one is: <http://peipa.essex.ac.uk/iapr/>



ions. (Think of what a great investment for the future the pyramids of Egypt were; they still bring a handsome income to the country!) But then, if a government makes such an investment why should it allow the benefits to be widely publicized? ("We don't fund participation to those conferences; they are our competitors!") "You are not encouraged to publish, our industry should have an edge") If you take a compass and draw a circle around you, you divide the world in two: the inside and the outside. The outside is always larger! If you isolate yourself in order to protect your ideas, you lose more by not letting things in than you gain by not letting things out! As long as there are bubbles of short-sightedness drawn in the four dimensional spacetime, the technology transfer is bound to happen in dribs and drabs!



Maria Petrou

### LETTER TO THE EDITOR

Dear Editor,

Thank you very much for your editorial in the IAPR newsletter Volume 18, no. 1. I feel that it was one of the most interesting and encouraging articles I have read in the IAPR newsletter. I myself worked several year in a remote Chinese town doing some "high-tech development aid". It is really a bad feeling to be cut off from international exchange because of the travel costs to international conferences and because of the high prices of conference fees and journal subscription charges. At that time, I was especially disappointed that in 1988 the ICPR was moved from Beijing to Italy because of some political reasons.

There is definitely excellent research in countries like China and India, but most researchers in "developed" countries know little or nothing about that, because researchers of poorer countries don't have the opportunity to publish their results. Hence organizing conferences in poorer countries would benefit both sides.

In addition I would like to propose that application algorithms that can be implemented with a minimum of financial resources should get a bonus during reviewing. In poorer countries, pattern recognition systems have to compete with a cheap labour force and it is a special contribution to pattern recognition (and to the societies of the respective countries), when pattern recognition systems are successfully implemented with a minimum of financial investment.

Best regards,

Volker Mueller, MAZ Hamburg GmbH  
(Hamburg Center of Applied Microelectronics)  
Harburger Schlosstr. 6-12, 21079 Hamburg, Germany

DOS Computers manufactured by companies such as IBM, Compaq, Tandy, and millions of others are by far the most popular, with about 70 million machines in use worldwide. Macintosh fans, on the other hand, may note that cockroaches are far more numerous than humans, and that numbers alone do not denote a higher life form. (New York Times, November 26, 1991)

### VIENNA BRACING HERSELF FOR THE BIG EVENT!



### NEWS FOR MEMBERS

#### GOOD NEWS FROM BIG BROTHER: PAMI: SPECIAL SUBSCRIPTION RATES FOR SISTERS!

Members of the IEEE Computer Society, which is the US member society of IAPR, can subscribe to PAMI at reduced rates, ie for a full year for US\$31 and for half a year for US\$16. Members of IAPR who are *not* members of IEEE Computer Society, can now benefit from reduced rates as well. These rates apply to "sister" society members and are US\$56 for a full year's subscription and US\$28 for half a year's subscription. To subscribe, place your order by fax (+1-714-821-4641), telephone (+1-714-821-2380), email (membership@computer.org) or snail (IEEE Computer Society, Publications Office, 10662 Los Vaqueros Circle, Los Alamitos, CA 90720-1314, USA). Payment is either by cheque, drawn in US dollars from a US bank, or by credit card (VISA, MasterCard, American Express, and EuroCard). To take advantage of the special sister society rates, do not forget to mention that you are a member of IAPR.

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#### NEW RULES CONCERNING THE APPOINTMENT OF THE MEMBERS OF THE AWARDS COMMITTEE

The IAPR Secretary Gabriella Sanniti di Baja informs us that the Governing Board voted last December by more than 2/3 majority to approve a proposed modification to the article VIII of the IAPR Constitution and to section 9.4 of the By-laws. Purpose of the change was to treat the Awards Committee Members like the Nominating Committee Members; ie requiring the GB approval on the list of Members proposed by the IAPR President (up to now, the Awards Committee Members were directly appointed by the President). Below are the new versions of these sections:

##### **Constitution: Article VIII, Section 8.1(NEW TEXT)**

*The Governing Board shall set up standing committees as deemed necessary to conduct the business of the Association. The functions of the committees shall be described in the By-laws. There shall be a Nominating Committee and an Awards Committee; the members of these committees are nominated by the President, but shall be elected by the Governing Board. There shall also be a Membership Committee, a Constitution*



and Bylaws Committee, a Publications and Publicity Committee, a Conferences and Meetings Committee, an Education Committee, a Fellow Committee and an Industrial Liaison Committee; the members of these committees shall be appointed by the President.

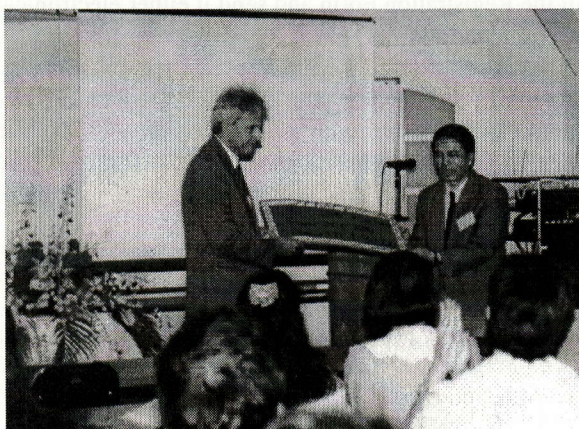
**Bylaws: Section 9.4(NEW TEXT)**

All committee appointments expire at an election meeting of IAPR officers.

**Bylaws: Section 8.2 (WITHDRAWN)**

The members of the Nominating Committee may be nominated by the President but are elected by the Governing Board.

**The Chinese Image Processing and Pattern Recognition Society, Taiwan**



Professor Kittler, the President of IAPR, receiving the contribution to the King Sun Fu fund appeal by the Chinese Image Processing and Pattern Recognition Society (Taiwan) from its President, Professor I-Chang Jou. The Chinese Image Processing and Pattern Recognition Society (CIPPR) was founded on November 28, 1990 in Hsinchu, Taiwan, R O C, and is one of the major academic organizations in this research field. CIPPR currently has 356 individual and 19 institutional members. Intense activities for members are held by CIPPR throughout the year. The Society is active organising Tutorial courses (3 to 4 times each year), two annual workshops, one on Computer Vision, Graphics and Image Processing and one on Optical Characters Recognition and Document Analysis, and publishing regularly the Journal of Image and Recognition and its Newsletter to its members.

**NEW GB MEMBER FOR GERMANY**

The German Association for Pattern Recognition (DAGM) elected Professor to replace Professor Heinrich Niemann in the IAPR Governing Board. His contact address is:

*Professor Dr-Ing Hans Burkhardt*

*Technische Informatik 1, Technische Univ. Hamburg-Harburg, Harburger Schloss-Strasse 20, D 21079 Hamburg, Germany*

*Tel: +49 40 7718 3025, Fax: +49 40 7718 2911*

*Email: burkhardt@tu-harburg.d400.de*

**WELCOME TO OUR THIRD INDUSTRIAL AFFILIATE!**

Our third member as an Industrial Affiliate is:

**Hitachi, Yokohama**

Their contact address is:

Mineri Noguchi,

Production Engineering Research Laboratory (PERL)

Hitachi Ltd, 292 Yoshida-cho, Totsuka-ku

Yokohama 244, Japan

Tel: +81 45 881 1241 (Ext. 3331), Fax: +81 45 860 1623

Email: noguchi@perl.hitachi.co.jp

Our two other industrial affiliates are

**Toshiba and Hitachi, Tokyo.**

**NEW CONTACT PERSON FOR THE BELARUSSIAN BRANCH OF IAPR**

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The home page of the Swedish member Society is:  
<http://webnet.mednet.gu.se/ln/SSAB/>

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A comprehensive list of conferences on Medical Imaging and Computer Vision can be found in  
<http://www.cv.ruu.nl/Conferences/>

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The home page of the Austrian member Society is:  
<http://www.cast.uni-linz.ac.at/aapr>

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Proceedings of the 1995 IEEE Workshop on Nonlinear Signal and Image Processing, June 20–22, Neos Marmaras, Halkidiki, Greece: <http://zeus.csd.auth.gr/Workshop/> Also available on CD-ROM that can be ordered for US\$45 from Prof. Ioannis Pitas, Department of Informatics, University of Thessaloniki, Thessaloniki 54006, P.O. Box 451, GREECE, e-mail: [pitass@zeus.csd.auth.gr](mailto:pitass@zeus.csd.auth.gr)

**CORRECTIONS TO THE DIRECTORY**

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## TC1: STATISTICAL TECHNIQUES IN PATTERN RECOGNITION

The committee aims to promote interaction and collaboration not only among researchers working directly in statistical pattern recognition but also among those specialized in other fields but using or developing statistical techniques. In this relation it is of particular interest to stimulate links with many mathematical statisticians, theoreticians and practitioners alike who work at present outside the pattern recognition community. It is believed that all sides will be benefitted by establishing closer contacts.

Topics of interest for IAPR-TC1 mainly concern:

- Classical statistical PR methods (feature selection and extraction, classifier design and testing, small sample size problems, clustering techniques)
- Contextual methods
- Random fields
- Comparing and combining PR methods
- Artificial neural networks

The objectives of the IAPR-TC1 are:

- To facilitate establishing closer contacts among all the researchers working in various directions of statistical techniques either within or outside the current PR community
- To create and maintain a membership list
- To inform about forthcoming conferences and workshops of likely interest to the members

- To produce a White Book which will inform about the activities of the members worldwide
- To organize regularly workshops on statistical techniques in PR (the first one to be held in Prague next year is being prepared).

Information related to IAPR-TC1 activities can be found at: <http://www.utia.cas.cz/TC1> Though it is still under development, this home page already contains general information, such as announcement of events in the area of interest to TC1. Furthermore, it contains the electronic version of Registration Form for all those interested to actively participate in TC1 or just to be included in an updated electronic mailing list of TC1 activities.

People interested to join IAPR-TC1 are kindly required to fill the Registration Form and send it either electronically or by post to the address below. Please remember to include also a brief description of the main research activities being carried out by you and/or your institution, which are relevant for IAPR-TC1 itself, with a list of the most recent publications, and with information about the availability of preprints or technical reports. This information will be included in the IAPR-TC1 White Book.

*Pavel Pudil, TC1 Co-chairman,  
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## BOOK REVIEWS

**Time Frequency Analysis** by *Leon Cohen*,  
Prentice Hall, ISBN 0-13-594532-1

The goal of time-frequency analysis is to analyze and understand signals with time varying frequency contents. A familiar example of this type of signals is the shifting color of the sky during sunset. The origins of the field go back to the work of Wigner in quantum mechanics in the thirties which were later applied to signal processing in the late 40's. The first paper of the author which is mentioned in the reference list is from 1996 but it is only in the last 10 to 15 years that the field became really popular.

The book tries to give an introduction and an overview of the ideas, methods and applications of time frequency theory and it tries to do so in a very unusual way. To quote from the preface: "There is an attitude these days that one should use from the beginning the most 'sophisticated' mathematics. The reason generally given is that the sophisticated mathematics has to be learned eventually. I have attempted to do everything with the simplest of mathematics and only use sophisticated methods when absolutely needed or when there is an overwhelming advantage, either from a manipulative point of view or a simplification of the physical ideas." I found that the book is a good example of the pros and cons of this

attitude. On the positive side I found that most of the text is probably understandable for readers with a wide range of backgrounds. I also found most of it very intuitive and the description very clear as long as the topic is not too complicated (roughly until chapter 14). But the book also demonstrates clearly the disadvantages of the simplification method: It tends to describe the surface of the problems but avoids the difficult core parts (as one student put it: "I learned a lot about what I already knew but little about what I did not know before!"). I also found that the book has a clear breakpoint between chapter 14 and 15 with the first part dealing with time frequency methods in the narrower sense and the second part dealing with generalizations like joint time, frequency and scale representations. One indication of this break is the wealth of examples found in the first part and the lack of them in the second. The second part which deals with "sophisticated mathematics" needs by definition "sophisticated mathematics" to describe it adequately.

After these remark you probably want to know what is in the book! The first chapters are devoted to the introduction, motivation and ideas behind the time frequency approach to signal processing. There, basic ideas like density, characteristic function and the uncertainty principle are introduced.



Chapter 6 describes the fundamental ideas behind time frequency analysis. Here the concept of a time frequency distribution is introduced which tries to describe the energy density of a signal simultaneously in time and frequency. Chapter 7 is on the Short Time Fourier Transform and it serves mainly as a motivation for the need of Time Frequency methods. Chapter 8 describes the Wigner distribution as the simplest example of a whole class of time frequency distribution functions. This general class is introduced in chapter 9 and investigated in chapters 10 to 12. Chapters 13 and 14 round off the description of the time frequency analysis in the narrower sense by some related topics like numerical implementations, relation to Gabor representations etc. The last 60 pages (chapters 15 to 19) are devoted to the generalization of the basic techniques to the investigation of other non-commutative pairs of operators like time and scale or scale and frequency. These topics are the content of much of the current research in the area and some of the work described in the book has only recently appeared in journals like the IEEE Transactions on Signal Processing. It is therefore not surprising that this part of the book lacks the intuitive examples, figures and illustrations that characterize the first part.

Some final remarks: this book has also its errors, typos etc. I used it in a course and some of the suspected errors we found can be found under <http://www.isy.liu.se/reiner/prints/cohen.ps> Most of them are not very serious but one is really annoying: The main text and the caption of Figure 5.9 on page 77 are contradictory, something that makes the whole example useless or rather confusing.

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**Spatial Tessellations: Concepts and Applications of Voronoi Diagrams**, by Okabe, Boots and Sugihara, J Wiley, ISBN 0471934305

If the title of the book has not already motivated you to look at this review, you should definitely read on. The ordinary Voronoi diagram subdivides a plane, in which there is a set of points called generator points, into cells. Each cell contains one generator point, and all points within the cell are closer to that generator point than to any other generator point. The boundaries between adjacent Voronoi cells are therefore loci of points equidistant from two adjacent generator points, or equidistant from three adjacent generator points at boundary junctions. If adjacent generator points are joined to each other, a tessellation results which is the dual of the Voronoi diagram and is called Delaunay triangulation. These dual tessellations have been studied and used in an extraordinarily wide range of different applications. These include anthropology, archaeology, astronomy, biology, cartography, crystallography, ecology, forestry, geography, geology, marketing, metallography, meteorology, operations research, physics, physiology, statistics, and urban and regional planning, as well as being the subject of more generic research in pattern recognition, image processing and computational geometry. This reflects the very fundamental con-

cepts underlying Voronoi diagrams and Delauney tessellations. The ordinary Voronoi diagram in the Euclidean plane has been generalised in several ways. These include extensions to three or more dimensions, differential weighting of points, the use of non-Euclidean distance metrics, the inclusion of obstacles in the space, and extending the concept of a generator point to lines. The point sets may be derived from empirical observation, and for many applications no assumptions or measurements of the general distribution of points are made. However, powerful extensions to the ordinary Voronoi diagram arise when the points are located in space according to some probabilistic distribution, particularly the Poisson point process.

This is a superbly written book which makes easy reading. Fifty pages of the first chapter are devoted to mathematical preliminaries, which make the book particularly suitable for teaching courses. This section could be omitted by many readers, but no-one should skip the short history of the concept of the Voronoi diagram at the beginning of the introduction. The second chapter covers the formal definitions and basic properties of the Voronoi diagram and the Delauney tessellation. It also discusses the extensions of the Delauney triangulation into related graphs which include the Gabriel graph, the relative neighbour graph, and the Euclidean minimum spanning tree. Extensions of the Voronoi diagram are covered in depth in chapters 3 and 5.

Algorithms for constructing the Voronoi diagram in two dimensions are discussed in detail and with remarkable clarity. Less work has been done in higher dimensions, and a more thorough coverage of computational methods for constructing the Voronoi diagram in three or four dimensions would be useful.

The latter part of the book shifts the emphasis towards applications, particularly spatial interpolation, models of spatial processes, point pattern analysis and locational optimisation. A wide range of examples of practical applications of the techniques is presented in these chapters, and this provides a fascinating insight into the generic nature of the concepts. One moves, for example, from the approximation of surfaces, to analysis of the spatial arrangement of molecules in solution, to the distribution of counties in Ireland, to measuring the extent to which an empirical point distribution deviates from randomness, to the distribution of mouth breeder fish, etc!

The literature relating to Voronoi diagrams and Delauney tessellations has accelerated rapidly in the past ten years. While some of this expansion is certainly due to true extensions of the concepts, there has also been poor communication between the many different disciplines. The present volume is a landmark in bringing together a large body of literature in a first class review. I stressed above that this is a superb teaching book, but it is also an outstanding reference book and is very well indexed. Every department should have a copy.

A C F Colchester,  
(Department of Neurology, UMDS Guy's Hospital  
London, SE1 9RT, UK)



## CONFERENCE REPORTS

### **8th International Conference on Image Analysis and Processing** *San Remo, Italy 13-15 September 1995*

The 8th ICIAP was held in the holiday resort of Sanremo in Liguria, Italy. The general chairs were Carlo Braccini, Leila De Floriani, and Gianni Vernazza from the University of Genova. The conference had over 150 participants from all over the world. Of 180 submitted papers 108 had been accepted, either as oral or as poster presentations. The poster presentations dominated, as there were five poster sessions with a total of 74 papers. The reasonably high rejection rate had made sure that the average quality of the contributions was good.

There were six invited speakers. Anil Jain spoke about texture analysis, and one of his main points was that texture should always be used together with other features, as texture alone has been remarkably unsuccessful in solving image analysis tasks. Horst Bunke spoke about graph matching applied to image analysis; Linda Shapiro spoke about scene analysis for multiple non-polyhedral object; Martin Levine spoke about segmenting 3D objects into a limited set of geons; George Nagy spoke about document image analysis, past and present, and was even bold enough to state that there are such animals as solved problems! Finally, Arun Netravali spoke about visual communication.

The Italian chapter of the IAPR has created a special prize of 2 million Italian lire in memory of the Italian pioneer in the field of pattern recognition, Professor Edoardo Caianiello, who died recently. The prize was presented for the first time in Sanremo, to the best contribution to the conference. It went to the robot vision paper "Sensor planning techniques and active visual inspection" by Vito Roberto at the University of Udine, Italy and Emanuele Trucco at Heriot-Watt University, United Kingdom. The paper addresses the problem of computing an optimal sequence of positions on the view-sphere, from which a robot-mounted sensor can accomplish an inspection task.

The welcome reception took place at Villa Nobel, the Sanremo home of Alfred Nobel, father of the Nobel prizes. The small, half-page, hand-written testament instituting the famous award was on display in the villa. A tasty and varied buffet was provided. Experienced conference goers like myself were quite impressed by the fact that there was more food on the buffet than even a crowd of hungry pattern recognition researchers could consume. That could only happen in Italy!

The conference banquet was held on the roof of the Department of Applied Statistics of Sanremo (also known as the Casino)! It seems Casinos do not understand the habits(!) of scientists, so quite a few young men had to borrow jackets before being allowed into the dining room! With a short, single exception (the Caianiello prize and the announcement that the next ICIAP will be held in Florence in Sept. 1997), the excellent dinner was uninterrupted by speeches. The floor show was flashy and loud, and the dancers mostly noticeable for their many quick costume changes. I do not know how

the evening ended, because after coffee the "music" volume became so painful that I had to leave. However, a number of next generation researchers seemed to greatly enjoy themselves at this stage.

All in all, the 8th ICIAP was a very enjoyable event, both from the scientific and the social point of view.

*Gunilla Borgefors*  
*Swedish University of Agricultural Sciences, Uppsala*

**PS:** Conference Proceedings: Lecture Notes in Computer Science 974: Image Analysis and Processing, Springer, Eds. C. Braccini, L. DeFloriani, G. Vernazza, Berlin 1995, ISBN 3-540-60298-4

### **The International Digital Signal Processing Conference DSP 95** *Cyprus 26-28 June 1995*

Did you miss it? If yes you should regret it! If you do not regret it for the scientific content, you should regret it for the atmosphere! We all spend several weeks a year locked in our niches inventing (and more often than we care to admit) re-inventing wheels. Don't we deserve for 3 days a year to go somewhere where we shall meet each other, to see the face behind the name and the person behind the email messages we receive? Don't we deserve to be allowed to talk and philosophize in a relaxed atmosphere in an easy going way, where each one is allowed to say whatever they have to say without nasty referees' comments, critical views and "why didn't you reference me"- or "why didn't you compare your method with that"-type of comments on unsigned forms of superficially reviewed papers? I think we do! So, many of us shamelessly trooped to Cyprus last year again to take part to DSP'95, where a lot of the papers were accepted without reviewing, where session D was held in the swimming pool and where friendships and ties were created and strengthened in an unparalleled way, both in the scientific and the personal level!

The conference was the 26th in a series with the last two having been held in Cyprus. It was organised in the form of special sessions where papers were solicited and REFEREED with the papers rejected from these sessions still accepted for the general session. There were some excellent invited talks given by Panos Papamichalis (from Texas Instruments USA) on Multimedia, Fred Harris (from San Diego State University, USA) on Adaptive Equalizers, T Q Nguyen (from University of Wisconsin, USA) on Filter Banks and Wavelets and A Katsaggelos (from Northwestern University, USA) on Very Low Bit Rate Video Coding, with the keynote lecture given by A Papoulis (yes, THE Papoulis!).

For 3 days the participants had a taste of Paradise on Earth: Perfect organisation! Perfect environment! Perfect food (in fact piles of it)! Perfect people (from the efficient dealing with administrative matters to the simple gesture of the Larnaca post office clerk who paid for my stamps as I had not enough cash)! There were also some very lucky people with



us too: we had two small accidents that resulted in broken limbs! Indeed, if you are going to have a broken bone, you might as well have it in such a place, in such an atmosphere! However, I can assure you that these accidents were neither the result of our wild dancing in the Greek taverna on the banquet night, nor did they happen during the feast we had almost on the top of the Berlin-like wall that divides Nicosia, the capital of Cyprus, in two parts, due to the Turkish occupation of the north of the island. They did not even happen due to our out of tune singing in the fish taverna the last night of the conference! As I said before, they happened simply due to the personal good fortune of these two participants!

Maria Petrou



*Some fish singing ... where else?  
In the fish Taverna, of course!*

### **Report on the First International Workshop on Graphics Recognition**

*Penn State Scanticon 9-11 August 1995*

This workshop was sponsored by the International Association for Pattern Recognition's Technical Committee on Graphics Recognition (TC-10) and was supported by grants from the US Federal Government and Industry. The goal of the workshop was to bring together researchers from around the world to assess the state-of-the-art in topics such as raster-to-vector conversion, recognition of graphical primitives and symbols, text/graphics segmentation, automated analysis and interpretation of engineering drawings, maps, forms, and tables. 31 papers were presented by researchers from 12 countries. Workshop attendance was limited to 75 persons to promote closer interaction among participants.

The workshop was organized into five sessions with each session beginning with an invited talk assessing the state-of-the-art followed by short research presentations and concluding with a panel discussion to identify important open research problems and suggestions for future research directions. A keynote talk on the commercial value of graphics recognition technology was presented by Dr. Clifford Kottman of Intergraph.

A contest to determine the best algorithm for detection of dashed lines in drawings was also organized. Formal performance evaluation protocols and metrics were used to test

the accuracy of detection and representation of dashed lines. The team headed by Dr. Dov Dori from Technion, Israel received the award in this contest. This kind of contest was quite a novel idea we experienced with at this workshop. A lot of work was put into the performance analysis program and the contest data generation, and we think there will be other contests of this kind in the future, as they seem to contribute to increased awareness about the performance characterization aspect of work in our areas, and can lead to real, objective comparisons between methods developed by different research groups.

Not to be outdone by this contest, a volleyball match in which many participants enthusiastically participated was held during a picnic at the Stone Valley Recreational Area, at the end of the workshop.

We are now preparing a post-workshop book with selected papers from the workshop and some other contributions. Evaluation of the different articles is completed, and instructions for final papers are sent out these days, for publication in the Lecture Notes in Computer Science series.

We are also discussing the possibility to hold a similar workshop in 1997, just before (or just after) ICDAR'97 in Ulm.

Rangachar Kasturi, Penn State University  
Karl Tombre, INRIA Lorraine & CRIN/CNRS

PS The proceedings will be published in May 1996 in the Springer Verlag's Lecture Notes in Computer Science Series with the title: Graphics recognition: Methods and Applications, edited by Tombre and Kasturi.



*Winner of the Dashed-Line Detection Algorithm Contest.  
Prof Dov Dori receiving the award from Dr Clifford Kottman.*

### **Third International Conference on Document Analysis and Recognition**

*Montreal, Canada 14-16 August 1995*

The IAPR Conference ICDAR'95 was hosted by General Chair, Prof. C. Y. Suen, Concordia University. The number of participants from 25 countries ran up to 437, and exceeded those of the two predecessors, ICDAR'91 held at



Saint-Malo, France and ICDAR'93 at Tsukuba, Japan. It should be noted that more than half of the participants came from outside North America, with roughly a quarter coming from Europe and another quarter from Asia. Thus ICDAR'95 was really a worldwide forum for document analysis/recognition. Besides, it should also be noted that about 180 participants were from companies, so ICDAR'95 served as a junction point between academic and industrial societies.

Dr. P. E. Baier from Universitaet Mannheim in Germany gave the Keynote Speech entitled "Image Processing of Forensic Documents" which was an overview of the potential application of the document analysis/recognition techniques.

From about 330 papers submitted, 12 long papers, 169 short papers and 96 posters were accepted. The quality of the papers is quite high and they stimulated enthusiastic discussions among the participants in every session.

The topics of oral sessions were as follows: Document Structure Analysis, Model-based Document Analysis, Layout Analysis, Skew Detection and Processing, Image Processing Techniques, Segmentation, Word and Character Recognition, Handwritten Character Recognition, On-line Recognition, Signature Verification, Drawing and Map Recognition, Map Interpretation, Symbol Recognition, Theoretical Approaches and Music Recognition, Modelling Methods, Learning, Neural Networks and Systems, Postprocessing, Application Systems, Database and Document Retrieval, Storage and Retrieval.

These topics were discussed in 36 oral sessions and poster sessions. Oral sessions were arranged in four parallel tracks because of the limited schedule. From the papers presented in the Poster Sessions, the following three papers were awarded prizes: "Building a Perception Based Model for Reading Cursive Script" by Myriam Cote, Eric Lecolinet, Mohamed Cheriet and C. Y. Suen, "Data Capture from Maps Based on Gray Scale Topographic Analysis" by Oivind Due Trier, Torfinn Taxt and Anil K. Jain, and "A Trainable, Single Pass Algorithm for Column Segmentation" by Donald Sylwester and Sharad Seth.

Alongside the Poster Sessions, demonstrations related to the papers were held using PC's or Workstations, so the audience could recognize and evaluate the achievements more quantitatively and qualitatively.

Character recognition techniques discussed now refer to the word level, including cursive script, rather than to the level of pre-segmented characters. Separation of touching characters and extraction of characters from complex backgrounds are also current problems. These problems formed, of course, the main themes of many sessions. Techniques of document analysis and map interpretation, incorporating character/symbol recognition as well as theoretical considerations and applications were also important aspects in the conference.

ICDAR is the largest forum worldwide for the introduction and exchange of academic and industrial ideas in these areas of research. There is no doubt that the research and applications in these fields will proliferate much more in coming years.

Finally, representing all participants, I want to express our

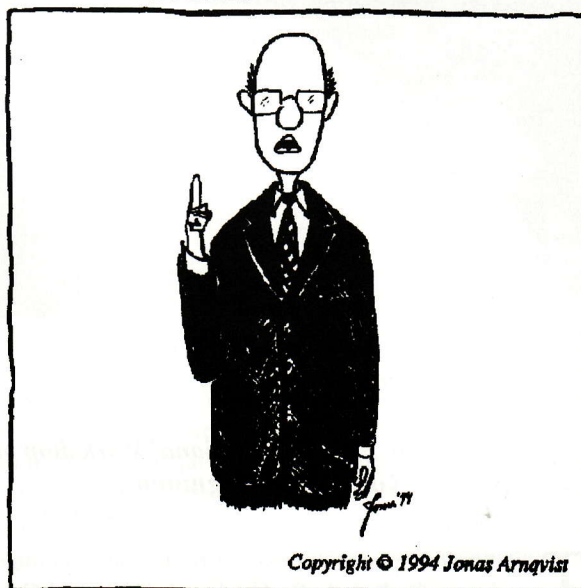
appreciation for the labor and hospitality of the Local Arrangement Committee at Montreal.

The next conference, ICDAR'97, will be held on 18-20 August 1997 at Ulm, Germany, hosted by Prof. J. Schuermann, Daimler-Benz who will be the General Chair. ICDAR'99 will be held on 4-6 October 1999 at Bangalore, India. Prof. Srihari, from SUNY Buffalo, will serve as the General Chair.

Yasuaki Nakano  
Shinshu University

PS: The Proceedings (ISBN 0-8186-7128-9) are published by the IEEE Computer Society Press, with order number PR07128. The abstracts of the accepted papers can be read electronically on <http://info.computer.org>

### FUZZY PICTURES



"The report concludes there are no known cases where long term exposure to computer displays have resulted in pregnancy"

### The answers to the Competition Crossword of Vol 17 No 3 (Nobody solved it!)

#### ACROSS

1 CONVOLUTION 7 HUE 10 CCD 11 MRI 12 PRL 13 NAYAR  
17 BRANCH AND BOUND 20 POLYTREE 22 ICPR 23 TC 24 LUT  
25 SHAPE 26 OCR 27 LF 29 KERNEL 32 PARIS 35 HOUGH 37 BEIJING  
39 INSA 41 USER 42 MAHALANOBIS 43 ANN 44 FISHER  
48 VLIELAND 50 CONE 51 ITALY 52 VOXEL 57 CITY BLOCK 58 SAR  
59 SAKAI 60 FU

#### DOWN

2 VORONOI 3 TC 4 ICON 5 OD 6 DM 7 HILBERT 8 BRODATZ  
9 KNN 14 IR 15 TANIMOTO 16 GUNILLA 17 BAYES 18 AERIAL  
19 PRUNE 21 EYE 28 FREEMAN 30 LENA 31 CHARACTER 33 SIMON  
34 LNKANAL 36 GIBBS 37 BLUR 38 JERUSALEM 40 LMSE  
42 MARKOV 44 FFT 45 CANNY 46 DCT 47 PETROU 48 VAX 49 DC  
53 OJA 54 LCD 55 ROC 56 IA 57 IRIS



## CONFERENCE ANNOUNCEMENTS

### **MVA'96: IAPR Workshop on Machine Vision Applications**

12-14 November 1996 Tokyo, Japan

The workshop is sponsored by the IAPR MVA Organizing Committee and co-sponsored by Keio University. The purpose of the workshop is to bring together researchers and practitioners from both academia and industry, and to exchange their knowledge and stimulate each other through intensive discussions on the following research topics:

**Machine Vision Algorithms** Feature extraction, Range data and 3D analysis, Motion and/or Image sequence analysis, Neural network applications, Color image analysis, AI-based vision, Human interface, and related technologies.

**Industrial Applications** Factory automation, Disaster prevention and rescue, Security control, Navigation, Mobile robots, Civil and construction engineering, Agriculture/Forestry/Fishery, Other applications, and related technologies.

**Special Purpose Architectures** Intelligent sensors, VLSI image processor chips, Massively parallel processing, Architectures for 3D and/or motion processing, Image processing systems, Software environment for image processor, and related technologies.

**Document, Map and Line Drawing Processing** Document image processing, Drawing recognition, Multimedia database, Map and engineering drawing database, Map processing and map-based systems, 3D reconstruction from maps or drawings, and related technologies.

Submit four copies of an extended abstract of 500-1000 words with at least one main figure to the address on p 10. The abstract should contain the following on the first page: 1) Title of the paper 2) Name(s) and affiliation(s) of the author(s) 3) Name and address of the person to be contacted, and also his/her phone/fax number(s) and E-mail address if available 4) Answers to the following questions: a) What is the original contribution of this work? b) Why should this contribution be considered important?

<b>Deadline for paper submission</b>	<b>15 May 1996</b>
<b>Notification of acceptance</b>	<b>15 July 1996</b>
<b>Deadline for camera-ready copy</b>	<b>13 September 1996</b>

### **30th Hawaii International Conference on Systems Sciences (HICSS'97) Minitrack on Engineering Complex Computer Systems**

7-10 January 1997 Maui, Hawaii

Submit 6 copies of the full paper, consisting of 20-25 pages double-spaced including title page, abstract, references and diagrams by June 1, 1996 to the address on p 10. Papers are solicited on all major aspects of Engineering Complex Computer Systems, including specifying, designing, prototyping, building, testing, operating, maintaining, and evolving of complex computer systems.

### **WACV '96, Third IEEE Workshop on Applications of Computer Vision**

2-4 December 1996 Sarasota, Florida, USA

Four copies of complete manuscripts (no more than 6 pages in IEEE format) in final camera ready form to the address on p10 by May 31, 1996.

### **IAPR TC-12 workshop on Multi Media and Image Communications**

22-23 August 1996 Amsterdam, The Netherlands

**Topics:** Image stills and video databases, Indexing by content, Video segmentation, Pictorial query and retrieval definition, Efficient data structures for image retrieval, Interactive video search, Video on demand, Hyper-links in multi media document, Continuous media synchronization, Search strategies for multi-media browsing, Compression and video browsing.

Send 3 copies of an extended abstract (2-3 pages) before 1 April 1996, by post or electronically (in PostScript) to the address on p 10. Include the title, name(s) of the author(s), affiliation, address, telephone, fax, and E-mail. An arrangement has been made with the editors of Pattern Recognition Letters to assemble a special issue on "computational aspects of multi media search" from a selection of the conference papers. The same arrangement will be considered for papers on "multi media systems" for the IEEE Multi Media.

<b>Deadline for paper submission</b>	<b>1 April 1996</b>
<b>Notification of acceptance</b>	<b>1 June 1996</b>
<b>Deadline for camera-ready copy</b>	<b>1 July 1996</b>

### **SCIA'97: 10th Scandinavian Conference on Image Analysis [IAPR]**

9-11 June 1997 Lappeenranta, Finland

The city of Lappeenranta is situated some 200 km east of Finland's capital, Helsinki, and about 230 km northwest of St. Petersburg in Russia. In addition to the SCIA'97 there is a satellite conference in St. Petersburg in June 12-13, 1997. Transportations to St. Petersburg and return to Lappeenranta are organized.

**Conference topics:** Image analysis, Industrial applications, Computer vision, Multimedia, Pattern recognition, Biomedical applications, Neural networks, Remote sensing, Systems and architectures, Future technologies.

Send three copies of a full paper to the address on p 10. The cover page must contain: 1) Title of the paper, 2) Name(s), complete address(es) and email address(es) of the author(s), 3) Brief abstract (150-200 words), 4) Key words describing the main subject of the paper (3-5 words), 5) Author's opinion on whether the paper is most suitable for oral or poster presentation and 6) Name and address for correspondence. All pages should show the name of the first author and be consecutively numbered. The final length of the accepted papers will be eight book pages. The decision on oral or poster presentation will be taken solely on suitability, not on paper quality. The L<sup>A</sup>T<sub>E</sub>X and Word style files will be available by the anonymous ftp.lut.fi in the directory /pub/scia97.

<b>Deadline for paper submission</b>	<b>1 December 1996</b>
<b>Notification of acceptance</b>	<b>15 February 1997</b>
<b>Deadline for camera-ready copy</b>	<b>31 March 1997</b>

### **2nd International Conference on Automatic Face and Gesture Recognition (ICAFGR)**

14-16 October 1996 Killington, Vermont, USA

Four copies of the full paper, including figures and drawings not exceeding 6 pages (5500 words for a text without figures) should be submitted to the address on p 10 by April 30.



# *FORTHCOMING CONFERENCES, WORKSHOPS AND EVENTS*

1996	Event	Location	Contact
1 April IFS:SNA [IAPR]	Intelligent Feature Selection: Statistical and Neural Approaches	University of Sussex, Brighton, UK	Wael El-Deredy, Institute of Neurology, London WC1N 3BG, UK Tel. +44 171 837 3611 x4169, fax +44 171 278 7894, W.Elderedy@ion.bpmf.ac.uk
1-3 April DCC'96	Data Compression Conference	Snowbird, Utah, USA	dcc@cs.brandeis.edu, <a href="http://www.cs.brandeis.edu/dcc">http://www.cs.brandeis.edu/dcc</a>
7-10 May ICASSP-96	International Conference on Acoustics, Speech, and Signal Processing	Atlanta, Georgia, USA	M. Hayes, Digital Signal Processing Lab, Georgia Tech, School of ECE, Atlanta, GA 30332-0250, USA Tel: +1-404894-2958, mhh3@eedsp.gatech.edu, <a href="ftp://eedsp.gatech.edu/pub/icassp96">ftp://eedsp.gatech.edu/pub/icassp96</a> , <a href="http://www.ee.gatech.edu/conferences/icassp96">http://www.ee.gatech.edu/conferences/icassp96</a>
21-24 May VI'96	Vision Interface'96	Toronto, Canada	Professor Wayne Davis, Department of Computer Science, University of Alberta, Edmonton, Canada T6G 2H1. davis@cs.ualberta.ca [IAPR]
3-6 July ICML'96	13th International Conference on Machine Learning	Bari, Italy	Jeff Schlimmer, School of Elec Eng & Comp Science, Washington State University, Pullman, WA 99164-2752, USA, icml96@di.unito.it, <a href="http://www.di.unito.it/pub/WWW/ICML96/home.html">http://www.di.unito.it/pub/WWW/ICML96/home.html</a>
8-11 July ADViCE '96	Advanced Digital Video Compression Engineering	Cambridge, UK	ADViCE '96, Conference Secretariat, EDA Exhibitions Ltd, 31/33 High Holborn, London WC1V 6BD, Fax: +44-171-831 2057, e-mail: 100142.1323@compuserve.com
4-8 Aug AAAI-96	13th National Conference on Artificial Intelligence	Portland, Oregon, USA	AAAI-96, American Association for Artificial Intelligence, 445 Burgess Drive, Menlo Park, CA 94025-3496, USA Tel: +1-415-328-3123, Fax: +1-415-321-4457, e-mail ncai@aaai.org, <a href="http://www.aaai.org">http://www.aaai.org</a>
4-9 Aug SPIE	Signal & Image Processing	Denver, Colorado, USA	PO Box 10, Bellingham, WA 98227-0010 USA Tel +1-360/676-3290, Fax +1-360/647-1445 e-mail: spie@spie.org, <a href="ftp://spie.org">ftp://spie.org</a> , <a href="http://www.spie.org">http://www.spie.org</a>
22-23 Aug IAPR TC-12	IAPR TC-12 Workshop on Multi Media and Image Communications	Amsterdam, The Netherlands	Conference Secretary, Faculty of WINS, Department of Computer Science and Logic, University of Amsterdam, Kruislaan 403, 1098 SJ Amsterdam, The Netherlands, +31 20 525 749, Fax: +31 20 525 746, idb-mms@fwi.uva.nl, <a href="http://www.fwi.uva.nl/research/idb-mms/">http://www.fwi.uva.nl/research/idb-mms/</a>
25-30 Aug 13-ICPR	13th International Conference on Pattern Recognition	Vienna, Austria	c/o Austropa Interconvention, A-1043 Vienna, POB 30, Austria. icpr@prip.tuwien.ac.at <a href="http://www.prip.tuwien.ac.at/icpr/icpr.html">http://www.prip.tuwien.ac.at/icpr/icpr.html</a> [IAPR]
1-4 Sep DSPWS 96	1996 IEEE Digital Signal Processing Workshop	Loen, Norway	Kirsten Ekseth, Dept. of Telecomm., NTH, Bragstads Plass 2, N-7034 Trondheim, Norway, Tel: +47 73594318, Fax: +47 73592640
2-3 Sept TC7, TC8	IAPR Workshops on Remote Sensing & Applications in Industry	Graz, Austria	Axel Pinz, Technical University Graz, Institute for Computer Graphics, Muenzgrabenstrasse 11, A-8010 Graz, Austria, pinz@icg.tu-graz.ac.at, <a href="http://tu-graz.ac.at/workshops/IAPR/welcome.html">tu-graz.ac.at/workshops/IAPR/welcome.html</a>
4-5 Sep WIVC	Wireless Image/Video Communications	Loughborough, UK	Prof H Gharavi, Dept of Elec Engin, Univ of Technology, Loughborough, Leicestershire, LE11 3TU, UK
5-6 Sep 5-IPMOR	Time-varying Image Processing and Moving Object Recognition	Florence, Italy	Prof. Vito Cappellini, Dipartimento di Ingegneria Elettronica, Via di S. Marta 3, 50139 Firenze, Italy, Tel: +39-55/4796279/484108, Fax +39-55/461701/494569, E-mail: CAPPELLINI@INGF11.ING.UNIFI.IT
9-12 Sept BMVC	British Machine Vision Conference	Edinburgh, UK	Mrs Judith Gordon, Department of Artificial Intelligence, University of Edinburgh, 5 Forrest Hill, Edinburgh EH1 2QL, UK Tel: +44 131 650 3094, Fax: +44 131 650 6899, BMVC96@aifh.ed.ac.uk, <a href="http://peipa.essex.ac.uk">http://peipa.essex.ac.uk</a>



# FORTHCOMING CONFERENCES, WORKSHOPS AND EVENTS

1996	Event	Location	Contact
11-13 Sep DAGM	DAGM Mustererkennung (Pattern recognition) 1996	University of Heidelberg, Germany	Prof. Dr. Bernd Jaehne, Interdisciplinary Center for Scientific Computing, University of Heidelberg, Im Neuenheimer Feld 368, D-69120 Heidelberg, Phone: +49 6221 548827, <a href="mailto:bjahne@giotto.iwr.uni-heidelberg.de">bjahne@giotto.iwr.uni-heidelberg.de</a>
15-18 Sep WCNN '96	International Neural Network Society Annual Meeting	San Diego, California, USA	WCCN'96, 875 Kings Highway, Suite 200, Woodbury, NJ, USA +1-8096-3172, <a href="http://cns-web.bu.edu/inns">http://cns-web.bu.edu/inns</a>
16-19 Sept ICIP-96	1996 International Conference on Image Processing	Lausanne, Switzerland	Pr. Henri Maitre, ICIP-96/Dept IMA, Ecole Nationale Supérieure des telecommunications, 46 Rue Barrault, 75 634 Paris Cedex 13, France. <a href="mailto:auric@ltssg4.epfl.ch">auric@ltssg4.epfl.ch</a> <a href="http://ltswww.epfl.ch">http://ltswww.epfl.ch</a>
14-16 Oct DAS96	IAPR Workshop on Document Analysis Systems	Malvern, Pensylvania, USA	Suzanne Liebowitz Taylor, Loral Defense Systems-Eagan 70 E Swedesford Rd, Paoli, PA 19301-0517, USA <a href="mailto:das@vfl.paramax.com">das@vfl.paramax.com</a> and <a href="http://www.vfl.paramax.com/das/">http://www.vfl.paramax.com/das/</a>
14-16 Oct ICAFGR	2nd International Conference on Automatic Face and Gesture Recognition	Killington, Vermont, USA	Ms. Karen Navarro, Room E15-383, The Media Laboratory, Massachusetts Institute of Technology, 20 Ames Street, Cambridge, MA 02139 USA, Tel: +1-617-253-0872, Fax: +1-617-253-8874, <a href="mailto:fg96@media.mit.edu">fg96@media.mit.edu</a> , <a href="ftp://whitechapel.media.mit.edu/pub/conferences/ICAFGR96">ftp://whitechapel.media.mit.edu/pub/conferences/ICAFGR96</a> , <a href="http://fg96.www.media.mit.edu/conferences/fg96">http://fg96.www.media.mit.edu/conferences/fg96</a>
29-31 Oct ICSPAT '96	7th Conf on Signal Processing Applications & Technology	Santa Clara, CA, USA	DSP Associates, 49 River Street, Waltham, MA 02154, USA Tel: +1-617-891-6000, Fax: +1-617-899-4449, e-mail: <a href="mailto:icspat@dspnet.com">icspat@dspnet.com</a>
31 Oct-3 Nov EMBS 96	18th Annual International Conference of IEEE En- gineering in Medicine and Biology Society	Amsterdam, The Netherlands	Basics International Conference Services, University of Twente, Po Box 217, 7500 AE Enschede, The Netherlands, Fax: +31-53-4356770, <a href="mailto:embs96@basics.utwente.nl">embs96@basics.utwente.nl</a> , <a href="http://uro01.azn.kun.nl:8000/embs96/">http://uro01.azn.kun.nl:8000/embs96/</a>
12-14 Nov MVA'96	IAPR Workshop on Machine Vision Applications	Tokyo, Japan	Prof. Mikio Takagi, Institute of Industrial Science, University of Tokyo, 7-22-1 Roppongi, Minato-ku, Tokyo 106, JAPAN, Tel: +81-3-3479-0289, Fax: +81-3-3402-6226, <a href="mailto:takagi@tkl.iis.u-tokyo.ac.jp">takagi@tkl.iis.u-tokyo.ac.jp</a> , <a href="http://www.etl.go.jp:8080/etl/gazo/mva96/">http://www.etl.go.jp:8080/etl/gazo/mva96/</a>
19-22 Nov 4-CIC	The Fourth Color Imaging Conference	Scottsdale, Arizona, USA	Michael Stokes, Hewlett Packard, 1501 Page Mill Road, Palo Alto, CA 96304, USA. Tel: +1-415-857-3908, Fax: +1-415-857-4320, e-mail: <a href="mailto:stokes@hpl.hp.com">stokes@hpl.hp.com</a>
2-4 Dec WACV '96	Third IEEE Workshop on Applications of Computer Vision	Sarasota, Florida, USA	Dr. Raj Talluri, Texas Instruments, Corporate Research & Development, P.O. Box 655474, M/S 238 Dallas, TX 75265, USA. <a href="http://www.ee.vt.edu/wacv96">http://www.ee.vt.edu/wacv96</a>
1997	Event	Location	Contact
7-10 Jan HICSS'97	30th Hawai International Conference on Systems Sciences	Maui, Hawaii	Alberto Broggi, Dipartimento di Ingegneria dell' Informazione, Università di Parma, Viale delle Scienze, I-43100 Parma, Italy, <a href="mailto:broggi@CE.UniPR.IT">broggi@CE.UniPR.IT</a> , Fax: +39-521-905723, <a href="http://WWW.CE.UniPR.IT/hicss/eccs">http://WWW.CE.UniPR.IT/hicss/eccs</a>
4-6 June PRP-V	Pattern Recognition in Practice V	Vlieland, The Netherlands	Dept. of Medical Informatics, Erasmus University, P.O. Box 1738, 3000 DR Rotterdam, The Netherlands tel: +31 10 4087050; fax: +31 10 4362882; e-mail: <a href="mailto:prp5@mi.fgg.eur.nl">prp5@mi.fgg.eur.nl</a>
9-11 June SCIA'97	10th Scandinavian Conference on Image Analysis [IAPR]	Lappeenranta, Finland	SCIA'97, Department of Information Technology, Lappeen- ranta University of Technology, P.O.Box 20, FIN-53851, Lappeenranta, Finland, Fax: +358 53 621 3456, Email: <a href="mailto:SCIA97@lut.fi">SCIA97@lut.fi</a> , WWW: <a href="http://www.lut.fi/scia97">http://www.lut.fi/scia97</a>



# YEAR AT A GLANCE CONFERENCE PLANNER

Contact Addresses Pages: 10-11 Previous Reports are shown in Brackets (volume, number)

• = submission date □ = final camera ready copy numbers = actual meeting dates

Conference	Location	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	March
ICASSP-96	Atlanta		7-10										
VI'96 (v17n3)	Toronto		21-24										
EUROPTO (v18n1)	Micropolis		□ 13	10-14									
CVPR'96 (v18n1)	San Francisco			16-20									
BIOSIGNAL'96 (v18n1)	Brno	□ 15		25-27									
LASR (v18n1)	Leeds		□ 1		3-5								
ICML'96	Bari	□ 6			3-6								
ADViCE'96	Cambridge	• 12	□ 15		8-11								
ISPRS'96 (v17n4)	Vienna				9-19								
AAAI-96	Oregon					4-8							
SPIE	Colorado					4-9							
SSPR'96 (v17n3)	Leipzig		□ 20			20-23							
IAPR TC-12	Amsterdam	• 1			□ 1	22-23							
13-ICPR	Vienna		□ 15			25-30							
1996 IEEE DSP	Norway		□ 15				1-4						
TC7, TC8	Graz						2-3						
5 IWFHR (v17n3)	Colchester	□ 20					2-5						
WIVC	Loughborough	• 15			□ 15		4-5						
5-IPMOR (v17n4)	Florence						5-6						
BMVC	Edinburgh	• 29			□ 8		9-12						
EUSIPCO (v18n1)	Trieste	□ 30					10-13						
DAGM	Heidelberg			□ 28			11-13						
WCNN'96	California						15-18						
ICIP'96	Lausanne		□ 31				16-19						
VBC'96 (v18n1)	Hamburg						22-25						
EUROPTO (v18n1)	Taormina					□ 30	23-27						
ICGI-96 (v18n1)	Montpellier	• 1			□ 15		25-27						
ICEVS'96 (v17n4)	Rodos	• 1				□ 1		13-16					
DAS96	Pennsylvania	• 1				□ 15		14-16					
ICAFGR	Vermont	• 30						14-16					
SMC (v17n3)	Beijing			□ 1				14-17					
ICSPAT'96	California							29-31					
EMBS96	Amsterdam		• 1					31-	3				
AOII (v18n1)	China	• 9				□ 13			4-7				
MVA'96	Tokyo		• 15				□ 13		12-14				
4-CIC	Arizona	• 4							19-22				
WACV'96	Florida		• 31			□ 31				2-4			
HICSS'97	Hawaii			• 1				□ 1			7-10		
PRP-V	Vieland								• 1				
SCIA'97	Lappeenranta										• 1		□ 31

The views presented in this newsletter represent the personal views of the authors of the respective articles and not of IAPR or their host Institutes.