



International Association for Pattern Recognition Inc

An affiliate member of the International Federation for Information Processing

NEWSLETTER

Editor

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From the Editor's Desk

Dear Everybody,

The quality of papers in conferences is often discussed, with single-track high-rejection rate conferences priding themselves for the moral high ground. The issue is sometimes discussed within the ranks of IAPR with respect to ICPR acceptance rates. It is all very well to insist on high standards and high rejection rates, (as long it is not your paper that is rejected), but who can choose the thresholds in our classification task? Who will train the network and take care of the outliers? Who can read the future and harden the fuzzy boundaries? And who could say with confidence what may or may not lead to what? Could Einstein have produced his work on his own? Didn't he need the armies of researchers like you and me who tried hundreds of things and failed before him? Can you grow a tree with a single root and a single branch that will bear the golden apple one day?

Of course, not every student who fails at the University becomes an Einstein and not everybody who is rejected by his fellow scientists and commits suicide is a Boltzmann. But for me, there is nothing more inspirational than sitting in a conference venue hearing a seemingly uninteresting paper. It gives me the chance to relax and wonder. It is impossible to say which paths the thought takes when it is occasionally prompted by the right words as the mind wakes up to listen from time to time. A paper which lacks scientific professionalism, is not necessarily void of ideas. A new idea, buried in an otherwise unprofessionally written paper may be the seed of the hundreds of ideas of tomorrow. A conference that brings together people from a diversity of interests is bound to be big and multi-track but it is also the place where cross-fertilisation of ideas may take place. Why then so much enthusiasm for single track conferences with 20% acceptance rate? Do their organisers feel that they have nothing to learn from the plebeian 80%? Do they really think that only their peers can trigger the magic button in their heads that will set in motion the gears of inspiration that will produce the golden apple at the end?

Maria Petrou

PS That was a broad hint to the organisers of the 14th ICPR so that they do not reject my paper!

After overwhelming popular demand, the ironing instructions for the ironing robot challenge, have been extended to include instructions for ironing trousers! Look at <http://www.ee.surrey.ac.uk/Personal/M.Petrou/ironing>.

News for Members

New GB member for Switzerland

The Swiss Association for Pattern Recognition has elected Professor Horst Bunke as its new President. Professor Bunke will replace Professor Kunt in the GB of IAPR. His contact details are: Universitat Bern, Langgassstrasse 51, Berne, CH 3012, Suisse. Tel: +41 31 631 4451, Fax: +41 31 631 3965, bunke@iam.unibe.ch.

New GB member for Canada

The new president of CIPPRS is Professor Denis Laurendeau who will replace Professor Suen in the GB of IAPR. Professor Laurendeau's address is: Dept de genie Electrique, Laboratoire de vision & systemes numeriques, Faculte des Sciences et de Genie, Universite Laval, Ste-Foy QC, G1K 7P4, Canada. Tel: +1 418 656 2979 Fax: +1 418 656 3594, laurend@gel.ulaval.ca.

New GB member for Hungary

The new Hungarian representative on the GB of IAPR is Dr Tamás Szirányi, the newly elected President of the Hungarian Association for Image Analysis and Pattern Recognition (KEPAF). Dr Szirányi replaces Professor Dmitry Chetverikov who served on the GB since the early 80's. Dr Szirányi is Senior Research Fellow at MTA SZTAKI, Budapest and Associate Professor at the University of Veszprem. (Tel: +36 1 2095265, Fax: +36 1 2095264, sziranyi@lutra.sztaki.hu, <http://www.sztaki.hu/sziranyi>).

The Hungarian IAPR Society (KEPAF)

Information on the Society and its recent activities can be found in:

http://silicon.terra.vein.hu:80/~kepaf/e_konf_info.html
<http://www.sztaki.hu/~sziranyi/kepaf/kepaf.vezetoseg.html>
<http://www.sztaki.hu/~sziranyi/kepaf/kepaf.bylaw.html>
http://silicon.terra.vein.hu:80/~kepaf/e_index.html

New chairperson of the PAMI Technical Committee

The new ex officio member of the US delegation to the IAPR GB is Steve Shafer who replaces Kevin Bowyer. Steve Shafer is with Microsoft Corporation, One Microsoft Way, Redmond WA 98052-6399, USA. (Tel: +1 425 703 1298, Fax: +1 425 936 0502, stevensh@microsoft.com).

CVonline

This is an on-line compendium of computer vision and can be accessed at:

http://www.dai.ed.ac.uk/daidb/staff/personal_pages/rbf/CVonline/CVentry.htm

It is the result of an ongoing project undertaken by Dr Robert Fisher of Edinburgh University. At the moment about 30% of the 650 entries have active pointers to contributions.

Elsevier journals and the web

Elsevier Science offers a free, pre-publication contents alerting service for its journals, ContentsDirect. Look at <http://www.elsevier.nl/locate/ContentsDirect>, <http://www.elsevier.com/locate/ContentsDirect>, or <http://www.elsevier.co.jp/locate/ContentsDirect>.

STUDENT PAPER PRIZES

The IAPR Education Committee has decided to have a new procedure in the selection of the Student Prize for the best student-authored paper of ICPR98.

"The papers submitted to ICPR98 for consideration for the Student Prize should have at most two authors (student alone or student + his/her supervisor). With their submission the author(s) should mention that the paper is a candidate for the Student Prize and in case of two authors the supervisor should certify that the paper is mainly the work of the student".

DIRECTORY CORRECTIONS

Professor Shi

New email address: sqy@pku.edu.cn

Dr Gabriella Sanniti di Baja

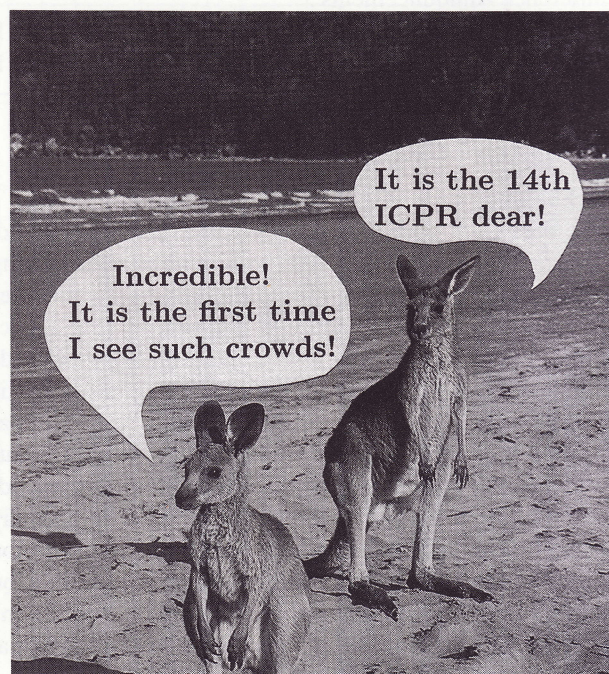
New email address: gsdb@imagm.cib.na.cnr.it

Dr Valev

Temporary address: Dr V Valev, Department of Radiology, University of Iowa, 200 Hawkins Dr 3984 JPP, Iowa City, IA 52242, USA. Tel: +1 319 356 8878, ventzeslav-valev@uiowa.edu

Dr Hirobumi Nishida, Chairman of TC-8

Change of address: Software Research Center, Ricoh Co Ltd, 1-1-17 Koishikawa, Bunkyo-ku, Tokyo 112, JAPAN Tel: +81-3-3815-7261, Fax: +81-3-3818-0348, hn@src.ricoh.co.jp



(Almost) Everything you wanted to know about the PATENT AND DESIGN LAW (and you did not know whom to ask!)

Report from an IEE lecture given by David Knight, at Surrey University on 29/10/97

Patent and design law is a subset of law relating to Intellectual Property Rights. It clearly differs from one country to the other, but the information given below is pretty general.

There are several ways by which you can protect your intellectual property, and those are outlined here.

Patents: A patent is basically a state-granted 20 year monopoly. It is designed to protect a company's investment in Research and Development and also aids in dissemination of information. New ideas must be completely defined in the patent, so although you have the monopoly, when it runs out, everyone else knows exactly how your product works. Other people may of course read your patent application and this gives them ideas for other designs.

On average, a patent application is 10-20 pages long but it may be longer or shorter. Figures and diagrams are extremely important. The application must include three parts:

1. Introduction, including discussion of the state of the art
2. Technical Specification
3. Claims

The technical specification should be sufficient for the "test" man with skill but no creative mind to build the object. The claims should generally be narrow enough to avoid conflicts with prior art but wide enough to cover all developments in the following 20 years. This is the most difficult part to consider when making an application. Also, consideration must be given to definitions such as "fast" or "small", because these are relative terms and their meaning may change in a relatively short period of time, resulting in blurring the limits of the claim. The patent should represent a "new and inventive step" ie it should not be logical or obvious.

Maintaining a patent is expensive. It obviously varies from country to country, but in the UK an application may cost about £2-3k and up to £25k+ for the world. The trouble is that it is up to the individual to prosecute on infringements, and the legal costs involved may be prohibitive.

Copyright: Copyright is automatic and lasts for the duration of your lifetime plus 70 years beyond. However, it protects your work against copying only, not against exploiting the ideas. It is typically used to cover circuit diagrams and software.

Semiconductor Topography Rights (STR): STR lasts for 15 years from creation or 10 years from first commercial use, whichever is shorter. The problem with STR is that normally designs are built from repeated simple blocks and therefore STR exists to cope with the argument that the arrangement of the blocks would have been obvious.

Design Rights: No application is required and these rights last for the same period as STR. They protect against copying.

Registered Designs: They have to be applied for. They last for 25 years. With copyright, design rights and STR, we are talking about protection from duplication of a design. With a registered design we are talking about protecting a design even in cases when someone else may come up with it totally independently, having been locked in a room by themselves, for the last 20 years!

A registered design must be visually appealing. An example of a registered design is the coca-cola bottle. One of the uses of the principle of registered design is to prevent other people from manufacturing spare parts for your products.

Trade Marks: Trade marks last indefinitely and include names and logos. For example, Philips have recently applied for their 3 head shavers to be a trade mark. A rival company is fighting this claim under the principle that it is obvious - if the shaver has 2 heads, a stripe is left; using 3 heads is an obvious extension. A new area of law considered is the 3D trade mark.

Ownership of Rights: Who is the owner of any of the above rights? The employer, if the employee is acting in the course of employment. If the employee's contract is very wide to cover everything, then it may be unenforceable. For example, a doctor working in Accident and Emergency has an idea for a piece of equipment that is later patented by the hospital. If the doctor is not in a Research & Development position then the rights belong to him.

Commissioner/commissioned relationships: The commissioner owns the patent and the copyright, the commissioner owns the design rights, registered design and STR. This principle is chiefly used for software as it is typically commissioned.

How are claims decided ? At the end of the day the judge goes back to the "test" man, who has all the knowledge and skill in the world but no creative mind. Could he have come up with the idea for the design or process? Is it a logical extension of what is there already ? If yes, you cannot have any claim on it. If not, it is all yours to fight for protecting it!

*Lyndon Hill,
University of Surrey*

KING SUN FU PRIZE

The deadline for sending the nominations for the KS Fu Prize has been extended to January 15, 1998. More information can be obtained from Professor Freeman (freeman@caip.rutgers.edu), and the web page <http://www.ece.rutgers.edu/freeman/ksfprize.htm>.

The KS Fu Prize is the most prestigious prize for the Pattern Recognition Society and members are encouraged to make nominations so that the field of candidates is as strong as possible.

BOOK REVIEWS

Frequency Domain Filtering Strategies for Hybrid Optical Information Processing, by *C R Chatwin and R K Wang*, Research Studies Press, ISBN 0 86380 177 3 and John Wiley & Sons, ISBN 0 471 95743 7

This book is all about performing some simple Pattern Recognition tasks using Optical Computing. Let us consider the case when we wish to compute the correlation of two images. Suppose that the brightness function of one of the two images is realised as a tone image on a transparency. Let a parallel beam of light go through the transparency and then through a lens. The light will concentrate into one point, the focus, which does not depend on shifts of the image function along the transparency. Therefore, the focusing of light is invariant to shifts. Although this way the focus contains all the information of the image, it is a singular point, so it is not very useful. However, in practice, if monochromatic laser light is used, in the neighbourhood of the abstract focus, a small diffractive 2D picture will be formed, which under certain conditions can be the Fourier transform of the initial image! If we multiply this Fourier transform with the Fourier transform of another function, say a filter, and pass the result through another lens, we may obtain the correlation of the two functions. This idea was suggested in 1964 by A VanderLugt. The advantage of doing this operation with Optical computing is that it can be performed with the speed of light!

The problem however, is how to realize in practice the desired filter. The book explores the technical difficulties of the two options available, using photo-refractive material or spatial light modulators. The authors also try to find ways to design various filters for pattern recognition tasks for classes of objects, like Wiener filters, adaptive filters, synthetic discriminant functions, etc. This is really an open ended topic of research.

The book mostly comprises of discussions of the latest results of the authors' research. Unfortunately the book gives the impression that it was written hastily with no clear focus. It also contains many miss-prints that contribute to the impression of a hasty writing. Chapter 2 has the title: "Optical Pattern Recognition: Fundamentals". However, it is difficult to get the necessary fundamental information if you are not already familiar with the subject. Perhaps this is because this is a research study and not a tutorial text.

The book would be interesting for, and easily understandable by specialists. It is written with vivid language without digression revealing the haste of modern life of some people.

Alex Kadyrov,
Penza State University, Russia

"Dirac published eleven papers during the period 1939-46. It is not clear whether he knew Europe went through World War II." The full story is at xxx.lanl.gov in the physics archive under 9703017.
Contributed by *Reiner Lenz, Sweden*.

An Introduction to Interpretation of Graphic Images, by *Sergey Ablameyko*, SPIE Optical Engineering Press, ISBN 0-8194-2380-7, 165 pages

Once in a while a book is published that concentrates on one specialist area of this venerable field of Image Processing and Pattern Recognition. The occasion is usually a treat as such a book brings together diverse but related material. It would save many a researcher time, which would otherwise be spent looking up various standard (but less complete) textbooks, and a multitude of journal and conference papers. However, such books are not always as stand-alone as one would like them to be. This is unfortunately true on this occasion, in which we have a book on the interpretation of graphic images.

Just like there was once (and still is) a need to have OCR systems to understand text documents, there is a need to understand graphic types of documents. To generalise, these are referred to as line-drawing images. These include engineering drawings, document text recognition, graphics recognition eg topographic maps, etc.

The issue of fast inputting of line-drawing images into CAD or GIS systems is very important and can be facilitated through image processing. The problem initially involves the extraction of lines from gray level or colour images, followed by transformation into vector form, ready for application-based post processing. In vector form, not only do the data require less storage space, they make object manipulation tasks easier. These are some of the issues introduced in the first two chapters of this book. Image acquisition and binarisation are tackled in the next chapter. At first the author introduces a number of document scanners, but then is extremely brief on binarisation issues. Another short chapter covers binary image processing, including topics such as noise reduction, thinning and Medical Axis Transform.

Chapter 5 addresses the issue of image vectorisation which merely and briefly hints at some of the techniques that are available, eg for polygonal approximation. The next two chapters are the strong points of the book where two different applications (Cartographic Objects Recognition and Engineering Drawings Recognition) are discussed. Nevertheless, there are no elaborate descriptions of techniques or algorithms, only brief (there is that word again) overview of relevant issues. The final chapter is on output representation which, for example, compares the characteristics of various vector and ink jet plotters.

The author is tackling a very important problem but perhaps his undoubted expertise has clouded his judgement on the level of detail readers of such books would require. I believe the book can be best described as a brief tutorial. It covers the relevant topics but only very superficially and tells you just enough to give you a stepping stone into the world of the literature it references. So, the book will be very useful if you are working in the field of line-drawing interpretation and you are looking for pointers in the relevant literature.

Majid Mirmehdi,
University of Bristol, UK

CONFERENCE REPORTS

Statistical Techniques in Pattern Recognition (STIPR'97)

June 9–11, 1997 Prague

The STIPR'97 workshop was jointly organised by IAPR TC-1 on Statistical Techniques in Pattern Recognition (<http://www.utia.cas.cz/TC1/>), UTIA, the European Research Consortium for Informatics and Mathematics (ERCIM <http://www-ercim.inria.fr/>), and the Czech Pattern Recognition Society. The workshop was sponsored by ERCIM and UNIPETROL.

The meeting aimed to start a series of workshops in this "classical" area in which a recent revival of interest has been noticed not only from researchers in other branches of pattern recognition community but also from other disciplines of mathematics and informatics.

STIPR'97 was attended by 35 participants from fifteen countries, with six participants having come from outside Europe. Three invited lectures, one for each morning, were given by outstanding experts: Professor J Kittler (University of Surrey, UK), Dr Robert P W Duin (Delft University of Technology, The Netherlands), and Dr A Gagalowicz (INRIA, France). Thirty technical papers presented orally were grouped into four thematic blocks: Feature Selection and Extraction, Classification Methods, Neural Nets and Fuzzy Approaches, Applications. There was also a poster session.

The STIPR programme committee awarded a prize to the best student's paper. This was awarded to Van Mo Dang (University of Technology, Compiègne, France) for the paper "Fuzzy Clustering of Spatial Binary Data" by Van Mo Dang and Gerard Govaert. The prize for the best poster from the Czech Pattern Recognition Society was awarded to Gabi Peters and Norbert Krüger (Ruhr University of Bochum) for their paper "Learning Object Representations by Clustering Banana Wavelet Responses".

Selected papers will also appear in the special June 98 issue of the scientific journal *Kybernetika*.

According to the opinion of many participants from abroad the presented papers were of very high quality. Lively discussions outside the sessions helped to stimulate new promising collaborations of researchers from various countries.

No less successful appears to have been the social programme. Its highlight was represented by a sightseeing tour through Prague in a historical tram followed by a guided walking tour through the oldest parts of the city. The thirsty participants finished the second day of the workshop in the Romanesque Royal Banquet Hall.

Our main objective was achieved - the community of researchers working in various aspects of statistical pattern recognition has been strengthened and new important scientific links have been created. We are already preparing papers for the STIPR'98 which will take place in Sydney, Australia 11–13 August 1998 (<http://www.cse.unsw.edu.au/amin/spr98.html>).

Pavel Pudil and Michal Haindl

International Conference on Document Analysis and Recognition (ICDAR'97)

August 18–20, 1997 Ulm, Germany

Since the first ICDAR conference six years ago, considerable progress has been made in the field of document analysis and recognition. The fourth ICDAR was hosted by Professor Juergen Schuermann. The 3 day, 3 track conference attracted 351 participants from 28 different countries.

The US, Germany and Japan led the pack with 65, 63 and 60 participants respectively. 43 attended from France. However, given the significant participation by researchers from China, India and other parts of the world working in these leading countries, it is fair to say that a truly global presence was felt. Those who travelled furthest were researchers from Australia, Singapore, Hong Kong and Brazil. Closer to home were participants from Portugal, Ireland, Malta and most of the other European countries.

A fair balance between academic and industrial based research was evident with about 120 participants from each type of organisation. Among the many universities with work worth noting, include the University of Washington, University of Maryland, RPI, University of Bern and Nottingham Trent University. Corporate research centres include but to name a few, Xerox PARC, Lucent Bell Labs, IBM Almaden, Daimler Benz Research, NTT Human Interface Labs, Ricoh California Research Center and Panasonic. There was significant participation from researchers from government, or government-sponsored laboratories including DFKI, INRIA, CEDAR, US Postal Service and several others.

Major themes of the conference included cursive script recognition, classifier combination, non-OCR based image matching, Asian character recognition, map and engineering drawings and text and document understanding. A total of 40 papers were dedicated to the area of handwriting recognition (both on- and off-line) and signature verification. In the area of classifier combinations, several interesting papers were presented on the evaluation of techniques and the effects of their combination with other classifiers.

Universities are channelling efforts into challenging projects in cursive script recognition including on-line recognition, off-line recognition, signature verification and abstract models of script, text and documents. Commercial interests are focusing their efforts more towards document understanding, image database browsing and retrieval, and processing of maps and engineering drawings. The growth of research work in the area of Asian language recognition was evident from the large number of submissions dedicated to both handwritten and machine generated documents.

Corporate research efforts in the area of optical character recognition have resulted in several successful commercial products.

142 papers and 98 posters were presented describing the latest research in document analysis and recognition. The quality of papers presented was highly variable. There was an over-abundance of papers on business card recognition.

The time allocation for papers was unfair, with no account taken of the detail of the work. Similarly in the proceedings all papers had to be summarised in 4 or 6 pages. A few people noted the lack of participation of commercial interests. Few products were shown, however great credit is due to the people who showed demos of their research work.

An interesting trend was the number of papers that did not deal directly with OCR. Specifically papers in the area of document understanding, storage and retrieval of documents and document image analysis. Non-OCR based research included document equivalence detection, document duplication detection and matching document images to text ground truth. Another trend was the number of papers dedicated to processing compressed document images, including skew estimation from JBIG compressed images, matching G4 fax compressed images and segmentation to enhance document image compression. Individual papers of note included the recognition of text from web based images, and the indexing of web based images from the text in the surrounding area. Of special significance was the paper by Chen and Bloomberg on image based document summarisation. This work received a special ICDAR prize for its originality and detail. Further, the ICDAR awards committee presented awards to outstanding young researchers in the field of document analysis. Jonathan Hull and Andreas Dengel were recognised for their achievements.

There were 4 invited papers. Dr Charles Bigelow, of Bigelow & Holmes and Stanford University gave the keynote address, describing the forces that influenced the development of the printing system we have today, covering aspects from font development to the drive for unique and highly stylised page layout. Professor Richard Fateman of the University of California, Berkeley talked of the latest trends in the production of scientific documents and the development of electronic formats needed for the communication over the web. Professor Jin Hyung Kim of the Korea Advanced Institute of Science and Technology reviewed approaches currently being researched in his university for the recognition of Korean language.

One item worth mentioning was that the sound system worked flawlessly. People were happy with the social programme. Production of the proceedings on CD-ROM makes for a compact, easily accessible resource for some time into the future.

The conference was brought to a close with a prospective retrospective presentation by Professor George Nagy of Rensselaer Polytechnic Institute giving an inimitable presentation calling us collectively to task for failing to solve some very long-standing problems while on the other hand making broad technical advances by the year 2007. The docu-pin and the autonomous correspondence agent that scores 640 on the Turing test were of specific interest.

It was decided that ICDAR 2001 will be held in Seattle, with Professor Robert Haralick of the University of Washington and IAPR president as general chairman. Professor Sargur Srihari described the plans that have already been put in place for ICDAR 1999 in Bangalore India, 20-22 September. See the web site: <http://www.cedar.buffalo.edu/icdar99>.

The Third Graphics Recognition Workshop (GREC'99) will be held on 24-25 September in India directly following ICDAR 1999. Along with the workshop a graphics recognition contest will be held on dashed line detection and raster to vector conversion. In addition, there may be a contest in some other area such as graphic symbol recognition. This is still being planned.

The first issue of the new Springer-Verlag International Journal of Document Analysis and Recognition which will appear in the first quarter of 1998, will contain selected papers from ICDAR 97.

John F Cullen and A Lawrence Spitz

Workshop on Graphics Recognition (GREC'97)

August 22-23, 1997 Nancy, France

Around 60 persons from 16 different countries attended this event, which was organised by IAPR TC-10. The largest national groups came from the USA and France (15 persons each), followed by Japan (7 participants). Around 40 participants came from academic institutions (universities, research centres) and around 20 from industry or other organisations.

The scientific program was organised into six topical sessions: vectorisation and separation, interpretation of engineering drawings, recognition of business graphics and forms, analysis of maps, diagrammes and symbol recognition, and performance evaluation. Each session started with an introduction to the state of the art of the addressed topic by a leading scientist. This was followed by short, to-the-point presentations of the technical contributions. Each session was concluded by an open 25 minutes panel discussion, where conclusions were drawn for the different topics and the audience interacted with the speakers and with each other. These discussions were of high quality, and we had several thorough exchanges on the big challenges in graphics recognition.

An international graphics recognition contest was also organised during the workshop. This contest aimed at testing the participants' ability to segment text from graphics and to recognise graphical primitives such as lines, arcs, and circles, both solid and dashed. Three commercial software packages and one academic software package participated in this contest.

In addition to the proceedings of the workshop (some copies can still be ordered for 100 FRF by sending an e-mail to Karl.Tombre@loria.fr), we are preparing a book which will include a selection of articles in revised form, reports from the panel discussions and from the contest, etc. This book will be published by Springer Verlag in the *Lecture Notes in Computer Science* series, and should come out in Spring 1998.

These days gave also the opportunity to have useful and rich exchanges on an informal basis, during lunches, coffee breaks and social events.

At the end of the workshop, it was decided that the next workshop would be held in connection with ICDAR'99, somewhere in India.

Karl Tombre,
INRIA Lorraine & CRIN/CNRS

What is Affective Image Processing?

A glimpse now at the computers of the future

Image processing has changed dramatically in the last two decades. It has moved from the domain of researchers working with a dozen monochrome images on large mainframes, to the domain of children playing with gigabytes of color digital video on home computers. Terms like "image compression" and "low-pass filtering" can be heard on playgrounds and among grandparents chatting over tea!

What challenges lie ahead in image processing research? Of course there are improvements to be made—smarter compression and enhancement, faster adaptive filtering, more perceptual evaluation techniques, and certainly smarter content modeling. In many ways future research needs to be incremental, improving upon what exists. But, there are also new directions that are becoming possible. One of the important directions is making image processing personal and affective. "Personal" means adapted to an individual's point of view, and incorporating their subjective preferences. "Affective" means recognizing and handling the influences of mood and emotion. Three examples are currently under investigation in the MIT Media Lab:

(1) Learning user's preferences. This research is part of the effort in digital video and image libraries and content-based retrieval. The basic idea is that there is not one way to do retrieval, but many ways, which depend on the individual and his or her requests. Toward this goal, a system, called "FourEyes," has been developed, which *continuously* learns what a user wants by adapting to feedback from the user. FourEyes demonstrates a new way of combining multiple models to capture what is of interest in a particular query. Evolving versions of FourEyes, with different learning algorithms, have been developed for image annotation, digital video browsing, and learning preferences of users in art databases.

(2) WearCam, a personal imaging system. The latest design, by Steve Mann, combines a wearable digital video camera, display, computer, and radio transmitter/receiver. The system enables images to be gathered from your point of view; when combined with an algorithm for projective coordinate transformations, the images can be seamlessly mosaiced into one view. Because this system is wearable, it can also be made to sense certain physiological changes from the wearer, such as heart acceleration or deceleration, which under certain conditions can be associated with the valence of the object being looked at. In theory, by attending to feedback from the wearer and recognizing features of the environmental context and imaged objects, the imaging system can begin to learn what a person likes or dislikes, and become a better assistant by understanding the conditions under which a person is likely to want to save or delete an image.

(3) Affective imagery. Mood is known to bias memory, attention, and perception, among other cognitive functions. When Kodak conducted a study of queries in their image libraries, the most frequent query in the advertising community was for shots of a particular "mood". Current image processing tools are not very successful at recognizing content, much

less interpreting the subject's mood. However, humans naturally see which part of an image is most attention-getting, and will often agree on the valence associated with an image—whether it is positive or negative, and on the arousal level of an image—exciting or calming. It is tempting to think of mood as a highly subjective phenomenon, unable to be learned except for an individual; however, the importance of it in advertising testifies to its ability to influence large groups of people. And yet, it is also personal; an individual does not necessarily respond like most of the members of the group. Pattern recognition algorithms are currently being developed to recognize mood and emotion in people looking at imagery, as part of a larger effort to give computers the ability to understand and respond intelligently to the information that is of value and salience to people.

For more information on this topic, look at <http://vismod.www.media.mit.edu/vismod/demos/affect>

(A summary of the Opening Keynote Address delivered by Professor Rosalind W Picard, MIT Media Lab, at the Image Processing and Analysis Conference, Dublin, July 1997)

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CONFERENCE ANNOUNCEMENTS

International Workshop on Multimedia Information Analysis & Retrieval (MINAR'98) [IAPR, TC12]

August 13–14, 1998 Hong Kong

This workshop will focus on the latest technologies for the modelling, indexing, and retrieval of multimedia information with emphasis on pictorial data.

General Chair: Horace H S Ip (City University of Hong Kong, Hong Kong). Programme Chair: Arnold Smeulders (Amsterdam University, The Netherlands).

Keynote Speaker: Professor Ramesh Jain (UCSD, USA).

Topics include, but are not limited to, the following: *Indexing methods: theoretical foundation and performance analysis, Content-based media retrieval, Dynamic composition of multimedia content, Invariant and multi-resolution techniques for image/video retrieval, Multimedia information visualization, Content analysis and analysis tools, System integration, Multimedia databases and information management, Applications.*

Proceedings of the workshop will be published by Springer-Verlag as a volume in the Lecture Notes in Computer Science Series.

Send to the address on p 10, 5 copies of a no more than 20 pages (double-spaced, 12-point, including text, figures and references) paper, describing original results. Each copy of the paper should have a cover page containing the title of the paper, names and addresses of the authors, and an abstract of no more than 200 words.

Deadline for paper submission 15 January 98
Deadline for camera ready paper 15 April 98

Workshop on Machine Vision Applications (MVA'98), [IAPR]

November 17–19, 1998 Makuhari, Chiba, Japan

The Sixth IAPR Workshop on Machine Vision Applications will be held at Fujitsu Makuhari System Laboratory, Chiba, Japan. 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:

Algorithms (Feature extraction, Range data and 3D analysis, Motion and/or Image sequence analysis, Neural network applications, Color image analysis, and related technologies), 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), Applications (Factory Automation: Factory Automation, Mobile robots, and related technologies; Intelligent Transport Systems: Disaster prevention and rescue, Security control, Navigation, and related technologies; Multimedia: Multimedia data-base, Map and engineering drawing database, Map processing and map-based systems, 3D reconstruction from maps or drawings, and related technologies; others: Civil and construction engineering, Agriculture/Forestry/Fishery, Other applications).

The workshop will include about 100 papers for oral and poster presentations on the above topics. 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?

Deadline for paper submission 15 May, 1998
Deadline for camera ready copy 15 September, 1998

6th International Symposium on Intelligent Robotic Systems'98 (SIRS'98)

July 21–23, 1998 Edinburgh, UK

Topics: *Mobile Robotics, Active Perception, 3D Reconstruction, Learning and Control, Cooperation, Control Architectures, Robotic Applications, Planning and Plan Execution, Fuzzy and Neural Networks, Techniques for Control, Miniature Robotics.*

Submit 4 copies of a 4-page abstract to the address on p 10. Three copies must be anonymous (title and abstract only), the fourth must have full author contact information, and include the author's email address.

Deadline for paper submission 8 June 1998

Workshop on Non-Linear Model Based Image Analysis (NMBIA'98)

July 1–3, 1998 Glasgow, UK

Topics: *Object Oriented Coding, Segmentation, Database Retrieval, Image/Video Restoration, Image Models, Video Pre/Postprocessing, Colour in Image Processing*

Submit four copies of a 3-page abstract with a form found in the web address on p 10.

Deadline for camera ready copy 10 April, 1998

International Conference on Systems and Signals in Intelligent Technologies (SSIT'98)

September 28–30, 1998 Minsk, Belarus

Topics: *Modeling and simulation, Fuzzy logic and Artificial Intelligence, Mathematics of fuzzy systems, Neural Network and Genetic Algorithms, Fuzzy control, Pattern Recognition and Identification Systems, Systems for Signal and Image Processing, Knowledge processing and representation, Knowledge-based Expert and Decision Support Systems, Applications of Intelligence Technology in Economics, Finance, Management, Sociology, Medicine and BME, Chemical etc.*

Submit 3 copies of a camera ready 8-page paper to the address on p 10. Include a 100-word abstract and key words. Use A4 paper with top, bottom, left, right margins 4, 3, 2.5, 2 cm respectively and font 10 Times-Roman with 5mm lines. Send also a copy on a 3.5 mm diskette in PC MSWord.

Deadline for paper submission 28 February, 1998

6th European Conference on Intelligent Techniques and Soft Computing (EUFIT'98)

September 7–10, 1998 Aachen, Germany,

Topics: *Fuzzy Technology, Neural Networks and Genetic algorithms.* Send an extended abstract (2–5 pages) in camera ready form to the address on p10.

Deadline for paper submission 15 February 1998

8th IEEE Digital Signal Processing Workshop (DSP'98)

August 9–12, 1998 Utah, USA

Topics: *Time-Frequency Signal Analysis, Nonlinear Systems, Signal Reconstruction and Estimation, Adaptive Filtering, DSP Algorithms and Architectures, Statistical Signal Processing, Multirate Filter Banks, Signal Compression, DSP for Communications, Applications of DSP.*

Send four copies of 2-page summary to the address on p 10.

Deadline for paper submission 1 April, 1998

4th IEEE Workshop on Applications of Computer Vision (WACV98)

October 19–21, 1998 Princeton, USA

Topics: visual database, image based rendering, video mosaicing, cartography and GIS, surveillance, 3D sensing, security & law enforcement, space operations, object recognition, highway/vehicle systems, robotics, human-computer interaction, medical image analysis, manufacturing, industrial inspection, augmented reality, remote sensing, document analysis & OCR, face & gesture image analysis.

Submit 4 copies of an up to 7 pages paper in camera ready form (2 columns, of 3.25 inches width, 9 inches height and 5/16 inches separation, in 10-pt font) to the address on p 10. Include a summary with answers to the questions:

(1) What is the application area of the work reported in this paper?

(2) How far has this work progressed to date?

(3) What is the primary significance of this work?

(4) What is the major new contribution of this work?

(5) How is this paper related to previously published work?

Deadline for paper submission 1 April, 1998

Deadline for camera ready copy 15 July, 1998

First International Conference on Medical Image Computing and Computer Assisted Interventions (MICCAI)

October 10–13, 1998 Boston, USA

Topics: Medical Image Computing (constructing patient-specific models, multimodal fusion, virtual or augmented reality visualizations, image guided therapy, anatomical atlases, data registration, tracking and localization of patients and tools, clinical analysis, change detection, diagnosis), Computer Assisted Interventional Systems (medical telepresence and telesurgery, surgical simulators, therapy planning, medical manipulators, safety issues), Clinical Applications of Computer Assisted Systems (clinical evaluation of systems, novel applications of interventional systems in surgical specialties, eg Orthopedics, Neurosurgery, ENT surgery, Radiation therapy).

Submit 4 copies of 2–8 page papers, with some keywords, in two column format, with 25mm margins all around and 12pt font, to the address on p 10.

Deadline for paper submission 3 March, 1998

Deadline for camera ready copy 21 July, 1998

PAA

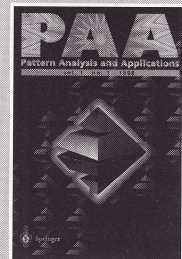
Pattern Analysis and Applications

• **Editor-in-Chief** •

Sameer Singh

School of Computing, University of Plymouth

Pattern Analysis and Applications is a new quarterly journal publishing articles in areas of fundamental research in intelligent pattern analysis and applications in computer science and engineering. It provides a much-needed forum for original research which describes novel pattern analysis techniques and industrial applications of the current technology.



It looks at new technologies and methods for pattern recognition and analysis in applied domains including, but not limited to :

- computer vision and image processing
- speech analysis
- robotics
- multimedia
- document analysis
- character recognition
- knowledge engineering for pattern recognition
- fractal analysis
- intelligent control

The journal also publishes articles on the use of advanced pattern recognition and analysis methods, including statistical techniques, neural networks, genetic algorithms, fuzzy pattern recognitions, machine learning, and hardware implementations which are either relevant to the development of pattern analysis as a research area or detail novel pattern analysis applications.

Detailed instructions for submissions and subscription order forms are available from <http://www.soc.plym.ac.uk/soc/sameer/paa.htm>. Alternatively, please contact: Customer Services, Springer-Verlag London Ltd, Sweetapple House, Catteshall Road, Godalming, Surrey, GU7 3DJ. Tel: 01483 418822. Fax: 01483 415151. Email: postmaster@svl.co.uk

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FORTHCOMING CONFERENCES, WORKSHOPS AND EVENTS

1998	Event	Location	Contact
29 M –1 Apr DCC'98	Data Compression	Utah USA	www.cs.brandeis.edu/dcc , dcc@cs.brandeis.edu
14–16 Apr FG'98	Face/Gesture Recognition	Nara Japan	K Mase, ATRMI&C Research Labs, 2-2 Hikari-dai, Seika-cho, Soraku-gun, Kyoto, 619-02, Japan. Fax: +81 774 95 1408, mase@mic.atr.co.jp , http://www.mic.atr.co.jp/events/fg98
21–23 Apr KES'98	Knowledge-based Intel Electronics	Adelaide Australia	L C Jain, Knowledge-based Intelligent Eng Systems, Univ of South Australia, Adelaide, The Levels, SA, 5095, Australia. etLCJ@Levels.UniSA.Edu.Au http://www.kes.unisa.edu.au
12–15 May ICASSP98	Speech & Signal Processing	Seattle	http://icassp98.microsoft.com
18–20 May AFPAEC'98	Advanced Sensors for Vision Systems	Zurich	http://www.etca.fr/afpaec98/welc.html afpaec98@etca.fr
31 M–3 Jun ISCAS98	Circuits & Systems	Monterey California	ISCAS98, Dept of Elec & Comp Eng, Naval Postgraduate School, Monterey, CA 93943, USA. http://www.iscas.nps.navy.mil/
18–20 June VI98	Computer Vision	Vancouver Canada	M Cheriet, Dept de Genie de la Production Automatisee, Ecole de Technologie Superieure, 1100, rue Notre-Dame Ouest, Montreal (Quebec) Canada H3C 1K3. Tel: +1 514 3968972, Fax: +1 514 3968595, cheriet@gpa.etsmtl.ca, http://www.etsmtl.ca/VI98
21–22 June EEMCV	Evaluation Methods	St Barbara California	K Bowyer, Comp Science & Engin, Univ of South Florida, 4202 East Fowler Avenue, ENB 326, Tampa, FL 33620-5399, USA. kwb@csee.usf.edu
23–25 June CVPR'98	Computer Vision	St Barbara California	Y F Wang, Dept of Comp Science, Univ of California, Santa Barbara, CA 93106, USA. cvpr98@cs.ucsb.edu Tel: +1 805 893 3866, Fax: +1 805 893 8553 http://www.cs.ucsb.edu/cvpr98
23–25 June BIOSIGNAL	Biomedical Signal	Brno Czech Republic	BIOSIGNAL'98, Dept of Biomedical Eng, Technical Univ Brno, Purkynova 91a, 61200 Brno, Czech Republic. Tel: +420 5 759310, Fax: +420 5 746757, http://www.fee.vutbr.cz/UBMI/BS98.html , bs98@dbme.fee.vutbr.cz
1–3 July NMBIA98	Image Analysis	Glasgow Scotland	NMBIA98, Signal Processing Division, Dept of Elec Eng, Univ of Strathclyde, 204 George Street, Glasgow G1 1XW, UK. http://www.spd.eee.strath.ac.uk/noblesse/nmbia98
6–10 July IGARSS'98	Remote Sensing	Seattle USA	IEEE IGARSS'98, GRSS, 17906 St Emilion Court, Spring TX 77379, USA. http://www.igarss.org Fax: +1 281 291 9224, tstein@phoenix.net
7–9 July AIENG98	Artificial Intelligence	Galway Ireland	AIENG98, Wessex Inst of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK. Tel: +44 1703 293223, Fax: +44 1703 292853, wit@wessex.ac.uk , http://www.wessex.ac.uk
12–16 July IMDSP	Multidimensional Signal Processing	Alpbach Austria	B Girod, Telecom Institute, Univ of Erlangen-Nuremberg, Cauerstrasse 7, 91058 Erlangen, Germany. girod@nt.e-technik.uni-erlangen.de Tel: +49 9131 857100, Fax: +49 9131 303840 http://www.nt.e-technik.uni-erlangen.de/imdsp
15–17 July WG8.1	Information System on WWW Environment	Beijing	M Q Fang, Information School, Ren Min Univ, 100872, Beijing, China. http://ecolab.ruc.edu.cn Tel: +86 10 6251 2162, Fax: 86 10 6251 5332, mqfang@public.bta.net.cn , chenyu@ns1.ruc.edu.cn
21–23 July SIRS'98	Robotic Systems	Edinburgh Scotland	G M Hayes, Dept of Artificial Intelligence, Univ of Edinburgh, 5 Forrest Hill, Edinburgh, EH1 2QL, UK. sirs98@dai.ed.ac.uk http://www.dai.ed.ac.uk/SIRS98/

FORTHCOMING CONFERENCES, WORKSHOPS AND EVENTS

1997	Event	Location	Contact
9-12 Aug DSP'98	Digital Signal Processing	Utah USA	A Lee Swindlehurst, Dept of Elec and Comp Eng, 459 CB, Brigham Young Univ, Provo, UT 84602, USA. dsp98@egr.msu.edu, http://www.egr.msu.edu/DSP98/
11-13 Aug SPR'98	Statistical Pattern Recognition	Sydney Australia	A Amin (SPR'98), School of Comp Science and Eng, Univ of New South Wales, Sydney 2052, NSW, Australia Fax: +61 2 9 3855995, amin@cse.unsw.edu.au, http://www.cse.unsw.edu.au/amin/spr98.html
11-13 Aug SSPR'98	Structural & Syntactic Pattern Recognition	Sydney Australia	A Amin (SSPR'98), School of Comp Science and Eng, Univ of New South Wales, Sydney 2052, NSW, Australia Fax: +61 2 9 3855995, amin@cse.unsw.edu.au, http://www.cse.unsw.edu.au/amin/sspr98.html
13-14 Aug MINAR'98	Multimedia	Hong Kong	H H S Ip, Dept of Computer Science, City Univ of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong, cship@cityu.edu.hk, Fax: +852 2788-8614, http://www.cse.cuhk.edu.hk/minar98
17-20 Aug ICPR'98	Pattern Recognition	Brisbane Australia	14 ICPR'98, Conventions Queensland, PO Box 4044, St Lucia South, Queensland 4067, Australia, Tel: +61 7 3870 8831, Fax: +61 7 3371 9514, icpr14@convqld.org.au
7-8 Sept EUFIT'98	Neural Nets Fuzzy Logic	Aachen Germany	EUFIT'98, Promenade 9, D-52076 Aachen, Germany. Tel: +49 2408 6969, Fax: +49 2408 94582, eufit@mitgmbh.de, http://www.mitgmbh.de/elite/eufit.html
8-11 Sept EUSIPCO98	Signal Processing	Rhodes Greece	EUSIPCO-98, Dept Informatics, Univ of Athens, Panepistimioupolis, TYPA, Athens 15784, Greece Tel: +30 1 7211119, Fax: +30 1 7219561, eusipco@di.uoa.gr, http://www.di.uoa.gr/eusipco anonymous ftp.di.uoa.gr in /pub/eusipco
21-23 Sept SS'98	Smart Structures	Rome	P Doughty-Young, SS'98, Wessex Inst of Technology, Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK. Tel: +44 1703 293223, Fax: +44 1703 292853, paula@wessex.ac.uk, http://www.wessex.ac.uk
28-30 Sept SSIT'98	Intelligent Technologies	Minsk Belarus	V Krasnoproshin, Faculty of Applied Mathematics, Belarussian State University, 4, Fr Scorina Av, Minsk, 220050, Belarus. kras@fpm.bsu.unibel.by Tel: +375 17 2208821, Fax: +375 17 2265548
4-7 Oct ICIP'98	Image Processing	Chicago USA	Conference Management Services, Billene Mercer, 3109 Westchester Avenue, College Station, Texas 77845-7919, USA mercer@conf-mgmt.com, http://mri.beckman.uiuc.edu/ICIP98/ Tel: +1 409 6936000, Fax: +1 409 6936600
8-9 Oct VLBV98	Image Coding	Urbana USA	Keven Haggerty, Beckman Institute, Univ of Illinois, 405 N Mathews Ave, Urbana, IL 61801, USA. haggerty@beckman.uiuc.edu jcj@uiuc.edu, http://www.ifp.uiuc.edu/vlbv/98 mercerc@conf-mgmt.com
10-13 Oct MICCAI	Medical Image	Boston USA	E Grimson, MIT Artificial Intelligence Lab, 545 Technology Square, Cambridge MA 02139, USA. http://www.ai.mit.edu/miccai98.html
19-21 Oct WACV98	Computer Vision	Princeton USA	R Kumar, 201 Washington Rd, CN5300, Sarnoff Corporation, Princeton, NJ 08540, USA. rkumar@sarnoff.com, Tel: +1 609 734 2832, Fax: +1 609 734 2662, http://www.sarnoff.com/conferences/WACV98/callforpapers.htm
17-19 Nov MVA'98	Machine Vision Applications	Makuhari Chiba, Japan	K Ikeuchi, Institute of Industrial Science, Univ of Tokyo, 7-22-1 Roppongi, Minato-ku, Tokyo 106 Japan. Tel & Fax: +81 3 3401 1433, ki@iis.u-tokyo.ac.jp, http://www.etl.go.jp/etl/gazo/mva98/

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	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
IWSCIS (v19n4)	Calcutta	12-13											
ICCIMA'98 (v19n4)	Churchill		9-11										
DCC'98	Utah			29-	1								
IATED (v19n4)	Jordan			□ 30-	2								
SSIAI (v19n4)	Arizona		□ 3		6-7								
FG'98	Japan	□ 23			14-16								
KES'98	Adelaide				21-23								
ICASSP'98	Seattle					12-15							
GKPO'98 (v19n4)	Poland					18-22							
ISCAS'98	Monterey	□ 30				31-	3						
AFPAEC'98	Zurich					18-22							
CGIM'98 (v19n4)	Canada				□ 2		1-4						
ISMM '98 (v19n4)	Amsterdam		□ 15				3-5						
IWSSIP'98 (v19n4)	Croatia	• 15			□ 1		3-5						
ECCV'98	Germany			□ 16			2-6						
VI98 (v19n3)	Vancouver			□ 31			18-20						
EEMCV	California	• 30					21-22						
CVPR'98	California						23-25						
BIOSIGNAL	Brno				□ 15		23-25						
NMBIA'98	Glasgow	• 16			□ 10			1-3					
AIENG'98	Ireland			□ 3				7-9					
WG8.1	Beijing	• 31			□ 15			15-17					
IMDSP	Austria	• □ 30						12-16					
IGARSS'98	Seattle	• 7						6-10					
SIRS'98	Edinburgh			• 9			□ 8	21-23					
DSP'98	Utah	• 1			□ 1				9-12				
SPR'98	Sydney					□ 1			11-13				
SSPR'98	Sydney					□ 1			11-13				
MINAR'98	Hong Kong	• 15			□ 15				13-14				
14 ICPR (v19n3)	Brisbane					□ 4			17-20				
EUFIT'98	Rome		• 15							7-10			
EUSIPCO-98	Rhodes				□ 30					8-11			
SS'98	Rome									21-23			
SSIT'98	Minsk		• 28							28-30			
ICIP'98	Chicago	• 16					□ 5				4-7		
VLBV'98	Urbana					• 1				□ 1	8-9		
MICCAI	Boston			• 3				□ 21			10-13		
WACV'98	Princeton				• 1			□ 15			19-21		
MVA'98	Japan					• 15				□ 15		17-19	

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