



International Association for Pattern Recognition Inc

An affiliate member of the International Federation for Information Processing

NEWSLETTER

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OCTOBER DEADLINE - 9 AUGUST 1995

FROM THE EDITOR'S DESK

Dear Everybody

Perhaps not all of you are aware, but IAPR is not only an affiliate organization of independent national societies, but is itself an affiliate member of a larger organization called the International Federation for Information Processing (IFIP). As the newsletter editor, I regularly receive the newsletter of IFIP which I scan for items which might interest the readers of this newsletter. I read with interest in the latest issue of the IFIP newsletter a news item which I found perhaps a little disturbing: the world's first paper-less conference was held last year in Australia. Extracts are re-produced on page 8. Panic! Is

that the end of conferencing? Shall we all start sending our presentations to a mailing list of interested people in a multimedia CD-ROM, who will browse through them at their pace, come back through the Internet for comments and thus advance the frontier of Science without the extra expense of banquets, airfares, etc? Will our sponsors catch up on the idea and stop approving money for travelling? Panic! Panic! Shall we start having teleconferences without ever leaving the four walls of our offices and our computer screens? More panic! More panic!

Perhaps, that is the shape of things to come. At the moment, however, if you read the article more carefully, you will see that there was actually a meeting where people held discussions on short talks they gave and the multimedia presentations they had prepared. Nevertheless, it will not surprise me in the least if the bleak picture I painted above will come sooner or later as the issue of money comes in. Part of the article, which I did not reproduce here, contained the interesting item of information that it has been calculated that it costs less to educate a student using multimedia technology than conventional methods. When such ideas catch up, according to my opinion, will be the beginning of the human race losing a major means of communication: the body language. It is believed that 60% of human communication is not verbal. True, this 60% includes

pictures which a computer can reproduce, but it mainly includes the body language which no computer can reproduce. It includes the eye contact and the gestures of the teacher/lecturer which no multimedia course will use. The skill of conveying intricate information by these means will gradually diminish as it will not be passed from teacher to pupil and on. But money rules the world! Alarmist? Perhaps!

At the moment, however, things proposed in our immediate concern are much more mild in nature: there have been some voices in IAPR who would like this newsletter to go fully electronic. "It is too expensive!" "We chop trees down!" What do you think? Please drop me a line if you have views on the matter either way. Shall we become another Vision-list or pixel-volume or perhaps just the IAPR listo-volume?

Maria Petrou

LETTERS TO THE EDITOR

GOOD NEWS from RUSSIA!

Dear Editor

This year we restore, after some interruption, our scientific events. The 2nd Open Conference of Newly Independent States on Information Technologies for Pattern Recognition and Image Analysis (ITIAPR-2-95) will be held in Ulianovsk, Russian Federation (middle Volga region), from 28 August to 1 September 1995. The scientific program includes invited papers, tutorials, plenary lectures, panel papers, posters, and a technical and book exhibition. The official conference language is Russian, but for foreign participants translation will be provided. The conference proceedings will be published in English in the journal "Pattern Recognition and Image Analysis".

Igor B. Gourevitch
email: igourevi@nsk.rc.ac.ru

MEMBERS NEWS

APOLOGY

IAPR FELLOWSHIP AWARDS

Our sincere apologies to **Dr Masatsugu Kidode** for our incorrect spelling of his name in the January edition of the newsletter. Please note that Dr Kidode's address has changed as shown on page 3.

WELCOME TO

the second

Industrial Affiliate Member of IAPR

TOSHIBA

Contact: Dr Masatsugu Kidode
(address page 3)

1996 FELLOWSHIP NOMINATIONS

IAPR Fellowship is conferred on persons in recognition of their outstanding contributions to IAPR and to the field of Pattern Recognition. The 1996 recipients will be honored and receive a certificate at 13-ICPR in Vienna, 25-30 August 1996. Their names will be published in the IAPR Newsletter together with the citation of their contribution.

To initiate a nomination, a nominator must submit an IAPR Fellow nomination form to the Chairman of the IAPR Fellows Committee. Anyone can serve as a nominator, including the nominee him/herself. All IAPR members are eligible to be nominated with the exception of current members of the Executive Committee and Fellows Committee who may not be considered during their term of office.

Nominations forms and detailed information about the 1996 Fellow selection process are available from the Chairman of the IAPR Fellows Committee:

Dr. Pierre A. Devijver
ENST de Bretagne
BP 832, F-29285 Brest Cedex, FRANCE
Tel:+33.98.00.13.00,Fax+33.98.00.10.97PA.
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Deadline for submission of nominations is 15 Jan 1996.

IAPR COMPETITIONS CONTINUE!

It is our pleasure to announce
the winner of the crossword competition:

Professor E S GELSEMA
Erasmus Universiteit, Rotterdam, Netherlands

Professor Gelsema will receive the US\$ 70 award for constructing the crossword puzzle published on page 6 of this issue!

And now, the new competition:

US\$ 20 for the first correct solution to Professor Gelsema's crossword which will be drawn at random from those submitted by the end of October!

KING SUN FU AWARD

Appeal Update

The K S Fu Fund Appeal has generated its first responses. In total, US\$ 240 has been received by the Treasurer.

US\$ 160 has been donated by the British Machine Vision Association and the remainder has been received from individual IAPR members.

**FINANCIAL LEVY ON IAPR
SPONSORED/ORGANISED MEETINGS**
IAPR President - Professor Josef Kittler

The projected biennial deficit of the IAPR budget by 1996 will be of the order of US\$ 17,000. This deficit can be absorbed over the current budgetary period using IAPR reserves but it cannot be sustained in the long term. Consequently corrective measures are needed to balance the budget in future.

A number of measures could be taken to increase the income of IAPR including raising the dues, advertising in the IAPR Newsletter, (which is the major item of expenditure in the IAPR financial provision), and generating some income from the numerous scientific meetings sponsored or organised by IAPR TCs. The various options were discussed at the Governing Board Meeting in Jerusalem with the conclusion that generating some financial return to IAPR from its conferences and workshops, should be looked at further by the Executive Committee who should prepare a proposal for the Governing Board to consider.

This process has now been completed and the following levy structure has been approved by the Governing Board.

IAPR SPONSORSHIP LEVY RULES:

- 1: For any meeting co-sponsored by IAPR a flat fee would be payable to IAPR according to the following scales:
US\$ 200 if attended by 100 participants or more
US\$ 100 if attended by less than 100 participants
- 2: For any meeting organised by IAPR TCs a 10% levy on the meeting participation fee for every participant would be payable to IAPR.
- 3: For any meeting underwritten financially by IAPR (whether it be a co-sponsored meeting or a meeting organised by IAPR TCs), a share of any profits generated by the meeting would be payable to IAPR. The share of the profits would be equivalent to the proportion of projected losses covered by IAPR.
- 4: Any deviation from the above charges will require approval of the Executive Committee.

PLEASE MAKE THE FOLLOWING AMENDMENTS
TO THE IAPR DIRECTORY ISSUED JANUARY 1995
(amendments in italics)

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(Toshiba moved to Osaka following the Kobe earthquake).

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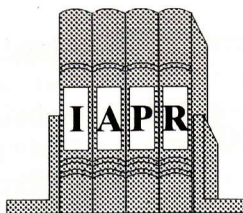
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BOOK



REVIEWS

Trees and Proximity Representations
Jean-Pierre Barthélemy and Alain Guénoche
John Wiley and Sons, 1991 (in French 1988)
(ISBN: 0 471 92263 3)

"Trees and Proximity Representations" is a book whose name, library classification and the section in which it would be displayed in a bookshop are all likely to send a simple message to the majority of readers of this newsletter: *not relevant to my work, not related to my interests*. A quick browse through the table of contents and the view is reinforced by the presence of terms like X-tree, ultrametric and centroid distance, words not commonly found in an index of pattern recognition textbooks. And yet Barthélemy and Guénoche's book is concerned with problems that lie at the heart of pattern recognition like representation and analysis of the structure of a data set, clustering and classification. Trees and proximity measures on trees are used as a model that captures the structure and reveals relationships that exists in a family of objects.

The initial chapter reviews basic concepts of graph theory and introduces the notion of an X-tree, a tree with nodes labelled by elements of set X, i.e. the set whose structure is studied. I found the chapter to be of interest in its own right as it provides a concise overview of basic graph-theoretical terminology, lists and gives proofs of some fundamental properties of graphs and trees. Last but not least, it contains a comprehensive reference section.

Measures of proximity and their representations are presented in the first section of Chapter 2. The rest of the chapter and most of Chapter 3 focuses on characterisation of proximities that are representable as tree distances, i.e. distances (and proximities) that can be expressed as a function of a path between tree vertices corresponding to the objects whose dissimilarity is considered. Significant attention is devoted to the important issue of how to approximate a general proximity table with a table of these special distances. One of these distance, an ultrametric, is closely connected to hierarchical methods of classification and common agglomerative hierarchical clustering algorithms - single, average and complete link, are shown to be constructing ultrametries.

In contrast to previous chapters where metric and numerical information was central to the characterisation of the structure of the dataset, Chapters 4 and 5 are qualitatively orientated with Chapter 4 devoted to the study of topological characterisation of X-trees and Chapter 5 to combinatorial description of X-trees. Different methods for computation of tree distances approximating proximity tables are compared in Chapter 6.

The chapters, with the exception of Chapter 6, have a structure that I found readable and easy to follow: introduction of new concepts, examples, necessary definitions, propositions and theorems with proofs, algorithmic and implementational issues and bibliographical remarks. The style, presentation and mathematical rigour are enjoyable, and the bibliographical notes thorough. I learned that one of the problems mentioned has been considered by Torricelli in 1646 (!) and that the standard algorithms for computation of the minimum spanning tree attributed to Kruskal (1956) and Prim (1957) appeared in an obscure Moravian journal in articles by Boruvka in 1926 and Jarnik in 1930!

Unfortunately, the authors choose to implement the presented algorithms in BASIC. This choice has two unpleasant consequences. First, the algorithms cannot be directly typed in a computer and tested, at least not on examples of practical size. Moreover, programs given in Algol, Pascal or C often provide necessarily a *precise* and yet readable and structured description of the algorithm, if various special or degenerate cases need be considered.

With the above single exception, I found the book to be a source of valuable information. Its quest to show the equivalence of concepts living under different names in different disciplines, and its attempt to distill the essence of the problems, to organise the available knowledge and to give rigorous answers, felt like the exact opposite of the everyday Internet experience, where, possibly, all the information one needs is there, but thrown into an amorphous pile of disjointed items! The book experience of putting order to chaos might be worth trying!

George Matas
University of Surrey, UK



Pattern Recognition in Practice IV:
Multiple Paradigms, Comparative Studies
and Hybrid Systems
Edited by E.S.Gelsema, L.S.Kanal
(Volume 16 of "Machine Intelligence and Pattern
Recognition" series)

Elsevier Amsterdam 1994 576 pages. ISBN: 0 444 81892 8.

The book contains the Proceedings of an International Workshop held in Vlieland, The Netherlands, 1-3 June 1994. This firmly established workshop aims at stimulating exchanges of ideas and new results between those who develop pattern recognition (PR) methodologies and those who use PR techniques in their professional

work. The Proceedings contain 42 papers, organized into six parts: 1. Pattern Recognition, 2. Signal and Image Processing, 3. Probabilistic Reasoning, 4. Neural Networks, 5. Comparative Studies, 6. Hybrid Systems.

As it can be seen from the Proceedings subtitle, special attention has been paid to the integration of PR and artificial intelligence. This integration is apparent already in Part I, particularly in the opening paper dealing with large scale projects in which the representation of knowledge is the central issue. Combination of PR methods with evidence theory, use of Hidden Markov Models to object recognition in computer vision, extension of grammatical inference to grammars for point sets, the classification of moving objects, Gaussian mixture modelling are the subjects of other papers in Part I. Eight papers in Part II are devoted to various methodological and practical problems in signal and image processing. Several papers again try to integrate AI techniques with the PR methods used in this field - segmentation algorithm based on AI techniques, inexact matching using neural networks and knowledge based image analysis. The next four papers belonging to Part III are devoted to various methods of probabilistic reasoning.

Theoretical and practical aspects of using neural networks are reviewed in eight papers of Part IV. They include e.g. the analysis and reasoning for favourable small sample properties of multilayer perceptrons, analytical approaches to the neural nets architecture design aimed at object labelling and classification based on mapping probabilistic relaxation onto the multilayer perceptron architecture, and also a survey paper describing the use of various hardware and software applications of neural nets together with their main advantages and disadvantages.

Various comparative studies, becoming increasingly important owing to the abundance of existing techniques, form Part V. A thorough comparison of the performance of neural networks and traditional classifiers, followed by the discussion of relative merits of sequential search methods, particularly the floating search and genetic algorithm in large scale problems, comparison of ANN with that of classification trees, performance of clustering algorithms with respect to computation cost and quality of the solution, comparison of the randomised Hough transform and a genetic algorithm in computer vision problems are just some of the papers in this part.

Finally, Part VI reflects the extent to which PR and AI techniques have been really integrated. Apart from a paper on relative feature importance, the other papers are devoted to applications in robotics and computer vision. They deal with a multisensory system aimed to support the vision requirements of an intelligent robot, multi-level architectures for real-time reasoning in the domain of mobile robots, configuration and location problems in computer vision etc.

An extremely valuable part of the book is the transcription of all discussions. The opinions, remarks, questions and answers of leading scientists and researchers provide an excellent insight into the problems, not generally published in regular papers. The collection of all the papers, their discussion and the expert preface by the editors surveying all the papers included, provide in my opinion a most valuable source of information for all those engaged in research and use of the techniques in the fields of pattern recognition, computer vision, neural nets and artificial intelligence.

Pavel Pudil
Czech Academy of Sciences



CALL FOR PAPERS
Special Issue on *Real Time Motion Analysis*
JOURNAL OF REAL TIME IMAGING

The special issue will focus on Low-level motion estimation techniques, Object tracking, Dedicated hardware for motion estimation, Non-rigid and articulated objects motion analysis and synthesis (e.g., cinema, animation), Methods and architectures for robot and autonomous navigation, Human head/facial motions/deformations analysis and synthesis (video-conference, video-phones, cinema, animation), Hand gestures analysis and synthesis.

Send four copies of papers by September 15, 1995 to:
P Nesi, Dipartimento di Sistemi e Informatica, University of Florence, Via s Marta 3, 50139 Florence, Italy.
Tel: +39 55 479 6523 Fax: +39 55 479 6363
nesi@ingfil.ing.unifi.it
www: <http://www-dsi.ing.unifi.it/~nesi/>

**STUDENTS SUE COLLEGE
OVER COMPUTER COURSE!**

Two students won the lawsuit they brought against New York's Pace University when an instructor for a beginners' course in computing gave a homework assignment the students thought was too hard: calculating the price of an atom of aluminum on Friday given such information as the price of aluminum on Wednesday, the rate of change between the prices of the metal on Wednesday and Friday, the atomic mass of aluminum, the value of Avogadro's number (6.02×10^{23}), etc., etc. The students handled their own case against the university, and asked the teacher to answer such questions as: "Do you think this was a good choice for a beginners' class?" The judge decided: "Students are consumers. There is nothing holy or sacred about educational institutions."

Wall Street Journal 9/5/95

CROSSWORD COMPETITION

Winning Entry from Professor Edzard Gelsema, The Netherlands

<<<< >>>>

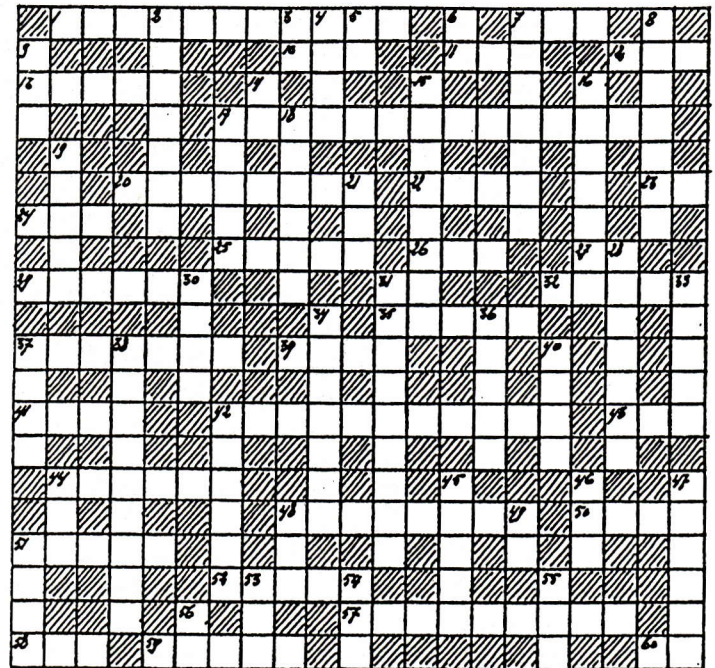
<>

Send completed crosswords to the Editor
Dr Maria Petrou
at the address on our front cover

<<<>

\$20 to the first correct solution
drawn completely at random
at the end of October

<>



Horizontal

1. Image processing operation (11)
7. Component of colour coding system (3)
10. Light detector (3)
11. Imaging modality (3)
12. Mail sponsored by IAPR? (3)
13. Recipient of an award during ICPR-12 (5)
17. Do this when the goal is (NP) hard to find (6+3+5)
20. Data structure (8)
22. Major IAPR event (4)
23. Subdivision of IAPR (2)
24. Search structure (3)
25. Property of a model (5)
26. Important PR area (3)
27. Transmitted by an LPF (2)
29. Defines a filter (6)
31. Imaging modality (2)
32. ICPR city (5)
35. He owns a US patent for his conversion (5)
37. Not an ICPR city (7)
39. French research institute (4)
41. Important component of an interactive system (4)
42. Distant scientist (11)
43. We still don't know whether this is any better than nearest neighbours (3)
44. Discriminating scientist (6)
48. Location of an IAPR sponsored event in 1994 (8)
50. Light sensitive element (4)
51. ICPR country (5)
52. Pixel ** (3/2) (5)
57. Unit of distance (4+5)
58. Kind of imagery (3)
59. Former president (5)
60. First president (2)

Vertical

2. He likes mosaic (7)
3. Form of lossy image compression (2)
4. Interface component first used by Russians (4)
5. Proportional to log(exposure) (2)
6. Form of lossy compression (2)
7. Space scientist? (7)
8. He likes detail (7)
9. Classifier (3)
14. Range of radiation (2)
15. Former treasurer (8)
16. Former secretary (first name) (7)
17. He has the optimal solution (5)
18. Kind of imagery (6)
19. Do this in gardening and in PR (5)
21. Image acquisition device (3)
28. Did he write a program for a bondage club? (7)
30. Image processing model (4)
31. Excellent object for PR (9)
33. Former president (5)
34. He had a bag for all our problems (initials and last name) (7)
36. Sampling scientist (5)
37. Image degradation (4)
38. ICPR city (9)
40. Most desirable of deviations (4)
42. He hides his model in his field (6)
44. Speedy conversion (3)
45. Edgy scientist (5)
46. Form of lossy image compression (3)
47. This author's ultimate judge (6)
48. Old image processing computer (3)
49. Dull frequency component (2)
51. The flower of our field (4)
53. Member of the governing board (3)
54. Display (3)
55. Quality defining curve (3)
56. French AI (2)

CONFERENCE REPORTS

The Europe-China Workshop on Geometric Modelling and Invariants for Computer Vision Xi'an, China, 27-29 May 1995

There are two types of people: Mathematicians and 'others'. Mathematicians think of profound thoughts; the 'others' of profound problems. Occasionally, the Mathematicians talk to the 'others' and the 'others' promptly fall asleep. Occasionally, somebody from the 'others' remains awake and then some of those profound thoughts percolate down the ladder of profound thinking towards the level of the plebeian thinking, and we, the plebeians, make a break through in some of the everyday problems that bother us, like Computer Vision and Pattern Recognition!

One may also divide the world into two other classes: Chinese and 'others'. The Chinese are famous for some great inventions they offered to the world: The compass, the technique of silk making, gunpowder, paper-making and printing. They are also known for guarding their secrets very carefully! Perhaps that was the reason for the Europe-China workshop in Xi'an, China: The 'others' wanted to 'steal' the Chinese secrets like the Greek monks who carried away the secrets of silk making inside their hollow sticks!

The Chinese presented a lot of their work and the 'others' too. The Mathematicians presented a lot of their work and the 'others' too. Now, how much each side understood the other is a matter of debate! However, the workshop was interesting and exciting, finishing with a lively debate on Geometry, Invariants, Computer Vision and the Universe! The spirit of the workshop was expressed very eloquently at the end by Jan-Olof Eklundh who kindly agreed to write his conclusions down; here they are:

1. **The role of geometry.** It is well-known that geometry is extremely important in Computer Vision. Many types of objects, although not all, are characterized by their shape, and spatial perception in general is founded on geometry. The wealth of knowledge in geometry as a branch of Mathematics is therefore a great asset.
2. **The role of invariants.** Invariant properties are of course essential, both from a computational and an ecological point of view, as has been stressed for a long time by scientists in perception. Geometric invariants are important in vision (cf. 1.) and also have a well established theory. Notably, they apply also beyond the study of points, lines, planes, conics etc. traditionally appearing in projective geometry.
3. **The role of theory.** During the workshop there was an intensive discussion whether we should work with theoretical problems or applications. Formalizing the computations we perform is undoubtedly very important.

We must know what is being computed, but we should not forget the field of Computer Vision is empirical. Hence, the predictive power of our, hopefully, theoretically well-founded algorithms and models must be demonstrated by experiments. These should also show that the required primitives can be observed and derived from data.

A general remark on science is worth making in this context. One often hears arguments opposing pure and applied science, and Computer Vision researchers usually pride themselves of belonging to the *pure* camp. However, it is important to note that this is just one way of classifying scientific disciplines. Science can also be absolute or empirical. In principle, only Mathematics (and possibly Logic) belong to the former category. Mathematics describes a world of its own and has within itself no claims on predicting anything about things outside Mathematics. ALL OTHER branches of science have to do so, though Computer Vision research may be pure or applied, but it is definitely empirical.

Incidentally, as the witty mathematician Paul Halmos pointed out, the step between pure and applied may be subtle. In an article about pure and applied mathematics Halmos found that the only way he could establish any difference was to ask a mathematician if there was any: if the answer was "yes", then the mathematician was pure, if "no", he was applied!

4. **State-of-the-art.** Theory is being developed/adapted (from mathematics) fast. Many difficult problems remain (e.g. 3.). Solutions to well-specified problems are feasible today. It is not quite true that Computer Vision research hasn't made it to applications, even if the most advanced techniques haven't.

5. **A final word** on the previous discussion, which has dealt both with the analysis of images and vision (seeing) as indistinguishable. Vision goes beyond/is different from Image Understanding.

It is unfortunate that this text is written by two people both of whom belong to the 'others' class! We do not know what the non-others thought, although from various discussions I had, everybody seemed to have found the meeting stimulating! But perhaps, two classes is too gross a division. Something I learned in the workshop was that according to the Chinese Police Forensic Department, which was interested in face recognition using Geometric modelling, people are divided into 10 (!) classes, and that is final!

Jan-Olof Eklundh and Maria Petrou

Workshop Proceedings can be obtained by contacting the Workshop organisers:

Prof Roger Mohr, mohr@imag.fr

Prof Chengke Wu, wuck@bepc2.ihep.ac.cn

THE WORLD'S FIRST PAPERLESS CONFERENCE

Interactive Multimedia in University Education

The IFIP Working Group on Informatics Education at the University Level (WG3.2) held *the world's first paperless conference* on 6-8 July 1994 in Melbourne, Australia. All 30 participants brought home from the conference a CD ROM that contained not only the text of the papers presented at the conference, but also video, graphics, animations, and audio snippets of the debate and discussion provoked by the papers.

The title of this working conference was Interactive Multimedia in University Education: Designing for Change in Teaching and Learning, and the format of the "interactive proceedings" exemplified the change. All Conference participants joined in the task of designing the proceedings. The following questions were asked: In what way does an electronic publication add value to the standard print publication? How, in theory, is information enhanced by interactivity? Are hypertext links and multiple forms of media sufficient justification for this task? What are the copyright concerns in international electronic publishing? Since the papers were mostly available in the preliminary proceedings, people gave short speeches, so that much of the time was spent on discussions. This format worked well, and the discussions were very good.

Interactive multimedia is the merging of previously separate media video, text, audio, graphics, and animation under computer control. It claims to offer advantages over traditional computer-based learning, by means of its ability to combine an appeal to multiple senses with the engaging power of interactivity. The Conference focused on the challenges of developing interactive multimedia for use in teaching and learning at the university level, including open university education.

Conference participants included academics, graphic designers, video producers, and instructional designers, all actively engaged in multimedia development. Case studies were used to address issues under three main themes: Evaluation, Implementation, and Design. The Conference was concerned with techniques rather than technology, and aimed at portraying the best international practice, leading to a blueprint for strategic planning in universities.

(Extracts from an article published in the IFIP newsletter, March 1995, kindly provided by Dr J L Rosenfeld, Editor)

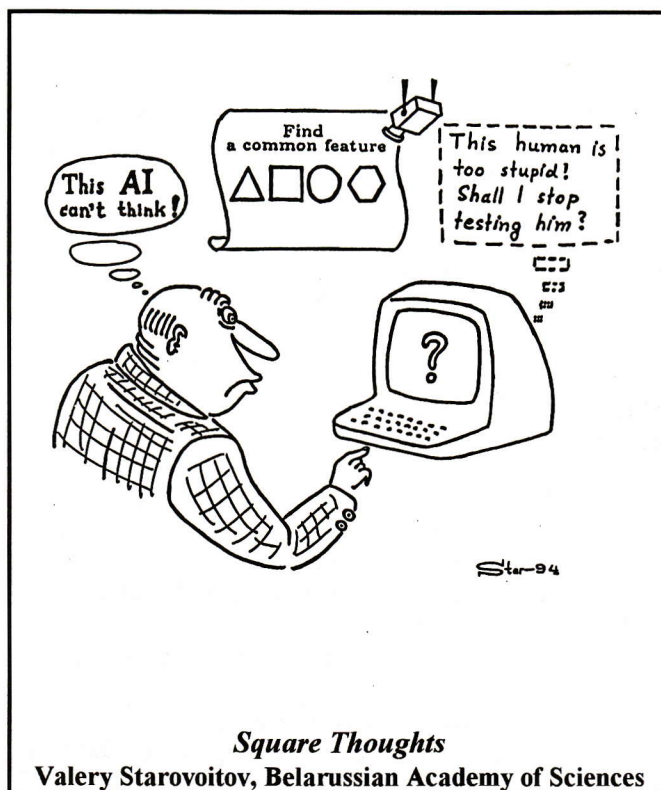
□□□□□

Reconhecimento de Padroes March 23-24, Aveiro, Portugal

RECPAD'95 (March 23-24, Aveiro, Portugal) was an interesting and well organised conference. It was the 7th in a series of annual conferences and was organised by the Department of Electronics and Telecommunications of the

University of Aveiro, under the auspices of the Portuguese Association for Pattern Recognition. The conference, held in the University Campus, was in a single track and included about 40 oral contributions, presented in eight sessions, and two invited talks. The scientific program was rather dense, but frequent coffee breaks were wisely interleaved with the technical sessions, so as to give the audience the opportunity to continue scientific discussions in a relaxed atmosphere. The contributions dealt with both theoretical and applicative aspects of image and signal processing, pattern recognition, computer vision, and neural networks; two sessions were exclusively devoted to applications. Although the meeting was a national meeting, and hence most of the participants were Portuguese, the conference attracted participants from other European countries such as Bulgaria, France, Italy, Poland, Spain and the UK. Both English and Portuguese were accepted as conference languages, but almost all the presentations were given in English (in any case, the transparencies were in English). Besides the quality of the scientific program and the goodness of a gorgeous conference banquet, also the sunny and warm weather magically contributed to the complete success of the meeting (the organisers should have a special link with Jupiter Pluvius since I was told that up to the week before the conference there has been rain in Portugal!). The next edition of RECPAD will be held in Guimaraes in the Minho Region on March 21-22, 1996. It might be a good chance to have a taste of Portugal for those who could not enjoy RECPAD'95.

*Gabriella Sanniti di Baja
Istituto di Cibernetica, Italy*



CONFERENCE ANNOUNCEMENTS

Applications of Control and Robotics Orlando, Florida 8-10 January 1996

Topics include (among others): Robotics, Path Planning, Hardware, Software, Languages. Send 3 copies of papers (max: 12 double-spaced pages including figures) to address on page 11.

Paper submission deadline: 15 July 1995
Acceptance notification: 15 Sept 1995
Final camera ready paper: 1 Nov 1995

Machine Vision Applications in Industrial Inspection San Jose, California 28 Jan - 2 Feb 1996

Topics include (among others): New or Improved Algorithms for Industrial Inspection, Novel Hardware Designs for MV Systems, Robot Vision & Tracking, Verification & Identification, Performance Evaluation of Algorithms, Use of 3-D or color imaging techniques. Send 500 word abstract to address/email on page 11.

Paper submission deadline: 3 July 1995
Final camera ready paper: 2 Jan 1996

8th Portuguese Conference on Pattern Recognition - RECPAD'96 University of Minho, Guimaraes, Portugal 21-22 March 96

Topics include: Pattern Recognition, Signal and Image Processing, Computer and Robot Vision Inspection and Industrial Applications, Specific Hardware and Software Developments, Multimedia and Virtual Reality.

Extended abstracts up to 4 A4 pages or poster summaries of 1 A4 page (3 copies) in English; title, authors, affiliation, addresses, phone, fax, email, keywords should be included in the first page. Send to:

RecPad'96, University of Minho, Azurem 4800 Guimaraes, Portugal. Email: recpad96@eng.uminho.pt World Wide Web URL: <http://www.dei.uminho.pt/recpad96>

Paper submission deadline: 3 Nov 1995
Acceptance notification: 5 Jan 1996
Final camera ready paper: 2 Feb 1996

13th European Meeting on Cybernetics and Systems Research

Vienna, Austria 9 - 12 April 1996

Full details of conference available on WorldWide Web:
>URL:<http://www.ai.univie.ac.at/emcsr/>
and from address on page 11.

Vision Interface '96 Toronto Ontario 21 - 24 May 1996 [IAPR]

Vision Interface '96 is being held in conjunction with two other conferences, Graphis Interface '96 and Artificial Intelligence '96. The theme for VI'96 will be:

Vision for Real World Applications

English or French contributions are solicited in the following topics:

- Robot Vision
- Vision
- Sensor Fusion
- Surface Reconstruction
- On-Line/Off-Line Document Processing
- Remote Sensing
- Motion Detection
- Autonomous & Teleoperated Systems
- Industrial & Biomedical Applications
- Architectures for Computer Vision
- Neural Networks
- Knowledge Representation
- Non Destructive Testing
- Handwriting Processing & Recognition

Paper submission:

Send four copies of full paper to Professor Wayne Davis, Department of Computer Science, University of Alberta, Edmonton, Canada T6G 2H1.

Email: davis@cs.ualberta.ca

Paper submission deadline: 31 Oct 1995
Acceptance notification: 31 Jan 1996
Final camera ready paper: 15 Mar 1996

International Workshop on Structural & Syntactic Pattern Recognition Leipzig, Germany 20 - 23 August 1996

Organised by TC 2, topics include: General Methodology, Machine Learning & Grammatical Inference, Structured Document Image Analysis, Speech & One-Dimensional Signal Analysis, Structural Methods in Image Processing, Shape Analysis, Structural Methods in Computer Vision, Structural Analysis of 3_D Object Recognition.

Send 6 copies of up to 10 pages (double spaced) extended abstract to address on page 11

Paper submission deadline: 1 Dec 1995
Acceptance notification: 20 Mar 1996
Final camera ready paper: 20 May 1996

Fifth International Workshop on Frontiers in Handwriting Recognition Colchester, UK 2-5 September 1996

Sponsored by TC 11 topics will include: On-Line/Off-Line Handwriting Recognition Methods, Linguistic Post-Processing, Applications, Case Tools. Send 4 pages A4 extended abstract to address on page 11.

Paper submission deadline: 11 Dec 1995
Acceptance Notification: 10 Mar 1996
Final camera ready paper: 20 April 1996

IEEE International Conference on Systems, Man & Cybernetics Beijing, China 14 - 17 October 1996

Send: 4 copies 2-3 page abstract (typed) to address on page 11.

Paper submission deadline: 15 Jan 1996
Acceptance Notification: 1 Apr 1996
Final camera ready paper: 1 Jun 1996

FORTHCOMING CONFERENCES, WORKSHOPS AND EVENTS

1995	Event	Location	Contact [Sponsor]
3-6 July IPA95	5th International Conference on Image Processing and its applications	Edinburgh, UK	IPA95 Secretariat, IEE Conference Services, Savoy Place, London, WC2R 0BL, UK. conference@iee.org.uk [IAPR]
9-14 July 40 SPIE	SPIE's 40th Annual Meeting - Mathematical Imaging	San Diego, USA	SPIE, PO Box 10, Bellingham, Washington 98227-0010, USA. Phone: +1 206 676 3290
1-7 Aug CVAG	International Workshop on Computer Vision and Applied Geometry	Nordfjordeid Norway	Theo Moons, ESAT-M12, K Mercierlaan 94, B-3001 Leuven, Belgium. Theo.Moons@esat.kuleuven.ac.be
5-9 Aug IROS'95	IEEE/RSJ International Conference on Intelligent Robots and Systems	Pittsburgh, USA	Patricia Mackiewicz, School of Computer Science, Carnegie-Mellon University, 5000 Forbes Avenue, Pittsburg, PA 15213-3891 USA. patty@cs.cmu.edu
7-9 Aug DMSA	Distributed Multimedia Systems and Applications	Stanford, USA	Dr Borko Furht, Department of Computer Science & Eng, Florida Atlantic University, Boca Raton, Florida 33431, USA. borko@cse.fau.edu
10-11 Aug GRec95	IAPR Workshop on Graphics Recognition	Pennsylvania USA	Professor R Kasturi, Dept Computer Science & Engineering, Penn State University, University Park, Pennsylvania 16802, USA. kasturi@cse.psu.edu [IAPR]
10-11 Aug ISATP'95	1995 IEEE International Symposium on Assembly and Task Planning	Pittsburgh, USA	Prof Sukhan Lee, Dept Computer Science, University of Southern California, Los Angeles, California 90089-0781, USA. rajeev@cs.uiuc.edu
14-16 Aug ICDAR '95	Third International Conference on Document Analysis and Recognition	Montreal, Canada	Professor R Kasturi, Dept Computer Science & Engineering, Penn State University, University Park, Pennsylvania 16802, USA. kasturi@cse.psu.edu [IAPR]
21-25 Aug ICIPR'95	International Congress on Intellectual Property Rights	Vienna, Austria	Austrian Computer Society, Wollzeile 1-3, A-1010 Vienna, Austria. Ocg@univie.ac.at
6-8 Sept CAIP'95	6th International Conference Computer Analysis of Images and Patterns	Prague, Czech Republic	Vaclav Hlavac, Czech Technical University, Faculty of Electrical Engineering, Department of Control Engineering, Karlovo namesti 13, CZ-121 35 Prague 2, Czech Republic. caip95@vision.felk.cvut.cz [IAPR]
11-14 Sept BMVC'95	Sixth British Machine Vision Conference	Birmingham, UK	David Pycock BMVC'95, School of Electronic & Electrical Engineering, The University of Birmingham, Edgbaston, Birmingham B15 2TT UK. BMVC95@bham.ac.uk
12-16 Sept BiOS Europe'95	European Symposium on BiOS Europe'95	Barcelona, Spain	BiOS Europe'95, c/o Direct Communications Gmbh, Xantener Strasse 22, D-10707 Berlin, Germany. Burger,100140.3211@compuserve.com
13-15 Sept ICIAP'95	8th International Conference on Image Analysis and Processing	San Remo, Italy	Professor Leila De Floriani, ICIAP '95, University of Genova, Viale Benedetto XV 3, I-16132 Genova, Italy. iciap@dibe.unige.it [IAPR]
13-15 Sept 17th DAGM	17th DAGM Symposium on Pattern Recognition	Bielefeld, Germany	Prof G Sagerer, University of Bielefeld, Technical Depart Applied Comp Science, PO Box 10 01 31, 33501 Bielefeld, Germany, dagm@techfak.uni-bielefeld.de
17-22 Sept ISIT'95	IEEE International Symposium on Information Theory	Whistler, Canada	Prof I Blake, Dept Elec Comp Eng, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1. ifblake@claude.uwaterloo.ca
18-20 Sept CAMP'95	Computer Architectures for Machine Perception	Como, Italy	Alessandra Setti, Dip. di Informatica e Sistemistica, Via Abbiategrasso 209, 27100 Pavia, Italy. ale@ipvvis.unipv.it [IAPR]
19-21 Sept PRIA'95	Third Scientific Conference on Pattern Recognition and Image Analysis	Minsk, Belarus	Professor S Ablameyko, Institute of Engineering Cybernetics, Belarusian Academy of Sciences, Surganov str 6, 220012 Minsk, Belarus. mahaniok%bas10.basnet.minsk.by@demos.su

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66 WESTON PARK, THAMES DITTON, SURREY KT7 0HL, UK. EMAIL: 100042.511@COMPUSERVE.COM

25-29 Sept SRS-II	European Symposium on Satellite Remote Sensing II	Paris, France	Satellite Remote Sensing II, c/o Direct Communications GmbH, Xantener Strasse 22, D-10707 Berlin, Germany. 100140.3216@compuserve.com
27-30 Sept KARP-95	2nd International Symposium on Knowledge Acquisition, Representation and Processing	Alabama, USA	Chuck Karr, US Bureau of Mines, The University of Alabama Campus, PO Box L, Tuscaloosa, Alabama 35486-9777, USA. karr@ai.usbm.gov
9-13 Oct ESSRS II	European Symposium on Satellite Remote Sensing II	Florence, Italy	The Europto Series, Direct Communications GmbH, Att. Ms Susan Jones, Xantener Str 22, 10707 Berlin, FR Germany. (Jones)100140,3214@compuserve.com
22-25 Oct ICIP'95	1995 International Conference on Image Processing	Washington DC, USA	ICIP'95, Conference Management Services, 3024 Thousand Oaks Drive, Austin, Texas 78746, USA. icip95@ieee.org
20-23 Nov SIP-95	Signal and Image Processing	Las Vegas, USA	IATED Secretariat SIP-95, 1811 W Katella Avenue, Suite 101, Anaheim, California 92804, USA. iasted@orion.oac.uci.edu
5-8 Dec ACCV'95	Second Asian Conference on Computer Vision	Singapore,	Mr Eric Sung, Research Lab IV, School of Elect & Electronic Eng, Nanyang Technological University, Nanyang Ave, Singapore 2263. accv95@ntu.ac.sg [IAPR]
6-8 Dec DICTA'95	Digital Imaging Computing Techniques and Applications	Brisbane, Australia	Ross Walker, DICTA95, C/-Dept Elect and Comp Engineering, University of Queensland 4072, Australia. dicta95@cssip.elec.uq.oz.au
11-13 Dec ICSC'95	Third International Computer Science Conference - Image Analysis Applications and Computer Graphics	Hong Kong	Professor R T Chin, Department of Computer Science, Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong. roland@cs.ust.hk [IAPR]
13-15 Dec ICPIC	Indian Conference on Pattern Recognition, Image Processing and Comp Vision	Kharagpur, India	Dr B N Chatterji, Dean Acedemic Affiars, IIT, Kharagpur 721 302, India. bnc@iitkgp.ernet.in
1996	1996	1996	1996
8-10 Jan ARC'96	Applications of Control and Robotics	Orlando, FL, USA	IATED Secretariat ARC'96, 1811 W Katella Ave, Suite 101, Anaheim, California, USA. iasted@orion.oac.uci.edu
28 Jan-2 Feb MVAII	Machine Vision Applications in Industrial Inspection 1996	San Jose, CA, USA	IS&T/SPIE E1'96, SPIE, PO Box 10, Bellingham, Washington 98225, USA. abstracts@mom.spie.org
21-22 March RECPAD'96	8th Portuguese Conference on Pattern Recognition	Guimaraes, Portugal	RecPad'96, University of Minho, Azurem, 4800 Guimaraes, Portugal. recpad96@eng.uminho.pt
9-12 April EMCSR 1996	13th European Meeting on Cybernetics and Systems Research	Vienna, Austria	Robert Trappl, Dept Med Cybernetics & Artificial Int, University of Vienna, Freyung 6/2, A-1010 Vienna, Austria. sec@ai.univie.ac.at
14-18 April ECCV'96	Fourth European Conference on Computer Vision	Cambridge, UK	ECCV'96 Conference Secretariat, 42 Devonshire Road, Cambridge, CB1 2BL, UK. cc@confcon.demon.co.uk
21-24 May VI'96	Vision Interface '96	Toronto, Canada	Prof F Nouboud, Universite du Quebec a Trois-Rivieres, Case Postale 500, 3351 boul.des Forges, Trois-Rivieres, Canada. nouboud@uqtr.quebec.ca [IAPR]
20-23 Aug SSPR'96	International Workshop on Structural & Syntactic Pattern Recognition	Leipzig, Germany	Mrs R Vetter, HTWK Leipzig FB Informatik, PSF 66, 04251 Leipzig, Germany. ssp96@informatik.th- leipzig.de
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 [IAPR]
2-5 Sept 5 IWFHR	Fifth International Workshop on Frontiers in Handwriting Recognition	Colchester, UK	Prof S Impedovo, Dipartimento di Informatica, Università di Bari, Via Amendola 173, 70126 Bari, Italy. Fax: +80 544 3142
14-17 Oct SMC	1996 IEEE International Conference on Systems, Man and Cybernetics	Beijing, China	1996 IEEE/SMC Conference Secretariat, Professor Jian Chen, School of Economics & Management, Tsinghua University, Beijing 100084, China. Fax: +86 10 259 5876

