IAPR

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

NEWSLETTER

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Copy for the April edition should reach the Editor not later than 5 February 1994.

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FROM THE EDITOR'S DESK

Dear Friends and Colleagues

From this issue of our newsletter onwards, I have accepted responsibility for its overall production; Susan Duff, in charge of IAPR's Secretariat, has agreed to help me. I must admit, I feel quite overwhelmed by the daunting task and without Susan's help I would not feel able to cope.   On the other hand, Adrian Clark, our editor thus far, managed to produce the newsletter on his own without much help from other people. Adrian has now taken over the chair of Technical Committee 5 on Benchmarking and Software and I would like to take this opportunity to thank him for all his good work and wish him good luck with his new responsibilities;   his efforts are much appreciated by the whole community.

As the new editor, I would like to use this editorial to express my thoughts for the newsletter.   I would like every member of IAPR to feel that this is our voice and our forum for talking to each other.   This can only be true with your help and cooperation.   If you have some views which might interest the community and you would like to air them, please drop me a line. If you go to a conference and feel strongly about

something, or are simply inspired by it and would like to try out your reporting talents (!), please do send me the result. It will be highly appreciated and I will be happy to receive your contributions.

In addition to letters to the editor, another new column we decided to introduce is a column with news of members. Please drop me a line if you think some news item concerning a member is news-worthy.

I receive occasionally books for reviewing which I like to pass on to people who are interested in reviewing them. The reviewer has to write his/her opinion of the book and gets to keep the book as a reward; if you would like to participate, please send me a message stating your main interests and your postal address. Further, if you are the author of a book, do tell the marketing department of your publisher to send us a copy so that we have it reviewed, and publicised, through our columns.

To start things up, and as it has just been the festive season, I thought we might have a bit of fun! What about a cartoon competition? First prize, US $50. The subject of the competition is open but it would be good if it had some relevance to the interests of the community. Please send your entries to me by mid February.

Please remember: this newsletter will be boring, dull and unexciting unless you want it to be otherwise, unless YOU feel it is yours!

Susan and I promise to do our best for a smooth, timely running, but a successful newsletter cannot be a one-man band - not even a two-women band!

Maria Petrou
Editor

When the IAPR Public Relations Officer, Professor Goodimage, saw the photograph (above) of the newly-appointed newsletter editor, he was dismayed!

He asked the Statistics Department of the University of Leeds to do their best to sort it out.

This research group applied a technique described in an article by K V Mardia and J Hainsworth in the book "Advances in Applied Statistics: Statistics and Images" (Volume 1, 1993, edited by K V Mardia and G K Kanji).

The result is shown below.

HOW TO JOIN IAPR
Gunilla Borgefors - Membership Committee Chairman writes...

The members of IAPR are national or multinational non-profit making scientific societies. At present we have 30 members, from all continents except South America. If there is an IAPR member society in your country, you may join by joining that society. If there is no member society in your country, but there already exists a society within the IAPR area of interest, that society can apply for membership. It is also possible for a sub-group of the society to apply. This is the case where the existing society covers a larger area of interest, e.g. computer science.

If there is no suitable society, but a number of people are interested in the area, then you should get together and constitute a society before applying for IAPR membership. I have a very simple sample constitution (based on the corresponding Swedish society's constitution) that I can send you if you need help in formulating the constitution of your own society. The smallest size for membership of IAPR is 25 persons. If there are not enough people to form such a society, then you can still obtain most of the information of IAPR activities by subscribing to the IAPR Newsletter. The price is US$20 a year (four issues). Contact the IAPR Secretariat if you are interested in a subscription .

When an existing or a newly constituted society applies for IAPR membership, the procedure is as follows:

1. You must send a description of your organization to the Chairman of the Membership Committee (that is to me). This description should contain enough information to decide if the organization meets the requirements of Bylaw 2.1 (see extract from the IAPR Bylaws below). I need an English translation of the constitution of the organisation, a description of the field of interest it covers, and what activities it conducts.

2. I need information on the effective size of the organization. If the organization is completely devoted to pattern recognition or one of its sub-fields, its effective size is equal to the number of members. If the scope of activity is broader, the number of members actively interested in IAPR-related activities must be determined. If there is no other indication, such as a defined subgroup within the organization, a reasonable criterion is the number of members that would be interested to receive the IAPR Newsletter regularly. Note that the sub-group must be clearly defined, for example by an address list.

3. After I have had this information, the Membership Committee will consider if the organization is suitable for IAPR membership. If we decide it is, I will invite you to send me a formal application for membership, signed by an authorized representative of the organization.

4. After I have the application, a ballot will be held by the IAPR Governing Board. This can be done by mail, so there is no need to wait for a Governing Board meeting (the next will take place in Jerusalem October 1994). In the letter accompanying the vote, a short description of your society will be enclosed. If and when a majority of the Governing Board votes for your admittance to the IAPR, I will inform you of this decision.

5. After you have paid your dues, you will elect your Governing Board member(s), who will represent you at and between the Governing Board meetings. Also you will receive the Newsletter and all other information distributed by the IAPR. The Newsletter is either mailed individually (if you provide an address list) or in bulk. All other information will be sent to an address of your choice, except that going directly to Governing Board member(s).

The following extracts from the IAPR Bylaws are especially relevant:

2.1 To be eligible for membership, an organization shall be national, multinational, or international in scope and shall be a non-profit scientific or professional organization, whose membership is open to qualified individuals and is organized along democratic principles. The term "national" is defined to be in accordance with accepted United Nations terminology.

3.2 Organizations applying for membership shall provide information about their constitution and bylaws or provide equivalent information about their functioning and their status. If an organization's scope of activity is broader than the field of interest of IAPR, the effective size of the membership with activities within the field of interest of IAPR shall be indicated, both for purposes of publications distribution and for purposes of representation in IAPR.
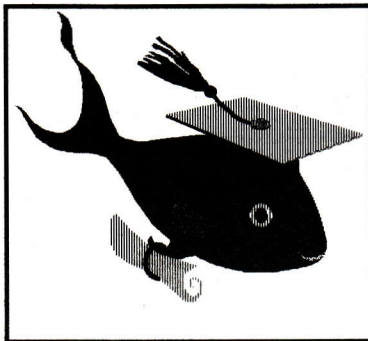
EDUCATION COMMITTEE ACTIVITY REPORT
GABRIELLA SANNITI DI BAJA - CHAIRMAN

In Spring 92, the former IAPR President, Prof. Michael Duff, invited me to set up a new IAPR *ad hoc* Committee that could promote education in the general area of pattern recognition and related fields, such as computer vision and image processing (PR, CV and IP, for short). The aim of this initiative was to give concrete answers to the relevant needs manifested by many people in our research community. The IAPR Committee was reconfirmed for a two year period, at the IAPR Governing Board meeting, held at 11-ICPR in The Hague, (August 30 - September 3 1992).

Besides me, the Committee currently includes ten members, coming from different geographic and research areas so as to reflect the variety of professional and social conditions where the scientific community operates. They are: Prof. Keiichi Abe (Shizuoka University, Hamamatsu, Japan), Prof. Fritz Albregtsen (University of Oslo, Norway), Dr. Carlo Arcelli (Istituto di Cibernetica CNR, Arco Felice, Naples, Italy), Dr. Aurelio Campilho (Universidade do Porto, Portugal), Prof. Josef Kittler (University of Surrey, Guildford, UK.), Dr Paul C.K. Kwok (University of Calgary, Canada), Prof. Nikolay Petkov (University of Groningen, The Netherlands), Prof. Hanan Samet (University of Maryland, College Park, U.S.A.), Prof. Georges Stamon (Université de Paris V, Sorbonne, Paris, France), and Dr. Piero Zamperoni (Technische Universität, Braunschweig, Germany).

The scope of the Committee is mainly to promote the following actions:
1. To consider ways in which potential users of PR, CV and IP techniques can be informed as to what techniques are currently of practical use;
2. To maintain a database listing good educational material for PR, CV and IP, including review articles, text books and video tapes;
3. To maintain a list of currently available courses and tutorials in PR, CV and IP including formally taught courses in the universities and polytechnics;
4. To commission and sponsor the production of high quality educational material;
5. To maintain a database listing competent speakers and course tutors in PR, CV and IP and to advise conference organisers seeking such individuals.

A first brief investigation has shown that Pattern Recognition, Computer Vision and Image Processing have grown to be significant parts of Computer Science and Electrical Engineering but, this notwithstanding, have not yet been recognised as autonomous disciplines. In fact, only few educational institutions have a specialisation in Pattern Recognition in the undergraduate programme. On the other hand, judging by the size of our community, as evident in the size of international conferences and journal publications, more coverage in the undergraduate curricula in Electrical Engineering and Computer Science should be expected. If we are able to collect information on the contents of good courses held by experienced lecturers, on textbooks, on lecture notes and on laboratory software for teaching purposes, we could offer this information to those who plan to start new courses, especially for students of Electrical Engineering, Computer Science and Applied Sciences. Due to the huge amount of data we are potentially interested in, we have initially concentrated our efforts on the essential tools of PR, CV and IP, those worth to be taught and learned. We should, in the following, take account of unions, intersections and symmetric differences among pattern recognition, computer vision and image processing.

The activity carried on by the Committee has been mainly concerned with the preparation of a database, listing good educational material for PR, CV and IP. More than 600 titles have been collected by the committee members. Most of the titles refer to books. Among them, about 60% are textbooks, the remaining 40% are edited collections of contributions, which have mostly been presented at international conferences. Although the majority of the books are in English, a few books in German, French, and Italian have also been included.

The collection of Image Processing and Pattern Recognition courses has also been started. The core is a set of questionnaires that NOBIM (the Norwegian Society for Pattern Recognition) distributed during 1991 to universities and polytechnics of Western Europe, USA and Canada. The questionnaire contained, besides general information on the institution, more specific information on education

in PR, CV, and IP (does the institution have a study branch in PR, CV, and IP, or is the education given as a support to other study branches?; what is the level of education, and the hardware and software equipment used in education, etc.), and information about separate courses (name of the course, number of terms and hours per term, textbooks, etc.). Unfortunately, only a small fraction of the questionnaires that have been distributed have come back, which does not allow the calculation of any meaningful statistics. We plan to prepare a new version of the questionnaire and to distribute it in a capillary way.

A new stimulus for the Education Committee activity was provided by the Colloquium "The Teaching of Digital Image Processing in Universities", London, October 21, 1993, which was organised by the Professional Group E4 of IEE in association with the British Machine Vision Association. The purpose of the Colloquium was to examine the scope and nature of courses currently offered in the UK, and to address a number of relevant questions. The Education Committee is currently discussing the possibility of organising similar one-day meetings in the countries having a representative in the Education Committee. This could help us to collect enough information to collect some significant statistics and to see whether a core syllabus can be found in the courses offered in a wider territory.

(Gabriella Sanniti di Baja - email: gabry@gabry.na.cnr.it)

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How To Join IAPR

[Continued from page 3]

Current annual dues and representation in the Governing Board for organizations of different effective sizes: Category A1 (25-75 members) US$ 60, one GB member; Category A2 (76-200 members) US$ 150, one GB member; Category B (201-800 members) US$ 425, two GB members; Category C (>800 members) US$ 1500, four GB members. The members of the IAPR in October 1993 are: Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Czech Republic, Denmark, Finland, France, Germany, Hong Kong, Hungary, India, Israel, Italy, Japan, Korea (South), Netherlands, Norway, PR China, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom, and USA. We hope for many more members in the near future.

Professor Gunilla Borgefors
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NEWS OF MEMBERS

Congratulations to
GUNILLA BORGEFORS

Gunilla Borgefors, the IAPR Secretary, has recently been appointed Professor of Image Analysis and Remote Sensing at the Centre for Image Analysis, Swedish University of Agricultural Sciences in Uppsala, Sweden.

The Centre, which was started 5 years ago, is a joint department between Uppsala University and the Agricultural University and Gunilla is the first full Professor to be appointed. Her task is to create an image analysis group that will be used as a resource for the whole Agricultural University.

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Honour for
DENNIS RUTOVITZ.

Professor Dennis Rutovitz of the Medical Research Centre in Edinburgh was honoured at the 1993 British Machine Vision Conference for his meritorious service over many years to the UK Pattern Recognition and Machine Vision community. He was unable to receive in person the presentation of a pair of binoculars as he could not leave more pressing commitments in organising humanitarian relief convoys to war-torn Bosnia.

Professor Rutovitz was influential in the 1970s and 80s in the development of the Pattern Recognition Discussion Group (founded by former IAPR President Michael Duff and eventually to become the British Machine Vision Association). He sat on its executive committee for many years and was chairman of the 1985 British Pattern Recognition Conference held in St Andrews, Scotland.

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Nordic Award for
BEST PHD THESIS IN PR

The four Nordic IAPR members have been cooperating for many years and the most visible result of this is the Scandinavian Conference on Image Analysis (SCIA) that rotates between the four countries. Recently a new initiative has started offering a biennial award announced at each SCIA: the Nordic Award for the Best PhD Thesis. Apart from the honour, the recipient receives 10000 krøner (about US$1250). The first award, for the years 1991-92 was awarded to Dr Jonas Gårding of the Department of Numerical Analysis & Computing Science, Royal Institute of Technology, Stockholm, Sweden, for his thesis "Shape from Surface Markings". The award was presented at 8SCIA in Trømso, Norway.

International Conference on Image Processing
Theory and Applications
San Remo Italy   June 1993

This was the first conference I have been to, where I saw so many broken limbs! There was at least one arm in plaster, and a whole leg too, having travelled all the way from Cambridge for the occasion! This can only indicate determination and high expectations - which were fully satisfied! The organizers and the city of San Remo made us all feel more than welcome there. Even the heavens cooperated and sent their best weather! The conference took place in the municipal Casino. Odd place, you might think, especially since the conference was announced in the Casino program of events sandwiched between musical and theatrical attractions! However, there was a perfectly good explanation, given to us by the program chairman Venetsanopoulos: Image Processing nowadays uses a lot of stochastic methods and casinos rely entirely on such methods! Huang on the other hand, gave his presentation in a way that even the tourists who happen to have come by a mistake misled by the Casino program of events, would enjoy and understand!

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Seriously now, I found Professor Huang's invited talk on polynomial methods in motion analysis, very instructive, as well as lucid and entertaining. Professor Venetsanopoulos gave a comprehensive review on colour processing and, in particular, colour enhancement. Professor Kunt gave an interesting talk on HDTV. According to him the HDTV of the future will be a camel! (On the grounds that it is being designed by a committee of all interested ex-competitors, and if you ask a committee to design a horse, they will come up with a camel, because they have to satisfy everybody!) Professor Munson gave a very interesting review on SAR data and the inverse SAR problem, a term used to indicate situations where the device is stationary, but the target is moving. He drew parallels between SAR imaging and tomography and explained how one can reconstruct the whole image from the knowledge of a piece of its Fourier transform even if the latter is offset from the origin of the axes in Fourier space. Other speakers were Professor Chen, who spoke on Neural Nets and Professor Chandrasekaran on Abductive Reasoning and Recognition.

There were two panel discussions. One on Image Processing for industrial applications, with panelists: Di Paolo, from Bull Italia, Annunziano from ENEA (an organization which is designed to bring into contact universities and industry in Italy), Chen from the University of Massachusetts, Musso from Elsag-Bailey and Sobel from Hewlett Packard. (Yes, THE Sobel! In fact he was the conference star with people wanting to be photographed with him! Locals have a lot of practice posing with personalities in those parts of the world, but the rest of us do not often see our favourite filters in flesh!).   Most of the people seemed to agree that computing power is not a problem; the problem is the best utilisation of the existing power for real applications. Sobel epitomised the situation: "There is nothing more than a real world application to humbling the theoretician and show the big gap!'' But we all counselled ourselves that we did have some successes after all ,OCR systems seem to be doing quite well. The euphoria of this, however, soon evaporated, when somebody from the audience pointed out that OCR systems analyse "scenes'' which can be expressed in terms of an alphabet, while no such thing can be done for general images; so, the success of OCR's is not particularly relevant to automated vision.

The second panel discussion was on hybrid systems. The panel consisted of Bunke from the University of Bern, Venetsanopoulos from the University of Toronto, Chandrasekaran from Ohio State University, Garriboto from Elsag-Bailey and myself. There was some discrepancy as to what is a hybrid system, although even without a definition, everybody agreed that hybrid systems are good for you! Somebody saw them as analogue versus digital, others as numerical versus symbolic or even modular versus integrated. According to Bunke, there are open problems concerning the development of Neural Nets that process symbolic data, and methodologies for the decomposition and analysis of complex systems.

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The conference proceedings are published in a smart volume by Elsevier (ISBN 0 444 89969 3), edited by Vernazza, Venetsanopoulos and Braccini (who was the technical committee chairman).

The whole conference organisation was impeccable, thanks to Professor Vernazza and his team from the University of Genoa. The welcoming party was held in Villa Nobel, where Nobel (yes, THE Nobel) spent the last 6 years of his life. There was excellent Italian food and drink and live entertainment with folk songs. The seven course(!) dinner banquet was held in a restaurant by the sea and we enjoyed the Italian delicacies while being entertained with live music.

This conference was inspired and organized in honour of the 500 years from the discovery of America by the famous son of Genoa, Colombus. There were some rumours that there may be another conference in the same place in 1995, to commemorate the 100 years from the time Nobel wrote his famous will. I would suggest that they should also commemorate the 100 years of Nobel's death, by organizing yet another conference in 1996 (any excuse will do!).

Maria Petrou

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The Ukrainian Association on Information Processing and Pattern Recognition
Taras Vintsiuk - President

UAsIPPR

was organised in November 1992 and was recognised by the Ukrainian Government in March 1993. The association unites 625 members (including more than 300 professors and doctors), 45 groups of 15 Academic and Research Institutes, 20 Universities and Technological Institutes, 10 Scientific-Engineering Amalgamations, Joint Ventures etc.

The main goal is to develop Theory and Applications of Signal/Image Processing and Pattern Recognition in Ukraïna and by this way to contribute to improvements in the quality of life. The main topics now developed in Ukrainian research organisations are:

Theory of Signal/Image Processing and PR
Supervised and Non-Supervised Learning in PR
Computer Vision and Stereo Vision
Computational and Scene Geometry
Diagnostics of Objects, Machines and Phenomena on its Signals and Fields
Speech Recognition, Understanding and Synthesis
Hand-Written, Drawing and Graphic Picture Processing and Recognition
Scene Analysis
Remote Sensing Information Processing
Photograph Processing
Signal/Image Coding and Processing
Multimedia Systems
Natural Language Analysis
Special Hardware Architectures
Industrial Applications.

The Ukrainian scientists took an active part in scientific life in the field of Pattern Recognition in the former USSR. We participated in all All-Union conferences organised in the past. In October 1990 we organised the first International Conference on Information Technologies for Image Analysis and Pattern Recognition. During 1992 in independent Ukraïna there were two International symposia, "Probabilistic Models and Processing of Random Signals and Fields" and "The First All-Ukrainian Conference on Signal/Image Processing and Pattern Recognition"; the Proceedings of all these were published.

There are courses for students on Pattern Recognition and related fields in our Universities and Ukrainian scientists publish many papers every year; during 1992 several books were published. Our researchers have connections with Western research institutes and the journals "Cybernetics" and "Automatics" are translated into English and are re-edited in the USA.

The basic UAsIPPR institutions are The Institute of Cybernetics, The Institute of Physics and Mechanics of the Academy of Sciences of Ukraina and the Kharkiv Institute of Radioelectronics. Here some well-known techniques originated and were developed: HCDP-Technology for Automatic Speech Recognition and Synthesis based on hierarchical (H) composition (C) of speech patterns by generative grammars and dynamic programming (DP) in signal comparison and optimal solution; Two-Dimensional Structural Picture Analysis and Recognition (Two-Dimensional Generalisation of Formal Grammars and Languages); Heuristic Algorithms for Identification, Extrapolation and Prediction; Special Hardware Architectures for Signal/Image Processing.
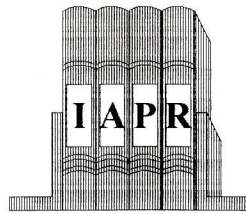
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Professor Vintsiuk is the IAPR Governing Board representative; his address is:

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BOOK   IAPR   REVIEWS

Pattern Recognition Engineering
by M Nadler and E P Smith
Published by John Wiley & Sons 1993.
(588 pages, ISBN 0-471-62293-1)

This book presents a formalized approach that has been used for several years in teaching PR (Pattern Recognition) courses in Virginia Tech, both for electrical engineering and computer science students. The text covers some important topics that have been neglected or inadequately presented in other textbooks. A major feature of the book is the parallel development of the statistical and structural approaches to PR and their synthesis in a unique hybrid approach. The title of the book is well justified since the authors pay constant attention to hardware and software aspects of PR implementation. Another feature of the book is inclusion of much of the authors' original material from their own practice along with a comprehensive and critical coverage of the most widely used methods.

The book is divided into 12 chapters. As opposed to most textbooks on PR a reader can find in the introductory chapters a very good overview of related but very important subproblems of PR like those of data acquisition, their preprocessing, low-level feature extraction, etc. Material related to practical PR systems is also presented and a special chapter devoted to the very significant topic of segmentation and related techniques. The concept of features and its association to reduction of dimensionality is discussed in a separate chapter. Different types of features are examined, especially those for shape characterization and speech recognition. The topic of expansion coefficients from moment analysis, Fourier, Hadamard and Karhunen-Loeve transforms together with its application to feature design in PR, particularly in time series and digitized image arrays is discussed in detail. Problems specific to classification, segmentation and characterization of textures are treated in a special chapter, alongside statistical and structural methods of solution, including a hybrid method combining both approaches.

A substantial part of the book, consisting of three chapters, is devoted to presentation and discussion of 'classical' statistical PR. The first of the three chapters provides the necessary mathematical background making the text self-contained, though the reader would benefit from some knowledge of mathematical statistics. In addition to fundamentals of probability, distance measures, clustering techniques and classification in hyperspaces are also discussed. Bayes' optimal decisions are discussed in the following chapter, including the topics of parameter estimation and empirical probability density functions with unknown distributions, a case very important to the practitioner. The last of the three chapters deals with the problems of methods other than the Bayes approach, namely nearest-neighbour classification and clustering, evaluation of classification rules, hierarchical and sequential methods, time and frequency domain approaches and finally fuzzy methods.

The next two chapters examine the alternative approach to PR by means of structural methods. The first of them is devoted to formal linguistic methods and their application to PR. The presentation is also self-contained since all necessary prerequisities like state machines, graphs, grammars, Chomsky theory, stochastic grammars and regular languages are well presented with numerous examples and references for those seeking more details. The topic of structural approach to PR continues with the application of state machine methods to PR problems. A hybrid approach resulting from combination of the decision-theoretical and structural approaches is discussed, followed by examining the hybrid implementation of hierarchical and sequential decision methods.

The book is concluded by a review of learning techniques including problems of learning statistical discriminants, learning in structural recognition and sample size considerations. Though somewhat brief, this review provides an overview of the discussed problems, as well as of the topic of neural nets. An extensive reference list can be useful to those who may find that some parts are not covered in sufficient detail. The engineering orientation of the book is emphasized even more by including some hardware consideratins of PR systems in the appendix. A number of selected problems concerning the material

covered in particular chapters makes the book very useful even as a basis for courses on PR.

There is not much to criticise about the book. The authors provided really an outstanding introduction to a great variety of PR and related problems, having in mind predominantly the engineering approach. Students of electrical engineering and computer science as well as researchers in pattern recognition, computer vision and image analysis will find the book a very valuable and comprehensive source of information.

Pavel Pudil
Cambridge University, UK

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Object Recognition by Computer: The Role of Geometric Constraints
by W E L Grimson
MIT Press 1990

The only way to evaluate a book, particularly an academic book, is to ask whether or not it has achieved what its author(s) intended. Grimson and his collaborators (this book contains contributions by both Thomas Lozano-Perez and Daniel Huttenlocher) have, I believe, reached the goals they set themselves. In doing so they may have produced a classic text on object recognition.

Their primary aim is to describe their own work with enough clarity and in sufficient detail that it could be replicated and built upon. Motivation for this comes from the observation that a number of approaches to recognition, tree search techniques in particular, are reaching maturity. The book seeks to chronicle and evaluate these approaches, thereby speeding the development of the next generation of systems. This it does well. While it is stressed that this volume should not be looked upon as a manual for building recognition systems, its discussion of tree search methods and 2D and 3D constraints is comprehensive and easily detailed enough to allow implementation.

A secondary goal is to give a "glimpse" of other approaches. The book does mention alternatives, geometric hashing methods for example, but is fairly tightly focussed on the work of Grimson's group. The reference lists provided are, however, excellent and Grimson's overviews and commentary would allow interested readers to find their way quickly to the appropriate literature.

This is a large book on a smallish topic so one would expect its treatment to be quite detailed. However with 150 pages on combinatorics and less than 20 on empirical testing, the book does have a strong theoretical basis. It is nevertheless very easy to read and, if appropriate, the detailed mathematical chapters can be skipped without the flow of the text being badly disrupted. Some of the later sections on recognition from libraries, parameterised objects, the role of grouping and sensing strategies are perhaps a little short. This no doubt reflects the author's interests at the time of writing. These sections do, however, have extensive bibliographies and serve to show which areas of recognition are well developed and which are largely unexplored, the third of Grimson's aims. Perhaps more importantly, they show how these topics relate to the core recognition/localisation problem and so put the prime subject of the book into context.

Grimson's book is a well-written and detailed account of a large, coherent body of research into the use of geometric constraints in object recognition. It is not a book for the novice, but it is an excellent starting point for everyone seriously considering the development of an object recognition system.

T P Pridmore
Sheffield Hallam University, UK

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KING-SUN FU AWARD
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Professor King-Sun Fu, who served as the first President of IAPR, is widely recognised for his extensive contribution to the field of Pattern Recognition. In honour of his memory, an award is presented biennially to a living person in recognition of an outstanding technical contribution to the field of PR.

The 1994 award will be presented in Jerusalem at 12-ICPR and nominations must be received by the Awards Committee Chairman, Dr M D Levine, by 1 March 1994. For nomination forms and further details, contact Dr Levine:

McGill Research Center for Intelligent Machines 3480 University Street, Montreal, Quebec, Canada H3A 2A7.
email: levine@mcrcim.mcgill.ca

HKSMIC

Hong Kong Society for Multimedia and Image Computing
Horace Ip - President

HKSMIC

had its inaugural meeting on the 21 November 1992. Since then, the number of members has increased to around 100. The Society fields of interest include:

- multimedia and hypermedia systems
- computer graphics
- image coding and processing
- pattern recognition
- computer vision.

The Society will work closely with the local chapters of other related learned societies such as the IEEE, ACM and the IEE in its endeavour to promote and to advance the theory and practice of multimedia and image computing in Hong Kong.

The value of any technology can be judged by how that technology has improved the quality of our life and the efficiency and effectiveness of the services available to our community. This in turn, is dependent upon three related aspects of technological development:

- a firm scientific base which establishes the theoretical basis of the technology

- a product base which provides cost-effective implementation of the technology

- a user base which exploits the technology in various application domains.

With these observations, HKSMIC would take into account the interests of the professionals working in these three aspects of technological development in multimedia and image computing. The aims and objects of the Society are very much shaped by these observations. We hope the HKSMIC will provide a forum for the exchange of ideas and information between researchers and practitioners working in this field as well as between vendors and potential users of the technology. It is expected that future activities of the Society can be broadly classified under two categories: (a) end-user education and information services and (b) academic seminars.

To accomplish (a), the Society aims to bring together potential end-users of multimedia and image computing products and their vendors. This allows, on the one hand, end-users to have regular updates of the latest products, their functionalities and trends and, on the other hand, vendors to receive direct feedback from their potential customers.

During the first year of its existence, HKSMIC organised a number of seminars on multimedia computing, provided a regular newsletter service to its members and successfully negotiated discounts on a number of computer and computing related products and journals for its members. The Society was also the technical organiser for the first Multimedia and Image Computing Pavilion at the annual conference of the South East Asia Computer Confederation (SEARCC'93) which was held in Hong Kong in October 1993.

Among other activities planned for the coming year are a multimedia presentation competition and assisting in the organisation of the Multimedia Pacific Summit to be held in February 1994.

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The founding president of HKSMIC is Dr. Horace H S Ip who is also the HKSMIC representative on the IAPR Governing Board. His contact address is:

Hong Kong Society for Multimedia and Image Computing
c/o Image Computing Laboratory
Department of Computer Science
City Polytechnic of Hong Kong
Tat Chee Avenue
Kowloon
Hong Kong
Tel: +852 788-8641
Fax: +852 788-8614
Email: cship@cphkvx.cphk.hk

BAIAR

Belarusian Association for Image Analysis and Recognition
Sergey Ablameyko - President

BELARUS

is one of the republics in the former USSR; with a population of 10 million it is situated in the western area between Poland and Russia.   It has happened that many highly technological productions have been organised and developed in Belarus which was, and remains, one of the more highly developed republics in the former USSR. There is a Belarusian Academy of Sciences with 30 Institutes, 14 Higher Educational Institutes, many Research Institutes, Laboratories etc.

Pattern recognition and image analysis tasks are developed and solved in different institutes.   In the past we took an active part in the scientific life of the USSR by organising conferences, seminars and creating complex image analysis systems for different applications.   We published many books in the pattern recognition field, but practically all of them in the Russian language.   The level of results of Belarusian scientists is very high but unfortunately it was not easy in the past to show it to all the scientific community;   now we begin to be able to do so although political changes during the last years have given many problems to scientists.

To support research in this field, the Belarusian Association for Image Analysis and Recognition (BAIAR) has been organised.   A great help in the creation of BAIAR has been given by the IAPR Secretary, Professor Gunilla Borgefors, and now we are members with more than 75 researchers working in this field.

The main topics where we have strong results are:

- document image interpretation
- structural and statistical pattern recognition
- remote sensing image analysis
- digital signal processing
- applications in medicine, ecology, GIS and others
- speech recognition and synthesis

Our most important task now is to save the scientific potential in the hard economic times.   To manage it we need support from the world scientific community and we would like to have joint collaboration projects, grants for young researchers, support for our scientists at international conferences, IAPR events etc.   We understand that now is not an easy time in many countries, but joining our efforts gives benefits to all sides.   We strongly believe that our joining the world scientific community will add new ideas and results and will be mutually beneficial.

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The representative to the IAPR Governing Board is Professor S Ablameyko and his address is:

Belarusian Association for Image Analysis & Recognition
c/o Belarusian Academy of Sciences
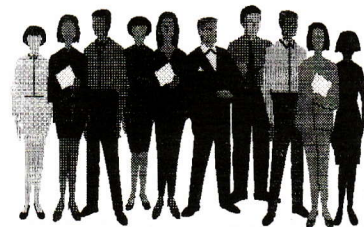6 Surganov str.
220012 Minsk
Republic of Belarus

Tel: +7 0172 39 51 44
Fax: +7 0172 31 84 03
Email: mahaniok@adonis.iasnet.com

LETTERS TO THE EDITOR

The Editor would be pleased to receive letters for publication in the Newsletter from members. Of particular interest would be your views, news of new appointments, honours and awards or any interesting research contracts.

CONFERENCE ANNOUNCEMENTS

(Contact addresses for meetings appear on pages 14-15)

Second International Workshop on Digital Mammography
York UK 10-12 July 1994

The Workshop will provide a forum for the presentation and discussion of recent research on all aspects of mammography, from image acquisition to image interpretation and data management. It is hoped that representatives of all research groups actively working in this area of world-wide interest will attend this meeting organised by the Mammographic Image Analysis Society in conjunction with the British Machine Vision Association.

Paper deadline: **11 January 1994**

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Fourth International Conference on Visual Search
Netherlands 29 August - 1 September 1994

The term 'Visual Search' has been used to cover a range of activities from human cognitive phenomena to applied problems, for man and machine, in industrial, medical and military environments. Sessions will include topics such as:

- Attention and Segmentation
- Eye Movements
- Computer Vision
- Search Modelling
- Applied Aspects of Search
- Feature Discrimination
- Visual Processing

Paper Deadline: **5 February 1994**

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First IEEE International Conference on Image Processing - ICIP
Austin Texas 13-16 November 1994

ICIP-94 is the inaugural international conference on theoretical, experimental and applied image processing organised by the IEEE. The scope of the meeting will cover Image Processing, Computed Imaging, Image Scanning Display and Printing, Video and Applications of Image Processing technology to any field.

Paper Deadline: **15 February 1994**

SPICIS '94
2nd International Conference on Intelligent Systems
Singapore
14-17 November 1994

The conference is intended to provide a forum for presentations of applications of intelligent systems with a sectoral focus as well as research on intelligents system technology that enables such applications.

Papers are sought in the three main tracks:

1. Applications of systems to the problems in business, industry and other areas
2. Description of research into technology that enables such applications
3. The addressing of issues in the deployment of systems

Paper Deadline: **1 April 1994**

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IICGI-94
Second International Colloquium on Grammatical Inference (IAPR Sponsored)
21-23 September 1994 Alicante Spain

Grammatical Inference (GI) is broadly understood as the task of learning grammars from the data. Traditionally GI has been studied within several contexts: Information Theory, Formal Language Theory, Computational Linguistics, Machine Learning, Pattern Recognition, Computational Learning and Neural Networks. This multidisciplinary perspective, however, has lead so far to a lack of a focused research community. The attempt to correct this was started with the first colloquim held at the University of Essex (UK) in April 1993; following its success, ICGI-94 aims to provide a forum for discussion of principles, theory and applications of all those aspects of Automatic Learning that explicitly focus on Grammars and Languages. Within this framework topics include:

- Theory and Algorithms
- Learning Paradigms
- Pattern Recognition
- Neural Networks
- Computational Linguistics
- Machine Learning
- Applications to Natural Language Processing

Paper Deadline: **15 April 1994**
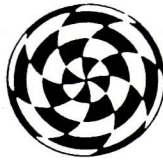
CALL FOR PAPERS

12th International Conference on Pattern Recognition
9-13 October 1994   Jerusalem Israel

The 12th ICPR of the International Association for Pattern Recognition will be organized as a set of four conferences, each dealing with a special topic. The program for each individual conference will be organized by its own Program Committee. Papers describing applications are encouraged, and will be reviewed by a special Applications Committee. An award will be given for the best industry-related paper presented at the conference. Considerations for this award will include innovative applications, robust performance, and contributions to industrial progress. An exhibition will also be held. The conference proceedings are published by the IEEE Computer Society Press.

GENERAL CO-CHAIRS: S. Ullman - Weizmann Inst. (shimon@wisdom.weizmann.ac.il)
                                            S. Peleg - The Hebrew University (peleg@cs.huji.ac.il)
LOCAL ARRANGEMENTS: Y. Yeshurun - Tel-Aviv University (hezy@math.tau.ac.il)
INDUSTRIAL & APPLICATIONS LIAISON: M. Ejiri - Hitachi (ejiri@crl.hitachi.co.jp)

CONFERENCE DESCRIPTIONS

1. COMPUTER VISION AND IMAGE PROCESSING,
T. Huang - University of Illinois.   Early vision and segmentation; image representation;   shape and texture analysis; motion and stereo;   range imaging and remote sensing;   color;   3D representation and recognition.

2. PATTERN RECOGNITION AND NEURAL NETWORKS,
N. Tishby - The Hebrew University.   Statistical, syntactic, and hybrid pattern recognition techniques;   neural networks for associative memory, classification, and temporal processing;   biologically oriented neural networks models;   biomedical applications.

3. SIGNAL PROCESSING,
D. Malah - Technion, Israel Institute of Technology.   Analysis, representation, coding and recognition of signals;   signal and image enhancement and restoration;   scale-space and joint time-frequency analysis and representation;   speech coding and recognition;   image and video coding;   auditory scene analysis.

4. PARALLEL COMPUTING,
S. Tanimoto - University of Washington.   Parallel architectures and algorithms for pattern recognition, vision, and signal processing;   special languages, programming tools, and applications of multiprocessor and distributed methods;   design of chips, real-time hardware and neural networks;   recognition using multiple sensory modalities.

Paper Submission Deadline: **February 1, 1994.**
Notification of Acceptance: **May 1994.**
Camera-Ready Copy: **June 1994.**
Send four copies to: 12th ICPR, c/o International Ltd, 10 Rothschild blvd, 65121 Tel Aviv, ISRAEL. Tel: +972 3 5102538 Fax: +972 3 660604. Each manuscript should include the following: 1.   A Summary Page addressing these topics: To which of the four conference is the paper submitted?   What is the paper about?   What is the original contribution of this work?   Does the paper mainly describe an application, and should be reviewed by the applications committee?   2. The paper, limited in length to 4000 words. This is the estimated length of the proceedings version.
For further information contact the conference secretariat at the above address or use email: ICPR@math.tau.ac.il

FORTHCOMING CONFERENCES, WORKSHOPS AND EVENTS

Date	Event	Location	Contact/Sponsor
4th-8th April 1994	SPIE's International Symposium on OE/AEROSPACE SENSING	Orlando, Florida, USA	SPIE, PO Box 10, Bellingham, WA 98227-0010, USA; Phone: +1 206 676 3290
14th-16th April 1994	International Symposium on Speech, Image Processing and Neural Networks	Hong Kong	Dr Chorkin Chan, Department of Computer Science, University of Hong Kong, Pokfulam Road, Hong Kong; Email: cchan@csd.hku.hk
2nd-6th May 1994	Third European Conference on Computer Vision	Stockholm, Sweden	Professor Jan-Olof Eklundh, KTH, NADA, S-100 44 Stockholm, Sweden; Fax: +46 8 723 03 02 Email: eecv94@bion.kth.se
16th-20th May 1994	Vision Interface '94	Banff, Alberta, Canada	Colin Archibald, VI'94 Program Co-Chairman, National Research Council, Ottawa, Ontario, Canada K1A OR6; Fax: +1 613 952 0215 Email: archibald@iit.nrc.ca
16th-20th May 1994	3rd International Conference on Computer Graphics and Image Processing	Spala, Poland	Dr Urszula Rutkowska, Institute of Computer Science, Ordona 21, 01-237 Warsaw, Poland; Fax: +48 22 376564 Email: wmokrzyc@plearn.bitnet
30th May-2nd June 1994	2nd International Workshop on Visual Form	Capri, Italy	Dr Carlo Arcelli, Istituto di Cibernetica, CNR, Via Toiano 6, 80072 Arco Felice, Naples, Italy; Email: imag@arco.na.cnr.it [IAPR]
1st-3rd June 1994	Pattern Recognition in Practice IV	Vlieland, Netherlands	Conference Secretariat, Department of Medical Informatics, Erasmus University, PO Box 1738, 3000 DR Rotterdam, The Netherlands; Fax: +31 10 436 2882 Email: gelsema@mi.fgg.eur.nl [IAPR]
20th-23rd June 1994	IEEE Conference on Computer Vision & Pattern Recognition	Seattle, Washington, USA	Linda Shapiro or Steve Tanimoto, CVPR'94, Department of Computer Science & Engineering (FR-35), University of Washington, Seattle Washington 98195 USA;
21st-24th June 1994	SPIE EUROPTO Symposium on Optics Productivity in Manufacturing; Applied Image Processing	Frankfurt, Germany	D Braggins, Machine Vision Systems Consultancy, Royston, United Kingdom;
27th June-1st July 1994	1994 IEEE International Symposium of Information Theory	Trondheim, Norway	James L Massey, ISI ETZ F 89, ETH-Zentrum, CH-8092, Zurich, Switzerland; Fax: +41 1 2512172 Email: INFORT@CZHETH5A.BITNET
10th-12th July 1994	Second International Workshop on Digital Mammography	York, United Kingdom	SIWDM Conference Secretariat, Applied Vision Research Unit, University of Derby, Mickleover, Derby DE3 5GX, United Kingdom; Fax: +44 332 622287 Email: avru@derby.ac.uk
11th-13th July 1994	International Conference on Statistics in Industry, Science and Technology	Tokyo, Japan	Professor C Hirotsu, Department of Mathematical Engineering and Information Physics, University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, JAPAN;

8th-12th August 1994	11th European Conference on Artificial Intelligence	Amsterdam, Netherlands	Dr Tony Cohn, Division of Artificial Intelligence, School of Computer Studies, University of Leeds, Leeds LS2 9JT, United Kingdom; Fax: +44 532 335468 Email: ecai94@scs.leeds.ac.uk
29th August-1st September 1994	Fourth International Conference on Visual Search	Eindhoven, Netherlands	ICVS4 Conference Secretariat, Applied Vision Research Unit, University of Derby, Mickleover, Derby DE3 5GX, United Kingdom; Fax: +44 332 622287 Email: avru@derby.ac.uk
13th-16th September 1994	VII European Signal Processing Conference	Edinburgh, Scotland, United Kingdom	Professor C F N Cowan, EUSIPCO-94 Secretariat, Dept of Electronic & Electrical Eng., University of Technology, Loughborough LE11 3TU, United Kingdom; Fax: +44 509 222 830
13th-16th September 1994	Fifth British Machine Vision Conference	York, United Kingdom	Dr E Hancock, Department of Computer Science, University of York, York, YO1 5DD, United Kingdom; Fax: +44 904 43 2767 Email: erh@york.minster.ac.uk
21st-23rd September 1994	2nd International Colloquium on Grammatical Inference	Alicante, Spain	Dr J Oncina, Dept Tecnologia Informatica y Computacion, Universidad de Alicante, E-03080 Alicante, Spain; Fax: +34 6 590 3464 [IAPR]
26th-30th September 1994	The International Symposium on Satellite and Remote Sensing	Rome, Italy	Satellite Remote Sensing, EUROPTO, c/o Direct Communications GmbH, Xantener strasse 22, D-10707 Berlin, Germany; Fax: +49 30 882 20 28 Email: Compuserve: 100140,3216
3rd-7th October 1994	2nd Int. Workshop on Massive Parrallelism: Hardware, Software & Applications	Capri, Italy	A Mazzarella, C di Napoli, Istituto di Cibernetica, Via Toiano 6, I-80072 Arco Felice, Napoli ITALY; Fax: +39 81 526 7654 Email: secyann@cib.na.cnr.it
9th-13th October 1994	International Conference on Pattern Recognition	Jerusalem, Israel	12th ICPR, c/o International Ltd, 10 Rothschild blvd, 65121 Tel Aviv, Israel; Fax: +972 3 660 604 Email: icpr@math.tau.ac.il [IAPR]
18th-20th October 1994	Document Analysis Systems	Kaiserslautern, Germany	Andraes Dengel, German Center for Artificial Intelligence (DFKI), PO Box 2080, 6750 Kaiserslautern, Germany; Fax: +49 631 205 3210 Email: DAS94@dfki.uni-kl.de [IAPR]
8th-11th November 1994	Third International Conference on Automation, Robotics and Computer Vision	Singapore	Assoc.Professor N Sundararajan, ICARCV'94 Conference Secretariat, Institution of Engineers, Singapore, 70 Bukit Tinggi Road, Singapore 1128, Republic of Singapore; Fax: +65 467 1108 Email: ensundara@ntuvax.ntu.ac.sg
13th-16th November 1994	First IEEE International Conference on Image Processing	Austin, Texas, USA	Conference Management Services, 3024 Thousand Oaks Drive, Austin, Texas 78746, USA; Fax: +1 512 327 8132 Email: icip@pine.ece.utexas.edu
14th-17th November 1994	Second Singapore International Conference on Intelligent Systems	Singapore	Dr Looi Chee Kit, SPICIS '94, c/o Japan-Singapore AI Centre, 75 Science Park Drive , 01-01-04, Cintech II, Singapore 0511; Fax: +65 779 6162 Email: cheekit@iti.gov.sg
20th-25th November 1994	International Symposium on Information Theory and Its Applications	Sydney, Australia	ISITA'94, AE Conventions Pty Ltd, PO Box E181, Queen Victoria Terrace, Act 2600, Australia. Tel: +61 6 270 6520; Fax: +61 6 273 2012

Please inform the Secretariat of revisions or additions to this information:
Susan Duff, 66 Weston Park, Thames Ditton, Surrey KT7 0HL, United Kingdom.
Tel/Fax: +44 81 398 2766   Email: 100042.511@compuserve.com

YEAR AT A GLANCE CONFERENCE PLANNER

Contact details on pages 14 & 15. Previous reports - volume & number shown in brackets

Please make sure your meeting details are sent to the Secretariat for inclusion in the Newsletter

● = abstract submission deadline ■ = final manuscript deadline dates = Meeting Dates

Conference	Location	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
9-PRAI	Paris	11-14											
Orlando'94	Orlando			■7	4-8								
ISSIPN	Hong Kong			14-16									
ECCV'94	Stockholm		■1	■31		2-6							
VI'94 (V15 N3)	Alberta					16-20							
GKPO '94	Poland					16-20							
IWVF2 (V15 N3)	Capri					30-	2						
PRP IV (V15 N3)	Vieland				■1	1-3							
CVPR'94	Seattle						20-23						
SPIE EUROPTO	Frankfurt				■23		21-24						
IEEE-ISIT	Trondheim						27-	1					
SIWDM	York	●11			■29			10-12					
ICSIST	Tokyo				15		11-13						
ECAI 94 (V15N4)	Amsterdam	●8			■19				8-12				
ICVS4	Eindhoven		●5		■30				29-	1			
EUSIPCO-94	Edinburgh,				■30					13-16			
BMVC 94(V15N4)	York				●25		■8			13-16			
ICGI94	Alicante				●15				■16	21-23			
ISSRS	Rome		●15			■31			■30	26-30			
MP'94	Capri	●15				■31					3-7		
12th ICPR(V16N1)	Jerusalem		●1				■30				9-13		
DAS94	Kaiserslautern										18-20		
ICARCV'94	Singapore				●30			■31				8-11	
ICIP-94	Austin		●15					■15				13-16	
SPICIS '94	Singapore				●1				■1			14-17	
ISITA '94	Sydney					●15				■15		20-25	