IAPR

International Association for Pattern Recognition, Inc.

An affiliate member of the International Federation for Information Processing

NEWSLETTER

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FROM THE EDITORS DESK

In a moment of weakness, or unchecked enthusiasm for the good of the cause or perhaps just sheer insanity I submitted to IAPR Secretary's persuasive powers and agreed to take on the task of editing the IAPR Newsletter. It must have happened just when Prof Duff was telling me how he effortlessly run a local parish magazine appearing once a month over a period of some six years, with a number of volunteers taking the full responsibility for the various sections of the journal, leaving him only the minor task of coordinating their efforts. I remember the feeling of slight embarrassment that came over me at that point for having initially resisted his approaches. For a while I even wondered why a few months back I also resisted so vehemently to volunteer my services to fill the vacant post of Editor of the British Pattern Recognition Association Newsletter. My optimistic mood however did not last long. Soon after being formally appointed by Prof Sakai, past IAPR President, I contacted the former editor, Tony Reeves, to learn the ropes and to ask him about his sources of information and volunteer editorial and production staff. His reply turned out to be a thin envelop with a list of reports from

Japan, a couple of calls for papers and a clear message: This is a one man show from start to finish.

I managed to get over my deepest depression with the kind help of Dr Dave Pairman of the Department of Scientific and Industrial Research, New Zealand who taught me the basics of Tex and most importantly, generated the Newsletter layout while waiting for his PhD exam at Oxford University. So thanks to him my first output is coming out without an embarrassingly long pause. However even with his help the learning phase left me no spare time to think about new editorial policies and other matters of similar importance. I hope to have clearer ideas on this subject by the time the next issue is ready for publication and expand on them there and then.

Meanwhile allow me to take this opportunity to wish you a happy and successful new year.

Josef Kittler

NEWS IN BRIEF

NEW IAPR PRESIDENT The new president of IAPR is Dr Pierre Devijver of Philips Research Laboratories, Belgium. Dr Devijver has served as a member of the IAPR Executive Committee for a number of years, first as IAPR Secretary and recently as First Vice President. For more results of the election of IAPR Officers held at the Governing Board meeting in Paris see the presidential message.

8ICPR ATTENDANCE FIGURES The 8th International Conference on Pattern Recognition held in Paris at the end of October was attended by more than eight hundred participants. Congratulations to Prof J C Simon, Conference Chairman, and the whole organizing committee for this achievement. A full report on the conference is scheduled for the next issue of the Newsletter. The tutorials held in conjunction with the conference also proved very successful with almost three hundred people taking part.

IAPR MEMBERSHIP ENQUIRIES An application for membership in IAPR has been received from USSR. Discussions are also under way with two other potential member countries, Brazil and Portugal.

PRESIDENTIAL MESSAGE

In the few months preceding the 8ICPR, the Executive Committee and Governing Board of IAPR have taken two important initiatives.

The first one is to establish the "King Sun Fu Award" as a permanent memorial to the late Professor King Sun Fu. The first announcement of the award appears in this Newsletter. The second initiative is the appointment of a new Editor for the Newsletter. On behalf of all of you, readers, I wish to thank Professor Anthony Reeves, the former Editor, for all his efforts over the last two years and I wish to assure Dr Josef Kittler, the upcoming Editor, that we all feel that the Newsletter is again in good hands.

While in Paris for the 8ICPR, members of the IAPR Governing Board and Executive Committee have made a number of important decisions, many of which will be reflected in the forthcoming issue of the Newsletter. In particular, an Executive Committee has been elected with the undersigned, Pierre A Devijver, as President and Professors Per-Erik Danielsson (SW) and Martin Levine (CA) as first and second Vice-President respectively. Professors Michael Duff (UK) and Herbert Freeman (USA) will continue serving IAPR in their respective capacity of Secretary and Treasurer. The full, updated IAPR directory is scheduled to appear in the next issue of the Newsletter.

As already announced, the 9th ICPR will be held in Beijing under the chairmanship of Professor Tong Chang. To promote attendance, IAPR will see to it that economic charter flights will be organized from various places in Europe and North America. (For information, watch the future Newsletters.)

The decision has also been made that the 10th ICPR will be held in Atlantic City. Professor Herbert Freeman will be the General Chairman.

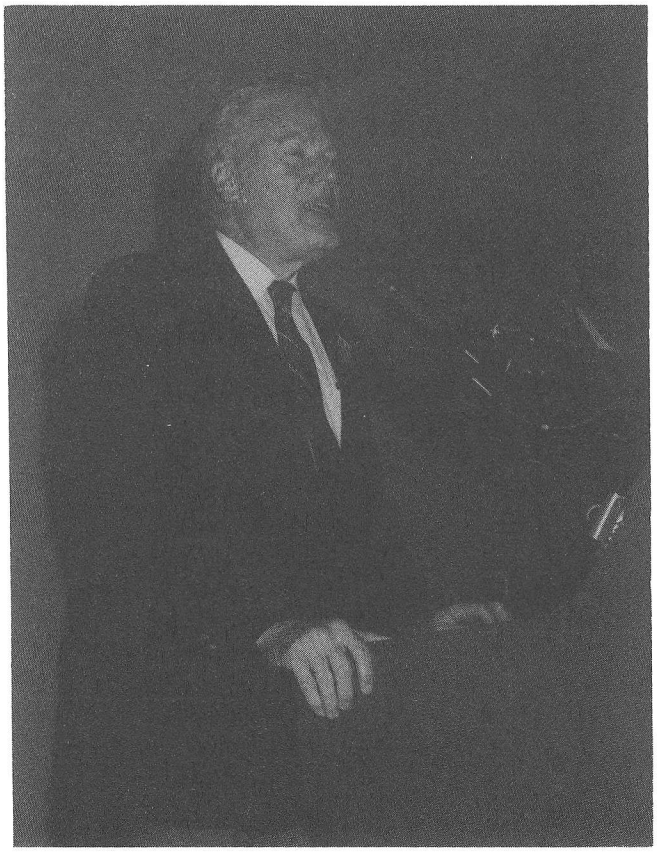
Finally, on behalf of the IAPR community, I would like to thank Professor Jean-Claud Simon, his collaborators and AFCET for all their efforts in organizing a very successful and stimulating conference in Paris.

Pierre A Devijver

KING-SUN FU MEMORIAL AWARD

The following resolution was recently approved by the Governing Board to honor the memory of Professor King-Sun Fu. Professor Fu, probably more than anyone else, was responsible for founding of IAPR. He served as its first president and is widely recognised for his extensive contributions to the field of pattern recognition.

"PROPOSED that IAPR set up, as a permanent memorial to the late Professor King-Sun Fu, an award to be named the KING-SUN FU AWARD, to be awarded biennially to a living person in recognition of outstanding contributions to the field of pattern recognition. The award will consist of a suitably inscribed plaque and a cash amount, the costs to be born by interest income from a special fund to be set up for the award. The fund will be created by an appropriation of US$10,000 from IAPR and is to be augmented through solicitation of gifts from companies and individuals.



Prof Herbert Freeman announcing the King Sun Fu Award at the 8ICPR in Paris

Conditions for the award

- The award recipient is to be selected by a special award committee, subject to approval by the IAPR Governing Board, upon nomination by a member society of IAPR and by endorsement of at least five members, representing at least two member societies different from that of the nominator.
- Members of the IAPR Executive Committee, as well as of the award committee, shall be ineligible for the award. Nor may they serve as nominators or endorsers.
- The award is to be made in recognition of a technical contribution of far-reaching significance and impact on the field of pattern recognition or its closely allied fields made at any time in the past.
- The award is to be made to a living person.
- The award committee is to be appointed by the President, subject to ratification by the Governing Board. It is to consist of four individuals, of whom one acts as chairman."

Corporations and individuals are invited to make contributions to the fund. Checks should be made out to "IAPR - K.S.Fu Award Fund" and sent to

H.Freeman, Treasurer
International Association for Pattern Recognition
7 Woodview Drive
Cranbury, NJ 08903
USA

NEW JOURNALS

INTERNATIONAL JOURNAL OF PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE

This new journal consists of review and original articles on the latest developments in the fields of pattern recognition and artificial intelligence. To be published quarterly from Spring 1987 the first issue will be dedicated to the memory of the late Professor King-Sun Fu who was a pioneer researcher in pattern recognition. This journal is World Scientific's response to the growing importance of these fields and is distinguished by these quality features:

- includes critical reviews/state of the art topical articles written by authors invited by the editors
- includes a section on reviews about software package descriptions publicised by their authors, and which are available for non-commercial distribution among researchers

- special issues devoted to surveys on popular/current topics which should be invaluable to many researchers as well as readers
- major indexing/abstracting services are listed for useful references
- relevant colour image reproductions are included

Invitation for Contributions

All manuscripts for submission (in quadruplicate) and correspondence about items under review should be sent to either of the two editors-in-charge, Prof H Bunke or Prof Patrick S-P Wang, particulars of whom are given below. Each manuscript submitted will be assessed by at least two independent reviewers. The editors or the reviewers will forward to the authors the outcome of the reviews provided by the assessors. Correspondence concerning proofs, subscription and all other matters should be sent to: Journal Department, World Scientific Publishing Co. Pte.Ltd., Farrer Road, P.O .Box 128, Singapore 9128.

Editorial Board

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Lofti A Zadeh	University of California, Berkeley

and others

INTERNATIONAL JOURNAL OF COMPUTER VISION

The new International Journal of COMPUTER VISION is being published by Kluwer Academic Publishers to provide forum for the dissemination of new research results in the rapidly growing field of computer vision. A quarterly, the first issue will appear in 1987. The journal will publish high quality, original papers contributing to the science of computer vision, including:

- computational aspects of vision
- vision algorithms
- vision systems
- artificial intelligence approaches
- computer architectures for vision
- applications of vision

Academic and industrial researchers in the areas of computer vision, robotics and artificial intelligence, as well as academic psychologists studying the psychology of human vision, should find this new journal of interest.

Information for Authors

Authors are encouraged to submit high quality, original works which have not appeared, nor are under consideration, in other journals. Papers which have previously appeared in conference proceedings will be considered but this should be indicated at the time of submission. Authors should submit four hard copies of their final manuscript to one of the Editors-in-Charge. Detailed Instructions for Authors may be obtained from the Editors-in-Charge upon request.

Editors-in-Charge

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USA

REPORTS OF TECHNICAL COMMITTEES

Technical Committee TC1: Statistical Pattern Recognition

Biennial Report for 1984-86

Committee Composition

The TC1 Committee was formed in the autumn of 1984. Its current composition is as follows:

Dr J Kittler	University of Surrey (UK) Chairman
Prof D Dutta Majumder	Indian Statistical Institute Secretary
Dr P A Devijver	Philips Research Laboratory (Belgium)
Prof L Devroye	McGill University (Canada)
Prof B Dubuisson	Compiegne University of Technology (France)
Dr R P Duin	Delft University of Technology (The Netherlands)
Dr J Föglein	Hungarian Academy of Sciences
Prof A K Jain	Michigan State University (USA)
Prof P R Krishnaiah	University of Pittsburgh (USA)
Prof E Oja	University of Kuopio (Finland)

Committee Meetings

The committee met once during the period of the report in July 1985. The main objective of the meeting was to draw up a plan of technical activities in the TC1 area. The items on the agenda included terms of reference, workshops on aspects of statistical pattern recognition, tutorial on statistical pattern recognition at 8th ICPR and courses in developing countries. The decisions of the Committee relating to these issues and the resulting activities are summarised in the following sections . The Committee agreed that the most appropriate mechanism for discharging its responsibility to promote the subject area of TC1 is to hold technical meetings on research topics of current interest and use such meetings to encourage cross-fertilisation between the pattern recognition community and statisticians.

Current Research Topics

The research topics which have been identified by the Committee as warranting special attention include

- formal methods of incorporating contextual information into decision making processes with emphasis on Markov models
- methodology for combining evidence from multiple sources
- theoretical underpinning of heuristic decision making processes
- theoretical underpinning of heuristic image processing algorithms
- advances in classical topics of statistical pattern recognition

Technical Meetings

The Committee cosponsored/initiated two technical meetings. The main objective of the research workshop on Statistics and Pattern Recognition held at Edinburgh University in July 1985 was to promote a better interaction between the statistical pattern recognition community and statisticians. The NATO Advanced Study Institute on Pattern Recognition Theory and Applications (Spa, Belgium June 1986) organized by Dr P A Devijver was initiated by the TC1 Committee with the intention of providing a forum for airing some of the research issues identified by the Committee. In particular the Institute focused on context and Markov models in image and speech processing.

Tutorials

The Committee mandated Prof A K Jain to organise a one day tutorial on statistical pattern recognition in conjunction with the 8th ICPR in Paris. The tutorial was attended by ninety participants.

The Committee cosponsored a short course on pattern recognition in India intended chiefly for participants from developing countries. The course which was organised by Prof D Dutta Majumder was attended by more than sixty participants.

REPORT FROM FINLAND

The officers of the Pattern Recognition Society of Finland for the year 1986 are:

President

Erkki Oja
Dept. of Computer Science
and Mathematics
University of Kuopio
P.O.Box 6
SF-70 211 Kuopio
Finland

Secretary

Jussi Parkkinen — Dept. of Computer Science and Mathematics, University of Kuopio, P.O. Box 6, SF-70 211 Kuopio, Finland

IAPR Representative

Teuvo Kohonen — Dept. of Technical Physics, Helsinki University of Technology, SF-02 150 Espoo, Finland

Pattern Recognition and Image Processing Research and Development in Finland

General

Pattern recognition and image processing are a part of research activities at several universities, research institutions and companies in Finland. The history of pattern recognition research in Finland dates back to 1960's. The Pattern Recognition Society of Finland was founded in spring 1977, being among the first members IAPR, and has now about 120 members.

The goals of the research projects vary from pure fundamental research at some university laboratories to commercial product development at companies. About fifteen DEC, DG and HP based computer systems are primarily used for pattern recognition purposes. In addition, many advanced microcomputer systems (8086- and 80286-based), signal processor development systems, SALORA Image Processing Systems and standard scanning and imaging devices are in use.

Research Laboratories Active in PR and IA

Universities

Laboratory of Computer and Information Science
Department of Technical Physics
Helsinki University of Technology

Research areas

Associative memory, statistical PR algorithms, text correction algorithms, speech recognition.

Achievements

The learning subspace method for classification, selforganizing feature maps, the redundant hash addressing method for the correction of statistical representation of garbled text, integrated speech recognition systems.

Laboratory of Graphic Arts Technology
Helsinki University of Technology

Research areas

Digital processing of newspaper pictures, picture quality and image formation.

Achievements

Prototype image processing systems for newspaper pictures with automatic quality control, models for image formation and print quality.

The Image Processing Group
Department of Electrical Engineering
University of Oulu

Research areas

Industrial computer vision and image analysis, image understanding, sensor based robotics.

Achievements

A prototype system for optical printed circuit board inspection, robot vision systems.

Computer Systems Laboratory
Tampere University of Technology

Research areas

Image processing workstations and algorithms.

Achievements

New types of 2-dimensional linear digital filters, image processing workstation prototypes.

Department of Applied Mathematics and Physics
University of Kuopio

Research areas

Research of statistical PR and IA algorithms, application of PR and IA to the analysis of physical and medical signals and pictures.

Achievements

Application of subspace methods to EEG signal analysis, optimal restoration filters for removal of degradations in pictures and waveforms.

Related research is done at the following laboratories of the Helsinki University of Technology: Laboratory of Photogrammetry (digital image analysis), Material Physics Laboratory (high quality laser printing and page composing) and Low Temperature Laboratory (NMR tomography).

Technical Research Centre of Finland

Telecommunications Laboratory

Research area

Compression of video signals for very low bit rate transmission.

Achievements

A demonstration hardware for full motion video transmission at 64 Kbit/s data rate.

Medical Engineering Laboratory

Research areas

Medical imaging and image processing applications, including image transfer, archiving and administration applications.

Achievements

A system for digital analysis of cineangiographic images, a program for radiotherapic dose planning using CT-images.

Laboratory of Land Use
Section for Image Analysis and Remote Sensing

Research areas

Digital image processing for remote sensing and photogrammetric purposes.

Achievements

Software for analysis of photogrammetric and geodetic measurement data, system for processing satellite and aerial images.

Graphics Arts Laboratory

Research areas

Image compression, application of image processing to editorial departments of newspapers, interfacing of image processing equipment.

Achievements

Digital image compression software, scanner and camera interfaces.

Laboratory for Information Processing

Research areas

Software for digital image processing, image processing workstation development.

Achievements

A constructed workstation package, general purpose software modules.

Related research is done at Electrical Engineering Laboratory (robotic vision, optical quality control) and Electronics Laboratory (image analysis in industrial automation).

Companies

Altim Control

Products

Sawmill automation based on image analysis and pattern recognition systems.

Instrumentarium / Datex

Products

NMR tomography equipment.

Nokia Electronics / Robotics

Products

Robot vision systems.

Partek

Products

Multimicroprocessor system for on-line PR of materials on conveyor belts.

Rosenlew Automation

Products

Sensor based robotics, sawmill automation based on image analysis.

Salora

Products

Image processing hardware and picture transfer systems.

Typlan Oy

Products

Image processing systems for graphics arts industry.

Technology Development Centre supports a joint effort of two universities, the Technical Research Centre of Finland and several companies in PR applications with a budget of 2 million USD.

Compiled by the Pattern Recognition Society of Finland

CONFERENCE REPORTS

2nd International Conference on Advances in Pattern Recognition and Digital Techniques

Indian Statistical Institute, Calcutta, January 6-9, 1986

The conference was co-sponsored by IAPR, Indian Unit for Pattern Recognition and Artificial Intelligence and Indian Society for Fuzzy Mathematics and Information Processing.

The conference was preceded by a series of pre-conference tutorial lectures co-sponsored by the IAPR Technical Committee 1 (Statistical Pattern Recognition Techniques). The tutorial speakers included Prof C R Rao (University of Pittsburgh, USA), A.Giordana (University of Torino, Italy), Prof D Dutta Majumder, Dr B B Chaudhuri, Dr S K Pal and Dr S Ray all of Indian Statistical Institute. The number of participants at the tutorial, which was coordinated by Dr S K Pal, exceeded sixty.

The conference itself was organized into sessions as follows: Session 1 consisted of a review paper on pattern recognition, image processing , computer vision and AI in 5th generation computing by Prof D Dutta Majumder, followed by an extensive discussion of the presented material. Sessions 2 to 12 were devoted to

Speech Recognition and Processing, Cluster Analysis, Image Processing, Pattern Recognition, Digital Communication and Signal Processing, Computer Architectures, Biomedical Applications, Fuzzy Sets and Applications, Remote Sensing Applications, and Artificial Intelligence. In total, 96 contributed and 9 invited papers were presented during these sessions. The number of registered participants at the conference was 170.

NATO ARW on Syntactic and Structural Pattern Recognition

Sitges,near Barcelona, Spain,October23-25,1986

The workshop was attended by about fifty participants from ten countries and three continents. A total of twenty seven papers were presented including the main lectures on Relational Matching (by R. M. Haralick), Recognition of Drawings (by T.Pavlidis), Speech Recognition (by R.De Mori), Hybrid Techniques (by H.Bunke) and Combining Artificial Intelligence and Syntactic Techniques (by A.Sanfeliu). The distribution of papers by countries was as follows: United States:8, West Germany:4, France, Japan and Spain:3 each, Switzerland:2, and Canada, China, India and United Kingdom:1 each.

A review paper presentation session at the workshop

Four working groups were formed to discuss open problems in the following areas: 2D and 3D Image Understanding, Speech Waveforms, Hybrid Methodologies, and Models and Inference. The workshop was initiated by the IAPR Technical Committee TC2 and directed by Prof G Ferrate of the Institute of Cybernetics of the Polytechnic Institute of Catalania. The chairman of the organizing committee was Prof A Sanfeliu, also of the Institute of Cybernetics and the chairman of the scientific committee was Prof T Pavlidis of SUNY at Stony Brook.

Many of the papers and discussions of the workshop dealt with the use of syntactic techniques in combination with other methodologies. Another popular topic was the use of graphs to model physical problems and the solution of graph matching and consistent labelling problems resulting from such representations . Specific applications discussed included histopathology, optical character recognition, speech and face recognition.

The participants enjoyed the hospitality offered by the faculty and staff of the Institute of Cybernetics, as well as the beautiful town of Sitges. The organizing committee is to be congratulated for the excellent job they did in organizing and running the meeting.

REPORTS FROM JAPAN

This section contains report titles which have been submitted by corresponding editor Prof M Nagao. Most of these reports are in Japanese. For further information regarding access to these reports please contact Prof Nagao directly. His mailing address is as follows:

Prof M Nagao
Faculty of Engineering, Kyoto University,
Sakyo-ku, Kyoto 606, Japan

- Character Deformation Prediction using Deformation Vector Field and its Discrimination, *Toru Wakahara,* NTT Electrical Communications Laboratories
- A Binary-Image Processing Method using Run Length Code, *Kiyoshi Nakabayashi,* NTT Electrical Communications Laboratories
- Segmentation and Recognition of Figure Elements in Logical Drawings, *Hiroaki Harada, Nobuyuki Satoh, Masanari Yamamoto, Michiko Iwasaki, Yoshikazu Itoh,* Fujitsu Laboratories Ltd
- Fractal-based analysis of 3D complex shapes and its applications, *Naokazu Yokoya,* Electrotechnical Laboratory
- Performance of Knowledge Based Word Recognition Process, *Shigeo Morishima, Hiroshi Harashima,* Faculty of Engineering, The University of Tokyo
- A Multi-stage Decision Algorithm for Optimum Bunsetsu Sequence Selection, *Kazuhiko Ozeki,* NHK Science and Technical Research Laboratories
- Analysis of Japanese Sentences for Japanese Dictation System, *Michio Okada, Akinori Ito, Hiroshi Matsuo, Shozo Makino, Ken'iti Kido,* Research Center for Applied Information Sciences, Tohoku University

- Hierarchical Recognition for Handwritten Free Format Character String using Knowledge, *Hiroshi Murase, Mikio Shinya, Toru Wakahara,* NTT Electrical Communications Laboratories
- Character Segmentation in Japanese Hand-Written Document Images, *Fumio Yoda, Kazumi Matsuura, Yoji Maeda, Hajime Nambu,* Mitsubishi Electric Corporation
- A Character Segmentation Method on 1 Board OCR, *Masahiro Shimizu, Mariko Takenouchi, Yasushi Waki, Akie Fujiwara, Tohru Yokoe,* Matsushita Electric Ind. Co., Ltd; Central Research Lab.
- A Method of Document Understanding System applied to Automatic Filing, *Y Nakano and H Fujisawa,* Central Research Laboratory, Hitachi Ltd.
- A Mathematical Theory of Recognizing Patterns (Part VI. Three Constructive Methods of Similarity-Measure Function), *Shoichi Suzuki,* Department of Information System, School of Information, Bunkyo University
- A Fundamental Study on Handprinted Character Recognition, *Toshiaki Ejima*, Hiroshi Ichimura** and Masayuki Kimura***,* *Technological University of Nagaoka, **Sendai Technical College, ***Tohoku University
- FDL: Form Definition Language based on a frame representation and its application for Document Understanding, *Higashino Jun'ichi, Fujisawa Hiromichi, Nakano Yasuaki and Ejiri Masakazu,* Central Research Laboratory, Hitachi, Ltd.
- A Distributed Document Recognition System, *Osamu Iwaki, Hiromi Kida and Hiroki Arakawa,* NTT Electrical Communications Laboratories
- Automatic Recognition for Format-Unknown Japanese Documents, *Teruo Akiyama, Norihiro Hagita and Isao Masuda,* NTT Electrical Communications Laboratories
- Analysis of the Kanji Character Recognition Characteristics of Human and OCR on its Peripheral Shape, *Kazuhiko Yokosawa and Norihiro Hagita,* NTT Electrical Communications Laboratories
- High Speed Pattern Matching Using Category Selection for Individual Feature Vector Components, *Hiroshi Matsuo, Nobuo Tsuda and Norihiro Hagita,* NTT Electrical Communications Laboratories
- Recognition of Handprinted Characters of the First Level of JIS Chinese Characters by Relaxation Matching, *Kazuhiko Yamamoto*, Hiromitsu Yamada*, Taiichi Saito* and Ichiro Sakaga**,* *Electrotechnical Laboratory and ** Hitachi Zosen Information Systems Co., Ltd

CALLS FOR PAPERS

4th INTERNATIONAL CONFERENCE ON IMAGE ANALYSIS AND PROCESSING

Cefalu, Sicily, Italy- September 23-25, 1987

Program

The Conference is organised by the Italian Chapter of the IAPR and is sponsored by the Palermo University and the Italian National Research Council (CNR)

The aim of the Conference is to cover both methodological and applicative aspects of pattern recognition and image processing

Program Topics

The meeting will cover the following topics of interest:

- Pattern Recognition
- Computer Vision and Image Processing
- Non conventional Computer Architectures for Image Processing
- Language for Image Abstractions, Processing and Retrieval
- Theoretical Methods and their Relations with Pattern Recognition
- Application

Deadlines

December 31, 1986	Full paper (3 copies)
June 30, 1987	Final version

More Information

Prof Vito Di Gesu
Dipartimento di Matematica e Applicazioni
Universita di Palermo
90123 Palermo
Italy

5th SCANDINAVIAN CONFERENCE ON IMAGE ANALYSIS

Stockholm,Sweden- June 2-5,1987

Program

The confrence is organized by the Swedish Society for Automated Image Processing and is cosponsored by IAPR. The programme will include invited presentations and contributed papers on all aspects of

- computer vision

- image processing
- pattern recognition
- perception
- applications
  - remote sensing
  - industry
  - robotics
  - medicine and biology
  - office automation
  - systems and hardware

Deadlines

January 15,1987	Full paper (3000 words,4copies)
February 28,1987	Authors notified
March 31,1987	Camera-ready manuscripts

Address for Paper Submission

5th SCIA Conference Secretariat
c/o RESO Congress Service
S-11392 Stockholm
Sweden

SYMPOSIUM ON IMAGE PROCESSING AND ROBOTICS FOR MICROSCOPY

Winnipeg,Manitoba,Canada- June 16-19,1987

Program

The meeting is organized by the Microscopical Society of Canada. Contributions are invited on all aspects of image processing and robotics relating to microscopy.

Deadlines

April 1,1987	Paper abstract

Contact

Prof R Gordon
Departments of Botany and Radiology
University of Manitoba
Winnipeg
Manitoba
Canada R3T 2N2

EUROPEAN CONFERENCE ON SPEECH TECHNOLOGY

Edinburgh, Scotland- September 2-4, 1987

Program

The conference will comprise invited and contributed papers on various topics in speech technology and speech technology applications.

Deadlines

January 9, 1987	Abstracts (300 words, 6 copies)
March 1987	Authors notified
June 5, 1987	Camera-ready manuscripts

Paper Submission and Further Information

Secretariat
European Conference on Speech Technology
CEP Consultants Ltd
26 Albany Street
Edinburgh EH1 3QH
UK

IEEE 1987 WORKSHOP ON VISUAL LANGUAGES

Linkoping, Sweden- August 19-21, 1987

Program

The programme will include papers on theory, methodology and applications of visual languages.

Deadlines

Feb 20, 1987	Full paper (max 5000 words, 3 copies)
April 20, 1987	Authors notified
May 20, 1987	Camera-ready manuscript

Paper Submission and Further Information

Erland Jungert
FFV Elektronik AB
Agatan 22
S-582 22 Linkoping
Sweden

BPRA 4th INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION

Cambridge, England- March 28-30, 1988

Program

The conference is organized by the British Pattern Recognition Association. The programme will comprise invited and contributed papers on all aspects of pattern recognition and image processing including hardware and applications.

Deadlines

September 30, 1987	Full papers (3000 words, 3 copies)
October 30, 1987	Authors notified
November 30, 1987	Camera-ready manuscripts

Paper Submission and Further Information

Dr J Kittler
Department of Electronic and Electrical Engineering
University of Surrey
Guildford GU2 5XH
England

TUTORIALS

STATISTICAL PATTERN RECOGNITION: Introduction

University of Surrey, Guildford, England- October 5-7, 1987

The course will discuss fundamental methods of statistical pattern recognition . Several example classes will be aimed at familiarizing the participants with the material presented. The course will include seminars on application of pattern recognition methods to specific problems in which a step by step description of the design of practical pattern recognition systems will be outlined.

The topics covered will include *elements of statistical decision theory, nonparametric pattern classification, learning machines, probability density function estimation, classification error probability estimation, feature selection, feature extraction and cluster analysis.*

For further information and registration form write to:

Miss Susan Webber
Building R25
SERC Rutherford Appleton Laboratory
Chilton
Didcot OX11 0QX
England

STATISTICAL PATTERN RECOGNITION: Advance Topics

University of Surrey, Guildford, England- October 8-9, 1987

The course will feature a number of advance topics in statistical pattern recognition. In particular, it will focus on the use of contextual information in decision making with the emphasis on Markov models. The methodology will be illustrated on applications in speech recognition, image restoration, image segmentation, computer vision and character recognition.

The topics covered will include: *role of context, Markov chain, Markov mesh and Markov random field models of apriori world knowledge, Gibbs distributions, hidden Markov models, elements of compound decision theory, Baum's algorithm, Derin"s algorithm, Viterbi algorithm, labelling in hidden Markov meshes and random fields, discrete relaxation, probabilistic relaxation, learning contextual relationships, learning Markov models.*

For further information and registration form write to:

Miss Susan Webber
Building R25
SERC Rutherford Appleton Laboratory
Chilton
Didcot OX11 0Qx
England

CALENDAR OF EVENTS

Date	*Event*	*Location*	*Sponsor/Information*
January 11-16,1987	SPIE Conferences on Optoelectronics and Laser Applications in Science and Engineering and Electro-optic Imaging Systems and Devices	Los Angeles Airport Marriott and Hilton Hotels, Los Angeles, California, USA	SPIE, P.O.Box 10, Bellingham, Washington 98227-0010, USA
February 1-6, 1987	SPIE Conference on Medical Imaging and International Symposium on Pattern Recognition and Acoustical Imaging	Newport Beach Marriott Hotel, Newport Beach, California, USA	SPIE, P.O.Box 10, Bellingham, Washington 98227-0010, USA
February 2-4, 1987	International Workshop on Industrial Applications of Machine Vision and Machine Intelligence	Roppongi, Tokyo, Japan	Prof Masao Sakauchi, Institute of Industrial Science, University of Tokyo 22-1, Roppongi 7-chome, Minatoku, Tokyo 106, Japan
March 30-April 3, 1987	1987 IEEE International Conference on Robotics and Automation	Radison Hotel and Civic Center, Raleigh, NC, USA	Hary Hayman, 738 Whitaker Terrace, Silver Spring, MD 20901, USA
March 30-April 3, 1987	SPIE Conference on Optical and Optoelectronic Applied Sciences and Engineering	The Hague, The Netherlands	ANRT, 16, av. Bugeaud, 75116 Paris, France

April 22-24, 1987	Computer Analysis of Images and Patterns	Palast Hotel, Berlin, German Democratic Republic	CAIP'87 Conference Secretariat, KDT, Prasidium, WGMA, Koll. Muller, Clara Zetkin Strasse 115/117, 1086 Berlin, German Democratic Republic
April 27-29, 1987	International Symposium on Defect Recognition and Image Processing in III-V Compounds	Monterey, California, USA	Continuing Education in Engineering, University Extension, University of California, 2223 Fulton Street, Berkeley, CA 94720, USA
June 2-5,1987	5th Scandinavian Conference on Image Analysis	Grand Hotel, Saltsjobaden, near Stockholm, Sweden	Dr. Torleiv Orhaug, Conference Chairman, National Defense Research Institute, P.O.Box 1165,S-581 11 Linkoping, Sweden
June 8-11,1987	1st IEEE International Conference on Computer Vision	London,England	ICCV87, c/o IEEE Computer Society, 1730 Massachusetts Avenue, N.W., Washington , DC 20036-1903, USA
June 22-26,1987	Information Processing in Medical Imaging	Utrecht, The Netherlands	Cornelis N. de Graf, University Hospital, K.73078, Catharijnesingel 101, 3511 EGV Utrecht, The Netherlands, Tel: +31 30 372846
August 19-21, 1987	IEEE Workshop on Visual Languages	Linkoping, Sweden	Erland Jungert, FFV Elektronik AB, Agatan 22, S-582 22 Linkoping, Sweden
Sept 2-4, 1987	European Conference on Speech Technology	Edinburgh, Scotland	Secretariat, European Conference on Speech Technology, CEP Consultants Ltd, 26 Albany Street, Edinburgh EH1 3QH, UK
Sept 7-10,1987	1987 International Conference on Digital Signal Processing	Florence,Italy	Prof V Cappellini, Facolta di Ingegneria, via di S.Marta 3, 50139 Firenze, Italy
Sept 14-16, 1987	IEEE-EURASIP 5th Workshop on Multidimensional Signal Processing	Leeuwenhorst Congress Center, Noordwijkerhout, The Netherlands	Mrs Y Smits, Department of Electrical Engineering, Delft University of Technology, P.O.Box 5031, 2600 GA Delft, The Netherlands
Sept 23-25,1987	4th International Conference in Image Analysis and Processing	Cefalu,Sicily,Italy	Prof Vito di Gesu, Dipartimento di Matematica e Applicazioni, Universita di Palermo, 90123 Palermo, Italy
Sept 29 - Oct 2,1987	International Symposium on Data Analysis and Informatics	Versailles,France	INRIA, Service des Relations Exterieures, Bureau des Colloques, Domaine de Voluceau, Bp 105, 78153 Le Chesnay Cedex, France
March 28-30,1988	BPRA 4th International Conference on Pattern Recognition	Queens College, Cambridge, England	Dr J Kittler, Dept Electronic and Electrical Engineering, University of Surrey , Guildford GU2 5XH, England
October 17-20, 1988	IAPR 9th International Conference on Pattern Recognition	Beijing, China	9ICPR Secretariat, Chinese Association of Automation, P.O.Box 2728, Beijing, China