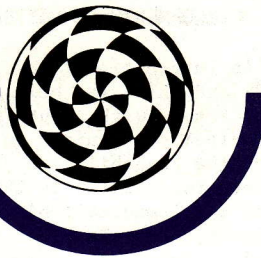


IAPRO



International Association for Pattern Recognition, Inc.

An affiliate member of the International Federation for Information Processing

NEWSLETTER

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CONTRIBUTIONS

Items for publication in the next Newsletter, expected in February or March 1980, should be sent to Peter Sander at the above McGill address or to Martin Levine at

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NITPIC

..... At the recent Workshop on High-Level Languages for Image Processing, some very exciting new computer architectures for image processing were discussed. In particular, Dr. Michael Duff of University College, London is developing the CLIP 4 system which will contain an array of nearly 10,000 individual processors A joint conference of the Canadian Society for Computational Studies of Intelligence, the Man-Machine Communications Society, and the Canadian Image Processing and Pattern Recognition Society is planned for next May on the West Coast of Canada Dr. Linda Shapiro and Dr. Robert M. Haralick of the University of Kansas have moved to the Department of Computer Science and the Department of Electrical Engineering, respectively, at the Virginia Polytechnic Institute and State University, Blacksburg, VA, 24061 David Marr, Associate Professor of

Psychology at M.I.T., delivered the Computer and Thought Lecture at the Sixth International Joint Conference on Artificial Intelligence held in Tokyo Aug. 20-24, 1979. He was given this honour as the recipient of the Computers and Thought Award for 1979 The Image Analysis Group at North Carolina State University announces the availability to the general research community of two time varying imagery data bases. One of these is the, rather famous by now, traffic scene by Professor Nagel at the University of Hamburg. It is 33 frames, approximately 1.5 seconds. The other is a television scene of some 5 seconds duration. The data is available as unlabeled tapes, as VAX readable file structured tapes or as file structured tapes readable by systems running RT11 or RSX-11. The group is also interested in accumulating different data on which to run experiments in time varying imagery and would appreciate hearing from others who may have such data. Image Analysis Group, Dept. of Electrical Engineering, North Carolina State University, Raleigh, N.C. 27607, (919) 737-2376 In conjunction with the design of a transportable, Fortran-based image processing package, a survey of existing packages is being conducted. If you have developed or are using such a package, please contact Prof. A. Rosenfeld, Computer Science Centre, University of Maryland, College Park, MD, 20742, U.S.A. Copies of or references to package descriptions, or reports of previous surveys, will also be greatly appreciated. In return for your help, you

will receive a copy of the information that is compiled as a result of the survey

CONFERENCE REPORTS

RECENT DEVELOPMENTS IN PATTERN RECOGNITION

An International Day, under the patronage of the CNRS and IRIA, was held on May 21st - 23rd, 1979 in Lyon, France with about 70 participants. This Day was principally organized to make potential users aware of the possibilities offered by the techniques of pattern recognition in the many domains of their concern; e.g., medical, biomedical, industrial, environmental, etc. In order to elaborate the large field of activity in pattern recognition, three themes were selected:

- (i) image processing
- (ii) statistical methods and pattern recognition
- (iii) automatic classification

Speakers from France, Britain, Belgium and Italy made presentations on these topics.

WORKSHOP ON HIGH-LEVEL LANGUAGES FOR IMAGE PROCESSING

A Workshop on High-level languages for Image Processing was held at the Cumberland Lodge, Windsor Great Park, Britain on June 4-8, 1979. The Workshop was organized by Dr. Michael J.B. Duff of the Department of Physics and Astronomy, University College, London, in association with Dr. S. Levialdi of the Laboratorio de Cibernetica, Naples, and Professor L. Uhr of the University of Wisconsin, Madison. About 33 people attended, mostly from Britain, but with representation from seven other countries.

The purpose of the workshop was to discuss thoroughly the whole question of the design of high-level languages for use in image processing (including pattern recognition), bearing in mind the way in which language design has tended to follow either the requirements and facilities associated with particular machine architectures or the demands made by favoured applications. In the informal atmosphere of the old Lodge, there were many relatively unstructured discussions of high and low level languages, parallel and sequential processing, special purpose architectures, specific applications, and picture processing systems. Consideration was given to whether existing languages such as FORTRAN and PASCAL could be used as a basis for writing and exchanging algorithms. Suggestions were made regarding desirable properties of such an appropriate image processing language.

Two working groups were established to investigate and assess the suitability of FORTRAN and PASCAL as image processing languages, from both a practical and theoretical point of view. An attempt will also be made to formalize the exchange of algorithms. The coordinator of the FORTRAN group is Dr. Keith A. Paton, Division of Medical Computing, Clinical Research Centre, Watford Road, Harrow, Middlesex, Britain HA1 3UJ, and that of the PASCAL group, Mr. Alan Wood, Dept. of Physics and Astronomy, University College, London, Gower Street, London, Britain, WC1E 6BT. A third group, dedicated to the definition of a new picture processing language, may be organized in the future.

NATO ADVANCED STUDY INSTITUTE ON SPOKEN LANGUAGE GENERATION AND UNDERSTANDING

This NATO ASI was held on June 26th - July 7th, 1979 in Bonas, France and was organized by Prof. J.C. Simon of the Université Paris VI and IRIA. About 100 participants attended tutorial lectures, panel discussions, and experimental classes, dealing with theoretical, and in particular, the practical aspects of

speech processing. The final papers of the lectures and panel sessions are to be published as a book.

CONFERENCES AND WORKSHOPS

5th INTERNATIONAL CONFERENCE ON PATTERN RECOGNITION

Miami Beach, Florida, December 1-4, 1980. Co-sponsored by IAPR and the IEEE Computer Society.

CALL FOR PAPERS

Topics of Interest

Research papers on all aspects of pattern recognition are invited, including the following topics:

METHODOLOGIES: statistical, structural and syntactic methods, clustering techniques.

PREPROCESSING AND FEATURE EXTRACTION: Image enhancement and restoration, line drawings, waveform analysis, shape and texture analysis.

APPLICATIONS: character recognition, speech recognition, robot vision, medical and biomedical applications, scientific and industrial applications, remote sensing, applications in societal and environmental problems.

IMPLEMENTATIONS: digital systems, special processors, optical techniques, interactive systems, data structures, data bases, innovative computer architectures.

PAPER SUBMISSION: Four copies of a draft of the full-length paper should be submitted by April 1, 1980, to the Program Chairman: Professor Y.T. Chien, Dept. of EE and CS, U-157, University of Connecticut, Storrs, CT 06268, Tel: (203) 486-4825. A full paper will be either a long paper (about 6000 words) or a short paper (not more than 3000 words) which may include those reporting on last minute results. Each paper should contain a 200-word summary. A long paper will have about 25 minutes for presentation, and a short paper will have about 15 minutes. Authors should identify clearly their preference of either long or short at the top of their draft papers. There will be the possibility of reducing a long paper to a short presentation according to the judgements of the reviewers. It is expected that long papers will be more thoroughly reviewed for acceptance and *most of the papers included in the program will be for short presentations*. All papers accepted for presentation will be included in the Conference Proceedings.

Authors will be notified concerning the acceptance of their papers by July 1, 1980, and will receive kits for typing their manuscripts. A camera-ready copy of the accepted paper should be returned to the publications chairman by Sept. 1, 1980. The official language of the conference and the proceedings is in English.

For further information write to: 5-ICPR, P.O. Box 639, Silver Spring, MD 20901, U.S.A.

WORKING CONFERENCE ON PATTERN RECOGNITION IN PRACTICE

Areas : biomedical applications
geology
meteorology
remote sensing
high energy physics
interactive systems

Location : Amsterdam

Date : May 21-23, 1980

Number of Participants : 60-80

Scope : The working conference on Pattern Recognition in Practice will bring

together researchers from such diverse areas as biomedical data processing, geology, meteorology, possibly others to discuss the application of pattern recognition theory in practical situations.

Many theoretical ideas have been advanced in the past. How to use these in practice is often less clear. Both the success and the problems encountered in such efforts are relevant topics to the conference theme.

The conference will try to highlight the questions how interactive systems for pattern recognition can be used to help solve such problems and what the capabilities of such systems will have to be.

Conference Chairman : L.N. Kanal, Ph.D.
E.S. Gelsema, Ph.D.

Conference Secretariat : E.S. Gelsema, Ph.D.
Free University, Medical Faculty
Department of Medical Informatics
v.d. Boechorstraat 7,
Amsterdam,
The Netherlands.
Tel: 020 - 5483306

BRITISH PATTERN RECOGNITION ASSOCIATION 1980 CONFERENCE ON PATTERN RECOGNITION

The conference will be held in Oxford, 9-11 January 1980, and aims to bring together researchers and practitioners to discuss the state of the art and directions for progress in pattern recognition. Broad U.K. participation is expected, but participants from other countries will be particularly welcome. Topics include (but are not limited to)

- pattern recognition theory (statistical and syntactic methods, clustering)
- processing and recognition of speech and other waveforms
- image and line drawing processing
- applications of pattern recognition (biomedical, industrial, social and physical sciences, remote sensing, etc.)
- scene analysis
- robotics
- artificial intelligence
- hardware and software systems

Enquiries can be addressed either to Dr. Josef Kittler or to Dr. Frank Harris, both at the following address: Nuclear Physics Laboratory, Keble Road, Oxford OX1 3RH, England, Tel: 0865-59911.

IFIP CONGRESS 80

IFIP Congress 80, the 8th World Computer Congress, is the next in a series of triennial meetings sponsored by the International Federation for Information Processing (IFIP). Representing the information processing interests of its 39 member countries, IFIP has held congresses in Paris, Munich, New York, Edinburgh, Ljubljana, Stockholm and Toronto. These have been major occasions for the world-wide exchange of information among developers and users of information processing techniques and technology.

The 8th World Computer Congress and Exhibition will be held at two locations: starting in Tokyo (Japan) from 6th-9th October, and continuing in Melbourne (Australia) from 14th-17th October 1980. The program will contain three types of sessions:

Invited Papers, relating to broad areas of information

processing.

Submitted Papers, reporting on significant current developments in information processing.

Panel Discussions, exploring the present state of the art and current trends and involving audience participation.

To assist authors a pamphlet entitled INSTRUCTIONS AND AIDS FOR AUTHORS has been prepared and individuals considering submitting a paper should write for a copy of the pamphlet to:

Program Committee
IFIP Foundation
40, Paulus Potterstraat
1071 DB Amsterdam
The Netherlands.

CLASSIFICATION SOCIETY

A meeting of the Society will be held at the University of York, U.K. on 31st March - 1st April, 1980. Two topics will be covered, namely "Software Developments in Classification and Identification" and "Industrial Aspects of Classification". All are welcome. Further details may be obtained from either Mr. A.J. Cooper, Brisch, Birn & Partners, Ltd., 81, Station Road, Marlow, Bucks, SL7 1NS, England, or Dr. A.J. Willmott, Department of Computer Science, University of York, Heslington, York, YO1 5DD, England.

EUSIPCO-80 EUROPEAN ASSOCIATION FOR SIGNAL PROCESSING

The *European Signal Processing Conference* (EUSIPCO) is a triennial Conference promoted and organized by EURASIP, the European Association for Signal Processing, in cooperation with other scientific and technical organizations. Its aim is to cover all aspects of signal processing theory and practice and to promote the exchange and cross-fertilization of ideas between individuals working in such a multi-disciplinary field.

The first European Signal Processing Conference will be held on the Lausanne Campus of the Swiss Federal Institute of Technology from September 16 to 19, 1980.

Sessions will include tutorial and review papers, new research results, presentations of applications and technological novelties with possible panel discussions. Poster sessions will also be set up. Proceedings will be published by North-Holland Publishing Company. English is the official language of the Conference.

This Conference is open to all aspects of signal processing including:

- * Signal and noise theory
- * Filtering
- * Spectral Analysis
- * Image and 2-D Signal Processing
- * Optical Signal Processing
- * New Signal Processing Technology
- * Special purpose hardware and software developments
- * Radar - Sonar signals and systems
- * Speech processing
- * Applications in communication, biomedicine, pattern recognition, seismology, industrial processes, etc.

Prospective authors are encouraged to submit papers in quadruplicate to the Conference Secretariat in one of the following forms:

- * *Tutorial papers*: suitable for a 40 minute

presentation. Acceptance on the basis of full text only.

**Regular papers:* suitable for a 25 minute presentation. Acceptance on the basis of a detailed summary of 3 to 5 pages emphasizing the originality and/or the relevance of the subject.

**Short Communications:* (will not be included in the Proceedings) suitable for a 10 minute presentation or for a poster session. Acceptance on the basis of a summary of 1 to 2 pages.

Deadlines:

January 15, 1980 Submission of tutorial and regular papers
March 1980 Notification of acceptance/rejection
April 30, 1980 Reception by the Conference Secretariat of final manuscripts to be included in the Conference Proceedings
April 30, 1980 Submission of short communications
May 1980 Notification of acceptance/rejection of short communications

Conference Secretariat:

Mrs. C. Stelé - EUSIPCO-80 - Dept. of Electrical Engineering, Swiss Federal Institute of Technology, 16, Chemin de Bellerive, CH-1007 Lausanne, Switzerland. Tel. (21) 47 26 24 Telex 24478 EPFVD CH

FIRST SCANDINAVIAN CONFERENCE ON IMAGE ANALYSIS

DATE: 14-16 January 1980

PLACE: The University of Linköping, Linköping, Sweden
THE CONFERENCE: Svenska Sällskapet För Automatiserad Bildanalys hosts the First Scandinavian Conference on Image Analysis. This is an international conference and open to contributors and participants from all countries. The official language of the conference will be English. Deadline for receipt of abstracts of papers is November 1; deadline for pre-registration is December 1. During the conference several invited speakers will address different aspects of image analysis.

ADDRESS: Direct any inquiries to: R. Cederberg, National Defence Research Institute, Box 1165, S-581, 11, Linköping, Sweden.

SIXTH INTERNATIONAL ALLC SYMPOSIUM ON COMPUTERS IN LITERARY AND LINGUISTIC RESEARCH

The Association for Literary Computing is sponsoring a conference on COMPUTERS IN LITERARY AND LINGUISTIC RESEARCH from 28 March - 3 April 1980 at the University of Cambridge, England.

It is anticipated that papers will be presented in the following categories:

Authorship Studies, Concordances, Classical Studies, Education, Input/Output, Language-Oriented Groups, Lexicography, Literary Statistics, Metrics, Oriental Studies, Software, Stylistic Analysis, Syntactic Analysis, Textual Criticism.

Requests for information should be directed to:

Dr. J.L. Dawson
Secretary, 1980 Symposium
Literary and Linguistic Computing Centre
Sidgwick Site
Cambridge CB3 9DA
England
Tel: (0223) 56411 ext. 37 or (0223) 356411 ext. 37

BOOKS

COMPUTER VISION SYSTEMS

Edited by Allen R. Hanson and Edward M. Riseman

The papers in this volume are the result of the three-day Workshop on Computer Vision Systems, held at the University of Massachusetts, Amherst, Massachusetts, June 1 - 3, 1977.

Academic Press
406 Pages
1978
\$29.00

COMPUTATIONAL ANALYSIS OF MANDARIN

Prof. Ching Y. Suen
Concordia University
Montreal, Canada

This is the first extensive study on the linguistic properties of Mandarin, the official language spoken in China. A great deal of the material is derived from a computational analysis of a large corpus, composed of over 750,000 samples of Chinese characters, which was transcribed by a computer into phonemic syllables using a set of phonetic rules developed by the author. The result is a classification and rank distribution of all speech sounds, the phonetic properties, frequency distribution of symbols, phonemes, and syllables of spoken Mandarin. For reference purposes, the entire corpus is included at the end of the book.

The author has also devised a phonetic system for Mandarin which will be interesting to the layman as well as the scholar of language. The phonetic system he presents here will be invaluable to those who wish to learn the correct pronunciation of Mandarin syllables written in this system.

This book should be of interest to scholars and students of Mandarin and Chinese, linguists and psychologists, phoneticians and speech therapists, computer scientists and communication engineers. It is a valuable source of material for compilation of dictionaries, language reform, computer input and output of Mandarin and Chinese characters, and preparation of Mandarin lessons.

Birkhäuser
160 Pages
1979
\$18.50

THESES, PAPERS, & REPORTS

THE AUTOMATION OF CANCER CYTOLOGY AND CELL IMAGE ANALYSIS

PROCEEDINGS OF THE SECOND INTERNATIONAL CONFERENCE

This volume is edited by Norman J. Pressman of the Johns Hopkins University and George L. Wied of the University of Chicago. It is a compendium of thirty-eight articles presented by leading researchers actively engaged in cytology automation and/or the practice of cytologic assessment and cell image analysis. The proceedings can be ordered at \$35.00 per copy from: Tutorials of Cytology (A), 5841 South Maryland Avenue - HM 449, Chicago, Illinois 60637, U.S.A.

Pal, S.K., "Application of Fuzzy Set Theoretic Approaches in Pattern Recognition and Man-Machine Communications Problems", Ph.D. Thesis, Indian Statistical Institute, Calcutta, 1979.

Saghri, John A., "Efficient Encoding of Line Drawing Data with Generalized Chain Codes", Ph.D. Thesis, Electrical and Systems Engineering Dept., (Published as Technical Report IPL-TR-79-003) Rensselaer Polytechnic Institute, Troy, N.Y. 12181, 1979.