



International Association for Pattern Recognition, Inc.

An affiliate member of the International Federation for Information Processing

# NEWSLETTER

## Editor

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Dear Colleagues:

Many thanks to all of you who replied to my editorial notes. I hope that we have started a dialog on some important issues and I would like to continue it.

Being at the university, naturally I am concerned with those educational aspects that influence the future progress of our field. This note will concentrate on the issues related primarily to undergraduate education. In the future I would like to discuss graduate education and research leading to Ph.D.s in our area, the relationship to industry and the funding and, finally, the scope of our activities; i.e., for example, how much of the robotics research, especially the sensory data analysis should be included in our topics.

Now I embark on my main topic. To summarize what you have said, you agree that undergraduate education should be broad in sciences rather than specialized and the specialization in Pattern Recognition, Artificial Intelligence and Robotics should take place at the senior year and in the graduate school.

Professor *M. Pavel* from the University of Paris 5 listed in particular some topics in mathematics that are of vital importance to a serious student of Pattern Recognition. They are: set theory, vector space, elementary topology (continuous and discrete), dimension theory, elementary category theory, group theory and logic. I will add to her list probability theory and statistics, numerical methods and approximation theory, geometry and topology. I am especially alarmed by the lack of knowledge of geometry among the American students. From the above list it may

seem that there are too many required mathematics courses and not enough time for other subjects during the four to five years of undergraduate education. Perhaps the answer is to create a series of courses which would succinctly cover these topics.

Naturally, similar considerations could be made for different aspects of physics such as: kinematics, statics, dynamics, optics, radiometry, atomic physics, elasticity theory, etc.

*Professor L. Shapiro* from Virginia Polytechnic Institute has pointed out the importance of the undergraduate student's involvement in research projects. This is very true! Different universities have different vehicles for making the student involvement possible. At the University of Pennsylvania we require a two semester senior design project. Some of it is research and the others are development projects. This activity distinguishes the students who are able to work independently from those who need close supervision. This is clearly an important experience and realization for a student before he/she faces the real world.

The question, however, remains when should such research and/or independent experimental or theoretical work take place. Should we first require some years of theoretical background and only then let the students undertake some projects or should we interweave the research work with theoretical background courses?

*Professor H. Nieman* from the Friedrich-Alexander University in Erlangen has described how their approach introduces a Pattern Recognition problem right in the first introductory computer course.

CONTINUED ON PAGE 11

IAPR NEWS: From the desk of the president of the IAPR, Dr. A. Rosenfeld

Professor Rosenfeld is concerned by the growth of the Pattern Recognition Community: The pattern recognition community--as it can be measured by attendance at ICPRs--has grown at a much slower rate over, say, the last ten years, than many other communities. For example, the field of Computer Graphics is in permanent explosion. The same is true for Acoustic, Speech and Signal Processing. It looks like we are losing users communities who can find better answers to their problems elsewhere. He suggests that we should focus at specific users communities, for example, those interested in computer vision. He also stresses the idea that organizing tutorials in conjunction with ICPRs is an efficient way to attract high attendance.

From the desk of the secretary,  
Dr. Pierre A. Devijver:

INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION

EXCERPTS from the MINUTES of the meeting held in Munich on 14 December 1981:

Present were: *Rosenfeld* (President IAPR), *Marko* (Chairman 6.ICPR), *Lang* (Publication Chairman), *Platzer* (Local Arrangements Chairman), *Kazmierczak* (Industrial Program Chairman), *Backer* (The Netherlands), *Devijver* (IAPR Secretary).

- 1) Rosenfeld points out that the processing of the Indian application for membership makes it clear that the procedure for organizing a mail ballot is unnecessarily complicated. At present, the decision to organize a mail ballot requires either a majority vote from the Governing Board members, or a petition signed by officers of at least five member organizations, (See Articles 9f, 10a, and 10b of the IAPR Bylaws). It will be proposed to amend Article 9f of the Bylaws as follows: "A MAIL BALLOT MAY BE INITIATED, WITH THE APPROVAL OF THE PRESIDENT, WHEN A DECISION OF THE GOVERNING BOARD IS NECESSARY IN BETWEEN THE BIENNIAL MEETINGS. THE SECRETARY..." (the rest of the article remains unchanged).

In the course of the discussion, it is found that various IAPR officers use various versions of the IAPR Constitution. Devijver points out that he very badly needs a number of copies of the up-to-date version. He will contact Freeman to that effect.

- 2) Rosenfeld intends to suggest to the editors of Pattern Recognition journals to publish, upon reception, the abstracts of submitted papers. This would reduce, to a certain extent, the inconvenience of excessively long publication delays.
- 3) Rosenfeld provides first information on flights from the US to Munich. A copy of that information is handed to Marko.

4) The Munich Conference

- Special Events. Marko reports that the opening session will feature addresses by one Bavarian Minister, the Rector of the University, the IAPR President, and the Conference Chairman and Program Chairman. There will be a choice of three technical visits, one technical exhibition, and stands from technical publishers. The social events will include a State Reception in the City Hall, and one Bavarian Evening. There will be a Social Program.

- Facilities. A visit to the building where the conference will take place shows that the University offers excellent facilities.

- Accommodations. Participants in the conference will be accommodated in various hotels in Munich. They will have to use public transportation or taxis to get to the Conference Place.

5) IAPR Brochure

Backer reports that the draft of an IAPR brochure is ready and will be circulated to the members of the Governing Board in the near future. Everyone will be invited to comment on the contents of the brochure. The brochure should be available at the time of the Munich Conference.

6) The New Journal

The negotiations with North Holland about the start of a new journal entitled *Pattern Recognition Letters* are progressing satisfactorily. Like the existing "Information Processing Letters" and the new "Operations Research Letters," *Pattern Recognition Letters* will aim at rapid dissemination of new and short communications in the field. IAPR has agreed to sponsor the new journal, and will have the right to appoint a number of advisory editors to the editorial board.

7) Membership

Devijver reports that he had personal contacts with Prof. M. Kunt from Switzerland and that an application for membership may be expected from Kunt around February. Negotiations about membership are being conducted by Danielsson with Spain and the USSR. Efforts should be made in the direction of Austria, East Germany, and Hungary. (Note added by the Secretary: At the time of this writing, an official application for membership has indeed been received from Prof. Kunt, President of the new Swiss Association for Pattern Recognition.)

8) Miscellaneous

Rosenfeld presents an informal report on the meeting of Governing Board members that was held in Dallas. He also comments on A. Guzman's idea to organize tutorial courses in developing countries. In this respect he is searching for additional sponsorship. The same idea was presented to him by Levialdi, who has African

countries in mind. The situation with Africa is somewhat better because there already exists an organization (the CSATA) through which such courses can be organized.

Rosenfeld suggests that IAPR should sponsor a series of books and should consider republication of ICPR Conference Proceedings. There still proves to be a high demand for these proceedings.

#### GUIDELINES FOR THE SELECTION OF LOCATION FOR THE FUTURE INTERNATIONAL CONFERENCES ON PATTERN RECOGNITION

The new Guidelines, as presented in the December 1981 issue of the IAPR NEWSLETTER, have been approved.

Members of IAPR are reminded to send their proposals to the committee (listed below) for the future locations not later than July 31, 1982. These proposals will be considered at the 6-ICPR in Munich in October 1982.

The members of the 1981-1982 Conference Committee are:

- DR. T. PAVLIDIS (Chairman) Bell Laboratories  
(2C-519), Murray Hill, NJ 07974, USA
- PROF. T. CHANG, Dept. of Automation, Ging-Hua University, Beijing, People's Republic of China
- PROF. T. KOHONEN, Dept. of Technical Physics, Helsinki University of Technology, SF-02150, Espoo 15, Finland
- PROF. S. LEVIALDI, Istituto Science dell' Informazione, Univerita degli Studi, Via Amendola 173, I-70126 Bari, Italy

#### INDIA ELECTED TO IAPR MEMBERSHIP

By a special mail ballot of the Governing Board, the Indian Unit for Pattern Recognition and Artificial Intelligence (IUPRAI) was approved for national membership in IAPR. Representing IUPRAI on the IAPR Governing Board will be Prof. D. Dutta Majumder, of the Indian Statistical Institute, Calcutta. The election of IUPRAI was publicly announced at the International Conference on Information Sciences and Technology held in Calcutta on January 11-14 in celebration of the Golden Jubilee of the Indian Statistical Institute, and attended by several IAPR representatives, including Past President K.S. Fu, President Azriel Rosenfeld, and Secretary Pierre Devijver.

We extend sincere congratulations to the IUPRAI.

#### A NEW JOURNAL PATTERN RECOGNITION LETTERS CALL FOR PAPERS

##### Editors:

E. BACKER, Dept of Electrical Engineering,  
Delft University of Technology  
Mekelweg 4, 2628 CD Delft, The Netherlands

E.S. GELSEMA, Dept. of Medical Informatics  
Free University  
Van der Boechorststraat 7,  
1081 BT Amsterdam, The Netherlands

##### NORTH-HOLLAND PUBLISHING COMPANY

P.O. Box 211 In the U.S. and Canada  
1000 AE Amsterdam 52 Vanderbilt Avenue  
The Netherlands New York, NY 10017, USA

PATTERN RECOGNITION LETTERS takes a novel approach to the publication of research work in the field of pattern recognition.

##### It features:

- concise articles
- rapid publication
- broad coverage of the Pattern Recognition Literature

Articles will be limited to six journal pages in double column format (13 double-space typed pages) including references, tables and figures. Accepted manuscripts will be published within about three months of submission.

Letters journals are a proven medium of communication in the physical sciences. In recent years, they have been introduced to other fields, including computer science, operations research and statistics and probability.

The proliferation of literature and the long publication delays have made it nearly impossible for researchers and practitioners to keep up with new developments outside of, or even within their specialization. PATTERN RECOGNITION LETTERS will help to alleviate these problems. The concise article format permits the editorial board to process papers very rapidly and enables the reader to learn about new results and developments. Concise communications (letters) allow readers to quickly and easily digest large amounts of material and to stay up-to-date with developments in all areas of pattern recognition.

PATTERN RECOGNITION LETTERS is a refereed journal. Apart from the six-page limitation, originality, quality and clarity will be the criteria for choosing the material to be published in PATTERN RECOGNITION LETTERS.

The subject matter can be theory, methodology, empirical studies or applications both in image processing and in pattern recognition. A letter journal is new to the field of pattern recognition. We therefore expect that the precise character of the journal will be established gradually, after the first few issues.

The mainstream of letters will focus on new ideas that the author wishes to disseminate very rapidly. The results and central ideas must be presented in a clear and concise manner. These results may be part of a larger study that the author will submit at a later time as a full-length paper to another journal. Theory and methodology may be published with proofs omitted, or only sketched. In either case, sufficient support material must be submitted in order that the findings can be verified. Empirical and computational results that are of significant value will be published. We also plan to publish descriptions of applications, complete systems and case studies that demonstrate a novel use of existing techniques or have interesting innovative ideas about data collection, analysis, description or presentation.

#### PUBLICATION SCHEDULE:

*PATTERN RECOGNITION LETTERS* is scheduled to start publication in autumn 1982. Volume 1 (in 6 issues) will comprise approximately 360 pages. The subscription rate for 1982/83 is Dfl. xxx.xx/US \$ yy.yy.

#### INSTRUCTIONS TO AUTHORS:

1) Papers must be in English and should not exceed 6 printed pages including diagrams, figures, tables, etc.

2) Papers for publication should be sent to one of the local editors on the editorial board and in parallel to one of the editors in chief.

Submission of a paper will be held to imply that it contains original unpublished work and is not being submitted for publication elsewhere. All papers submitted will be refereed. The Editors do not accept responsibility for damage or loss of papers submitted.

3) Manuscripts should be typewritten on one side of the paper only, double spaced with wide margins. All pages should be numbered consecutively. Tables, references and legends for figures should be typed on separate pages. Titles and subtitles should be short.

4) The first page of the manuscript should contain the following information: (i) the title; (ii) the name(s) and affiliation(s) of the author(s); (iii) an abstract of not more than 40 words; (iv) key words and phrases and (v) an abbreviated title for running headlines. A footnote on the same sheet should give the name and present address of the author to whom the reprint order form should be addressed.

5) Acknowledgements and information on grants received should be given in a footnote on the first page of the manuscript.

6) Important formulae should be numbered consecutively throughout the manuscript as (1), (2), etc. on the right-hand side of the page. Where the derivation of formulae has been abbreviated, it is of great help for referees if the full derivation can be presented on a separate sheet

(not to be published).

7) Footnotes should be kept to a minimum.

8) The reference should include only the most relevant papers. In the text, references to publications should appear as follows: "*Kanal (1976) reported that...*" or "*This problem has been a subject in the literature before (e.g., Kanal (1976, p. 245))*". The author should make sure that there is a strict one-to-one correspondence between the names (years) in the text and those on the list. At the end of the manuscript, the complete references should be listed as:

For books and monographs:

*Duda, R.O. and Hart, P.E. (1973). Pattern Classification and Scene Analysis. Wiley, New York.*

For contributions to collective works:

*De Mori, R. (1977). Syntactic recognition of speech pattern. In: K.S. Fu, ed. Syntactic Pattern Recognition, Applications. Springer, Berlin.*

For journal articles:

*Watanabe, S. (1981). Pattern recognition as a quest for minimum entropy. Pattern Recognition 14, 381-387.*

9) Illustrations should be provided in triplicate (one set of originals drawn in black ink on white paper plus one set of photocopies to be sent to one of the editors in chief, and one set of photocopies to be included with the manuscript which is sent to one of the local editors). Care should be taken that lettering and symbols are of comparable size. The drawings should not be inserted in the text and should be marked on the back with figure numbers, title of paper, and name of author. All graphs and diagrams should be referred to as figures and should be numbered consecutively in the text in arabic numerals. Graph paper should be ruled in blue and any grid lines to be shown should be inked in black. Illustrations of insufficient quality which have to be redrawn by the publisher will be charged to the author.

10) All unessential tables should be eliminated from the manuscript. Tables should be numbered consecutively in the text in arabic numerals and typed on separate sheets.

Any manuscript which do not conform to the above instructions may be returned for the necessary revision before publication.

## CONFERENCE REPORTS

We received two reports about past conferences, the first from Prof. M. Pareo:

At the 3rd French Conference on Pattern Recognition and Artificial Intelligence, which took place in Nancy, France, from September 16 to 18, 1981, I organized with the collaboration of my group, a panel on the "Mathematical Theory of Shape and (Pattern) Recognition," consisting of the following presentations:

- M. Pavel, "Theory of Shape and Pattern Recognition"
- S. Lebel, "Computation of Topological Invariants of Digital Images"
- D. Galarreta, "Shape Numbers"
- A. Korganoff, "Survey of the Literature on Shape Analysis"
- D. Gambart, "Transforms and Texture in Image Processing and Teledetection"

Proceedings are available.

And, from Dr. G. Musso, the secretary of the Italian IAPR group:

The First International Workshop on Cybernetic Systems took place on December 9-12, 1981 at the Hotel Due Torri of Cava De' Tirreni, Salerno, Italy. It was organized by the Italian IAPR Group and sponsored by University of Salerno and Discoveries Italia.

The technical program consisted of 9 invited talks and 13 contributed papers, grouped in 6 technical sections, covering the following topics:

- a) Neuron Net and Selforganizing Systems
- b) Natural Languages
- c) Image Recognition
- d) General Pattern Recognition
- e) Speech Recognition

The Workshop participants represented 7 countries from North America and Europe (USA, United Kingdom, West Germany, Poland, Finland, Greece, Italy).

The invited speakers were A. Rosenfeld from the University of Maryland, T. Kohonen from Helsinki University of Technology, I. Eisele and J. Becker from Federal Armed Forces University, Munich, Erkki Oja from University of Kuopio, J. Kittler from Rutheford Appleton Laboratory (England), G.P. Otto from London University College, D. Parisi from Istituto di Psicologia of CNR Roma, R. DeMori from University of Torino, S. DiZenko from the Research Dept. of IBM Italia, Rome.

The invited papers, as well as the contributed ones, will be published in a Proceedings Book.

The participation to the Workshop was opened also to the students of the Science Institute of the University of Salerno, which made the number of attendants to the lectures exceed 100 people.

In addition to technical works, a very interesting tourist program, concerning archeological and historical sites of Salerno's surroundings, was carried out.

We would like to thank sincerely all invited speakers and authors for their papers and participations, as well as all the attendants for the stimulating discussions.

## CONFERENCE ANNOUNCEMENTS

The Working Group of A.F.C.E.T./University Paris VI on

### MATHEMATICAL FOUNDATIONS OF PATTERN RECOGNITION AND THEIR APPLICATIONS

will continue its activity this academic year, starting on 3 March 1982 at the Probability Laboratory, University of Paris VI, 4 Place Jussieu, Tower 56, Paris 5, France. Its activity, which shall become definitive on 10 March, will include: exposés at the Seminar on "Mathematical Foundations of P.R.," the preparation of the group's participation at the forthcoming 6th IAPR in Munich, October 1982, at the forthcoming French conference on PR in Paris, 1983, the group's members' publications in *Computers in Biology and Medicine*, and other journals. The group's organizer is Prof. M. Pavel, University of Paris VI.

### WORKSHOP ON COMPUTER VISION: REPRESENTATION AND CONTROL

Franklin Pierce College, Rindge, New Hampshire  
August 23-25, 1982

Sponsored by the IEEE Computer Society  
Pattern Analysis and Machine Intelligence  
Technical Committee  
Co-sponsored by  
GTE Labs

Papers on the following topics and related areas will be presented:

*Knowledge-based Vision Systems*  
*Spatial Reasoning Systems*  
*Intelligent Pictorial Database Systems*  
*3D Modeling and Object Recognition*  
*Control Structures for Scene Analysis*  
*Extraction of "Intrinsic Characteristics" from Images*  
*Range-finder Vision Systems*  
*Time-varying Image Analysis*  
*Stereo Vision Systems*

### Conference Committee:

General Chairman:	Local Arrangements Chmn.:
Robert M. Haralick	Patrick Shen-pei Wang
Program Co-chairmen:	Registration Chairman:
Steven L. Tanimoto	Roger W. Ehrich
Linda G. Shapiro	

WORKSHOP ON COMPUTER VISION: REPRESENTATION AND CONTROL, Continued:

Program Committee Members:

<i>Michaél Brady</i>	<i>Edward M. Riseman</i>
<i>Takeo Kanade</i>	<i>Steven W. Zucker</i>
<i>Dana H. Ballard</i>	<i>Keith Price</i>

For further information:

*Prof. Linda G. Shapiro*  
*Department of Computer Science*  
*Virginia Polytechnic Institute*  
*Blacksburg, Virginia 24061*

BIOSTEREOMETRICS '82

to be held in conjunction with

SPIE's 26th Annual International Technical Symposium and Instrument Display and the 15th International Congress on High Speed Photography and Photonics

*August 23-27, 1982 Town & Country Hotel*  
*San Diego, California, USA*

Cooperating Organizations:

International Society of Photogrammetry  
 American Society of Photogrammetry  
 Northeastern Ohio Universities College of Medicine  
 Institute for Biomedical Engineering Research,  
 University of Akron

General Chairman:

*Robin E. Herron*, Director, Institute for Biomedical Engineering Research, University of Akron; and  
 Northeastern Ohio Universities College of Medicine

The third in a series of international meetings on biostereometrics (1974 in Washington, D.C. and 1978 in Paris) will focus on the spatial and spatio-temporal analysis of biological form and function, which has already found its way into many areas of clinical medicine, the life sciences, and biomedical engineering.

The growing availability of cost-effective, three-dimensional and four-dimensional stereometric sensors, along with the inexorable progress of computer hardware and software, has opened up a wide range of new and exciting applications which should continue to expand for the foreseeable future.

The Biostereometrics '82 meeting will provide a forum for the exchange of ideas and the presentation of state-of-the-art reports in such areas as:

HISTORICAL BACKGROUND

MATHEMATICAL FOUNDATIONS

Coordinate systems and transformations  
 3-D reconstruction algorithms  
 Spatial statistics, etc.

DATA ACQUISITION

Photogrammetry / Cine-photogrammetry / Video  
 Infrared / CT and other scanning devices  
 Electromechanical / Electro-optical  
 Photo-optical, e.g., moire interferometry

Magnetic / Microscopic / Raster stereography

DATA ANALYSIS AND DISPLAYS

Computer hardware and software  
 Quantitative 3-D and 4-D computer graphics

APPLICATIONS - CLINICAL

Orthopedics / Radiology / Nutrition / Pathology  
 Sports medicine / Plastic reconstructive surgery  
 Cancer / Ophthalmology / Cardiovascular system  
 Orthotics/Prosthetics / Dentistry--Orthodontics  
 Neurology / Pediatrics

APPLICATIONS - NON-CLINICAL

Ergonomics/human engineering / Aerospace medicine  
 Anthropometry / Anatomy--3-D atlases  
 Body modeling / Biomechanics / Biomaterials  
 Physical anthropology / Palaeoanthropology / Art  
 Industrial design / Data banks / Robotics  
 Microbiology / Taxonomy and Phylogeny, and other fields where the stereometric analysis of biological form or function has played or could play a useful role.

An equipment and poster exhibit will be held in conjunction with the symposium.

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SPIE--The International Society for Optical Engineering is a non-profit technical society dedicated to advancing engineering and scientific applications of optical, electro-optical, photo-electronic instrumentation systems, and technology. Its members are scientists, engineers, and users interested in the reduction-to-practice of these technologies. The Society provides the means for communicating and disseminating new developments and applications to the scientific, engineering, and user communities through its publications and symposia.

INTERNATIONAL SOCIETY FOR STEREOLOGY  
 SOCIÉTÉ INTERNATIONALE POUR LA STÉRÉOLOGIE  
 INTERNATIONALE GESELLSCHAFT FÜR STEREOLOGIE

ANNOUNCEMENT

STEREOLOGY 82

The International Society for Stereology is holding a multidisciplinary Symposium in the *University of Sheffield on 5th, 6th and 7th July, 1982*. Intending contributors to this meeting are now invited to submit 300 word abstracts, not later than 1st April 1982 for inclusion in the scientific programme.

LOCATION:

Lectures, demonstrations (poster sessions) and discussions will be held in the University of Sheffield Biology Lecture Theatres. Residential accommodation will be available in a University Hall of Residence, Halifax Hall.

PROVISIONAL PROGRAMME:

Concurrently with general sessions in biology, cell biology and the material sciences, a Wicksell Symposium dealing with the stereological analysis of particle properties will be held on *5th July*. A

Stereology in Pathology Symposium will be held on 6th July. A Biological Variation Symposium will be held on 7th July.

**PUBLICATION:**

Major invited papers will be considered for publication in a special issue of the JOURNAL OF MICROSCOPY. Abstracts and shorter papers will be published in another specialist journal.

**COST:**

Registration fee for full attendance (inclusive of accommodation 70). Contributors to the Stereology in Pathology Symposium who are also attending the meeting of the Pathological Society in Sheffield on 7th to 9th July 1982 may register for a fee of 30 (inclusive of one night's accommodation). No registration fee will be charged for Ph.D. students except a minimal accommodation fee.

**ENQUIRIES AND ABSTRACTS SHOULD BE SENT TO:**

DR. N.T. JAMES, Department of Human Biology and Anatomy  
University of Sheffield  
Sheffield S10 2TN, U.K.  
Telex: 54348 ULSHEF G.

Preliminary Program  
INTERNATIONAL WORKSHOP ON INDUSTRIAL APPLICATIONS  
OF MACHINE VISION

**ORGANIZING COMMITTEE:**

Chairman: Joseph Mundy, General Electric Co.  
Schenectady, NY, USA  
Program: John F. Jarvis, Bell Laboratories  
Holmdel, NJ, USA  
European Representative: Andre Oosterlinck  
University of Leuven  
Leuven, Belgium  
Japanese Representative: Masahico Yachida  
Osaka University  
Osaka, Japan  
Local Arrangements: Wesley Snyder  
North Carolina State University  
Raleigh, NC, USA

May 3-5, 1982 Governors Inn  
Research Triangle Park, Raleigh, NC, USA  
Sponsored by the IEEE Computer Society and the  
Research Triangle Institute

**SESSION 1, Monday 8:30 am, PANORAMIC VIEWS OF VISION**

Optical Inspection and Machine Vision, T.R. PRYOR,  
Diffracto Ltd., Windsor, Ontario, Canada  
Application of Pattern Recognition and Image  
Processing to Industrial and Related Problems,  
L. VANDERHEYDT, P. VUYLSTEKE, P. JANSEN,  
A. OOSTERLINCK, H. VAN DEN BERGHE, Center for  
Human Genetics, University of Leuven, Leuven,  
Belgium  
Machine Vision for Discrete Parts Handling in  
Industry: A Survey, R. CHIN, University of  
Wisconsin-Madison, Madison, WI, USA  
Applications of Optical Sensors, W. DUTSCHKE,  
C. KEFERSTEIN, Fraunhofer-Institut IPA,  
Stuttgart, Germany

**SESSION 2, Monday 10:50 am, INSPECTION IN LITHO-  
GRAPHIC TECHNOLOGIES**

Automated Chip (Die) Inspection, R. BRAUNER, Contrex  
Inc., Burlington, Mass., USA, D. EPSTEIN, ILC  
Data Device Corp., Bohemia, NY, USA  
A New Technique for Inspecting CCD Wafers for  
Defects, T. KONISHI, M. MISONO, T. KATO, Sony  
Corp., Tokyo, Japan  
Automatic Visual Inspection System for Hybrid  
Circuits, N.J. ZIMMERMAN, P.L. SCHEERBOOM,  
G.K. STEENVOORDEN, F.C.A. GROEN, Delft University  
of Technology, Delft, The Netherlands  
Automatic Inspection System for Printed Circuit  
Boards, Y. HARA, K. KARASAKI, N. AKIYAMA,  
K. KARASAKI, Hitachi Ltd., Yokohama, Japan

**SESSION 3, Monday 2:00 pm. SYSTEMS FOR PROTOTYPING**

Some Applications of the Fast Industrial Vision  
System S.A.M., H. TROPF, H. GEISSELMANN,  
J.P. FOITH, Fraunhofer-Institut IITB, Karlsruhe,  
Germany  
Laboratory for the Prototyping of Automated  
Inspection Systems, B.G. BATCHELOR, University  
of Wales Institute of Science and Technology,  
Cardiff, Wales, Great Britain  
Towards a VLSI Design of SATIR, S. LELANDAIS,  
B. ZAVIDOVIQUE, University de Technologie de  
Compiegne, France

**SESSION 4, Monday 3:45 pm, GROUP INVESTIGATIONS ON  
TOPICS IN MACHINE VISION**

**SESSION 5, Tuesday 8:30 am, INSPECTION APPLICATIONS I**

On Systems with Real-Time Image Processing in  
Automated Inspection, M. OLLUS, K. KOSKINEN,  
B. WAHLSTROM, Technical Center of Finland,  
Espoo, Finland  
Gagesight: A Computer Vision System for Automatic  
Inspection of Instrument Gages, M.L. BAIRD,  
General Motors Research Laboratories, Warren,  
MI, USA  
The Automated Surface Inspection of Hot Steel Slabs,  
B.R. SURESH, R.A. FUNDAKOWSKI, T.S. LEVITT,  
J.E. OVERLAND, T.K. BECKERING, T.M. WITTENBURG,  
Honeywell, Inc., Minneapolis, MN, USA  
Integrated Blade Inspection System, J.K. MUNDY,  
General Electric Co. Schenectady, NY, USA

**SESSION 6, Tuesday 10:50 am, INSPECTION APPLICATIONS  
II**

Automatic Optical Inspection of Keyboards, J. WILDER,  
Object Recognition Systems, Princeton, NJ, USA  
Application of Random Pattern Recognition Technique  
to Quantitative Evaluation of Automatic Visual  
Inspection Algorithms, K. EDAMATSU, A. KOMURO,  
Y. NITTA, Fuji Electric Co., Ltd., Tokyo, Japan  
Computer Vision Experiments on Images of Wire-Wrap  
Circuit Cards, J. F. JARVIS, Bell Laboratories,  
Holmdel, NJ, USA

## SESSION 7, Tuesday 2:00 pm, INSPECTION TECHNIQUES

*Precision of Vision Systems, CHIH-SHING HO, Unimation Inc., Danbury, CT, USA*

*A Learning System That is Useful for Industrial Inspection Tasks, W.A. PERKINS, General Motors Research Laboratories, Warren, MI, USA*

*Qualitative Automated Inspection of Industrial Parts Using Visual Information, P. HORAUD, J.P. CHARRAS, Laboratoire d'Automatique de Grenoble, Saint Martin d'Heres, France*

## SESSION 8, Tuesday 3:45 pm, REPORTS FROM GROUP INVESTIGATIONS

## SESSION 9, Wednesday, 8:30 am, 3D VISION TECHNIQUES

*Three-Point Seed Method for the Extraction of Planar Faces from Range Data, T.C. HENDERSON, University of Utah, Salt Lake City, Utah, USA*

*Matching of Featured Objects Using Relational Tables from Stereo Images, J.J. HWANG, ADR Ultrasound, Tempe, AZ, E.L. HALL, University of Tennessee, Knoxville, TN, USA*

*Using Highlights to Constrain Object Size and Location, P. THRIFT, CHIN-HOANG LEE, University of Maryland, College Park, MD, USA*

*Three Dimensional Robot Vision, N. AHUJA, N. BIRDWELL, C. NASH, T.S. HUANG, University of Illinois, Urbana, IL, USA*

## SESSION 10, Wednesday, 10:50 am, ROBOT VISION SYSTEMS

*Visual Sensing System for Automatic Control of Reclaimer in Raw Material Yard, T. INARI, K. TAKASHIMA, M. TANAKA, N. NAKANO, M. KATAGIRI, H. OHYA, Mitsubishi Electric Corp., Amagasaki, Japan*

*Decoration of Chocolates Using Robot Vision, A.J. CRONSHAW, Patscentre International, Melbourn, England*

*Visual Feedback for Robot Control, M. SHNEIER, S. NAGALIA, University of Maryland, College Park, MD., J. ALBUS, R. HAAR, National Bureau of Standards, Washington, D.C., USA*

For further information, contact:

JOHN F. JARVIS, Room 4E610  
Bell Labs  
Holmdel, NJ 07733  
(201) 949-2392

## CALL FOR PAPERS

INTERNATIONAL SOCIETY OF PHOTOGRAMMETRY  
AND REMOTE SENSING

Commission III: MATHEMATICAL ANALYSIS OF DATA

Working Group III-5: MATHEMATICAL PATTERN  
RECOGNITION AND IMAGE  
ANALYSIS

University of Technology, Helsinki, Finland  
5 - 11 June 1982

Contact address for papers:

Prof. Dr. F. Leberl  
Technical University Graz  
Rechbauerstrasse 12  
A-8010 Graz, Austria

For information on the meeting, please write to:

Mrs. Aino Savolainen  
Institute of Photogrammetry  
Helsinki University of Technology  
02150 ESPOO 15  
Finland

Pattern recognition for photogrammetry papers are solicited for sessions on Pattern Recognition and Image Analysis at that symposium

Paper deadline: 15 April 1982  
If held, then the paper will appear in the preprints.

ISMII '82

FIRST IEEE COMPUTER SOCIETY INTERNATIONAL SYMPOSIUM  
ON MEDICAL IMAGING AND IMAGE INTERPRETATION

INTERNATIONAL CONGRESS CENTER, BERLIN  
October 26-28 1982

Held in conjunction with  
THE SIXTH INTERNATIONAL CONFERENCE  
ON PATTERN RECOGNITION  
Munich, October 19-22, 1982

Sponsored by:

IEEE Computer Society, Technical  
Committee on Computational Medicine

Recent technological advances in biomedical imaging and signal acquisition and recent innovations in computer architecture and displays are opening new vistas in computer-automated and computer-assisted pattern analysis. The International Symposium will provide a transdisciplinary forum for biomedical and computer scientists/engineers and medical professionals from universities, medical centers, industry and government to exchange information and ideas, and to assess progress and potential. The participation of young scientists, engineers and physicians will be encouraged.



The Technical Program will emphasize innovative research and applications, and will consist of contributed and invited papers, workshops, panels and exhibitions covering the state-of-the-art, work-in-progress, critical issues, and research initiatives and incentives.

Papers are solicited on all aspects of biomedical image, signal and pattern analysis and computer graphics, including:

- \* New Imaging Modalities
- \* New Imaging Instrumentation
- \* Organ Imaging
- \* Microscope Imaging
- \* Computed Tomography
- \* Clinical Applications
- \* Research Applications
- \* Visual Psychophysics
- \* Performance Evaluation
- \* Standards and Calibration
- \* Quality Assurance and Compliance
- \* Medical Device Regulation
- \* Technology Assessment
- \* Innovation Cycle: Concept to Product
- \* Education and Curricula
- \* Imaging Science
- \* Signal Processing
- \* Restoration, Enhancement and Filtering
- \* Image Analysis
- \* Image Models
- \* Syntactical/Structural/Statistical Pattern Recognition
- \* Computer Vision
- \* Computer-Aided Diagnosis
- \* Artificial Intelligence
- \* Image Databases and Archiving
- \* Medical Computer Graphics
- \* Computer Architectures and Languages
- \* Image Analysis Systems
- \* Computer Graphics Systems

Prospective authors and panelists should submit four copies of a 200-500 word abstract, including six keywords which best characterize the paper, plus a short statement indicating the new contribution and its biomedical impact. Authors should indicate whether the paper will be long (10 pages maximum, 30 minutes, or short, 5 pages maximum, 15 minutes). Papers will be published by the Computer Society Press in the Conference Proceedings and will be eligible for inclusion in *Computers and Computing in Medicine: Vol. 1* and special issues of *IEEE Transactions*. Authors' kits for typing camera ready manuscripts will accompany notification of acceptance.

On behalf of the Conference Committee, we extend our invitation to all who would like to share the excitement and rewards of biomedical image and pattern analysis and computer graphics in the atmosphere of the International Symposium.

Dr. Judith M.S. Prewitt  
Div. of Computer Research  
and Technology  
Office of the Director  
Building 12A, Room 2053  
National Institutes of  
Health  
Bethesda, MD 20205 USA  
(301) 496-1247/1248

Dr. Siegfried J. Poepl  
Dept. of Signal Processing  
and Computer Tech.  
MEDIS/Institut fuer  
Medizinische  
Informatik und  
Systemforschung  
Ingolstaedter Landstrasse 1  
D-8042 Neuherberg,  
F.R. Germany  
phone: 089/387-45340

#### CONFERENCE TIMETABLE

Four copies of abstract due: 15 March 1982  
Acceptance letters mailed: 15 June 1982  
Camera-ready manuscripts due: 2 August 1982

#### ACEMB 35TH ANNUAL CONFERENCE ON ENGINEERING IN MEDICINE AND BIOLOGY

22-24 September 1982 Philadelphia Marriott Hotel  
Philadelphia, Pennsylvania

Invited and contributed papers are critically reviewed and selected for presentation. In addition to the traditional topic areas, special sessions will be presented in the following categories:

- \* Biomaterials
- \* Bioelectric Phenomena
- \* Biorheology
- \* Heat and Mass Transfer
- \* Sensory Communications
- \* Hemodynamics
- \* Respiratory Mechanics
- \* Electrophysiology
- \* Radiology & Imaging
- \* Biosolid Mechanics
- \* Instrumentation & Controls
- \* Orthopedics & Implants

THE DEADLINE FOR RECEIPT OF ABSTRACTS is 15 April 1982. Please request information from:

Patricia I. Horner  
4405 East-West Hwy.  
Bethesda, MD 20814  
(301) 557-4142

SCIENTIFIC AND COMMERCIAL EXHIBITS will be another feature of the conference.

#### CONFERENCE CHAIRMAN:

Lawrence E. Thibault, Sc.D.  
University of Pennsylvania  
Philadelphia, PA 19104

SHORT COURSES will be held 22 September.

A STUDENT PAPER COMPETITION will be held with cash awards. Full-time students with an interest in bioengineering are eligible. Chairman:

John W. Steadman, Ph.D.  
University of Wyoming

#### PROGRAM CHAIRMAN:

Abraham Noordergraaff, Ph.D.  
University of Pennsylvania  
Philadelphia, PA 19104

\*-----\*

We remind our readers that the deadline for submission of materials for the next issue of the IAPR NEWSLETTER is June 15. Looking forward to hearing from all of you.

\*-----\*

## NEW TITLES

TITLE: *APPLICATIONS OF PATTERN RECOGNITION*

EDITOR: *K.S. Fu, Ph.D.*  
Goss Distinguished Professor of Engineering  
Purdue University  
West Lafayette, Indiana

PUBLISHING INFORMATION: *CRC Press, Inc.*  
2000 N.W. 24th Street  
Boca Raton, FL 33431  
(305) 994-0555

Catalog No.: 5729P  
No. of pages: 288  
U.S.: \$84.50  
Outside U.S.: \$95.00

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*K.S. Fu*

Chapter 2  
STATISTICAL PATTERN RECOGNITION  
*Pierre A. Devijver*

Chapter 3  
SYNTACTIC PATTERN RECOGNITION  
*K.S. Fu*

Chapter 4  
APPLICATION OF PATTERN RECOGNITION TO REMOTE SENSING  
*K.S. Fu*

Chapter 5  
APPLICATION OF PATTERN RECOGNITION TO SEISMIC WAVE  
INTERPRETATION  
*C.H. Chen*

Chapter 6  
AUTOMATIC VISUAL INSPECTION  
*J.L. Mundy and J.F. Jarvis*

Chapter 7  
APPLICATION OF PATTERN RECOGNITION TO FAILURE  
DETECTION AND ANALYSIS IN NON-DIGITAL SYSTEMS  
*L.F. Pau*

Chapter 8  
APPLICATION OF PATTERN RECOGNITION TO MEDICAL  
DATA ANALYSIS  
*Kendall Preston, Jr.*

Chapter 9  
ADVANCES IN CHARACTER RECOGNITION  
*J.R. Ullmann*

Chapter 10  
AUTOMATIC SPEECH RECOGNITION  
*Renato DeMori*

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RELATED TITLES FROM CRC PRESS, INC.:

*DIGITAL WAVEFORM PROCESSING AND RECOGNITION*  
Edited by *C.H. Chen, Ph.D.*  
Catalog No.: 5777R  
U.S.: \$64.00  
Outside U.S.: \$74.00

*CRC HANDBOOK OF DIGITAL SYSTEM DESIGN FOR SCIENTISTS  
AND ENGINEERS: Design with Analog, Digital and LSI*  
By *Wen C. Lin, Ph.D.*  
Catalog No.: 0671R  
U.S.: \$54.00  
Outside U.S.: \$62.00

*SPECIAL COMPUTER ARCHITECTURES FOR PATTERN PROCESSING*  
Edited by *K.S. Fu, Ph.D. and Tadao Ichikawa, Ph.D.*  
Catalog No.: 6100R  
U.S.: \$79.50 Prepub.  
Outside U.S.: \$90.00 Prepub.

*COMPUTER AIDS TO CLINICAL DECISIONS*  
Edited by *Ben T. Williams, M.D.*  
Volume I  
Catalog No.: 5575R  
U.S.: \$59.00 Prepub.  
Outside U.S.: \$68.00 Prepub.

Volume II  
Catalog No.: 5576R  
U.S.: \$64.00 Prepub.  
Outside U.S.: \$74.00 Prepub.

\*\*\*\*

TITLE: *LECTURE NOTES IN MEDICAL INFORMATICS*  
*D.A.B. Lindberg and P.L. Reichertz, eds.*  
*VOL. 15: DIGITAL IMAGE PROCESSING IN  
MEDICINE*

EDITOR: *Karl Heinz Höhne*  
Institut für Mathematik und Datenverar-  
beitung in der Medizin  
Universitäts-Krankenhaus Eppendorf  
2000 Hamburg 20, Germany

PUBLISHER: *Springer-Verlag*  
Berlin Heidelberg New York 1981

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## MEDICAL PICTURE BASE SYSTEMS

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PLANAR IMAGING AND PICTURE ANALYSIS IN NUCLEAR  
MEDICINE

D.P. Pretschner

\*\*\*\*

TITLE: *COMUNICACIONES TÉCNICAS, Serie Naranja:*  
*Investigaciones, No. 165, 1979--*  
*DESIGN OF A HIGH LEVEL LANGUAGE FOR*  
*IMAGE PROCESSING*

AUTHORS: T. Radhakrishnan, Renato Barrera,  
Adolfo Guzmán, Armando Jinich

PUBLISHER: *Instituto de Investigaciones*  
*en Matemáticas Aplicadas*  
*y en Sistemas*  
Universidad Nacional Autónoma  
de México  
Apartado Postal 20-726  
México 20, D.F.  
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- VII. ATTRIBUTES OF IMAGES AND BANDS
- VIII. PROGRAMMING EXAMPLES

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TITLE: *COMUNICACIONES TÉCNICAS, Serie Naranja:*  
*Investigaciones, No. 206, 1979--*  
*HETERARCHICAL ARCHITECTURES FOR PARALLEL*  
*PROCESSING OF DIGITAL IMAGES*  
(Presented at the II Seminario Interna-  
cional sobre el Uso de los Sensores  
Remotos, México, D.F. 1979)

AUTHOR: Adolfo Guzmán

PUBLISHER: *Instituto de Investigaciones*  
*en Matemáticas Aplicadas*  
*y en Sistemas*  
Universidad Nacional Autónoma de México

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- PRAXIS OF THE MACHINE: ITS APPLICATIONS
- PRECURSORS OF THE MACHINE: PREVIOUS WORK
- CONCLUSIONS

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For example, in such a course a student is given a task of designing and implementing an algorithm for recognition of hand-printed characters. This forces the student to "invent" their own solutions and hence provides a strong motivation to learn more about the subject.

I guess all this boils down to different objectives of our education in different institutions. While some want to educate scientists who would advance the foundations of the area, the other emphasize more of the practitioners point of view, who will solve the "real problems."

It is a blessing that we have choices Vive la difference!

With best wishes,

*Ruzena Bajcsy*

Ruzena Bajcsy



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