IAPR

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

NEWSLETTER

Dear Colleagues:

In my last letter I wrote about the need for more interaction among the different fields and/or communities, such as the Pattern Recognition, Artificial Intelligence, Robotics, and Signal Processing communities. Although I have not received any direct letters from you about the subject, I am happy to report that things are indeed happening. Just to mention a few events:

* *WORKSHOP ON HUMAN AND MACHINE VISION,* Denver, Colorado, August 10-12, 1981;

* *THE AMERICAN SOCIETY OF SIGNAL PROCESSING (ASSP) WORKSHOP ON TWO-DIMENSIONAL DIGITAL SIGNAL PROCESSING,* October 5-7, 1981--which at least in part addressed itself to the mutual interestes of the Signal Processing and Artificial Intelligence researchers;

* Also, the *AMERICAN OPTICAL SOCIETY MEETING* in October in Orlando, Florida, had a special section on Machine Perception as well as many sessions on Psychophysics of Vision.

For some details about these meetings, see the inside of this letter under REPORTS ABOUT MEETINGS.
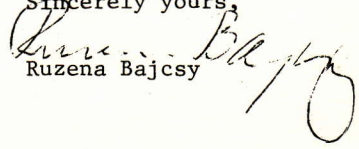
Now I would like to address myself to a generally related but slightly different issue, which is education--especially undergraduate education and programs with specialization towards Robotics, Computer Vision and Pattern Recognition. I would like to ask the community to answer the following questions:

1. Should we have any specialization at the undergraduate level at all, or should we just train our students in basic computer science, mathematics, physics, or electrical engineering?

2. If the answer to the first question is positive, then what courses and/or subjects should the undergraduates have on top of some basic computer science, physics, mathematics and/or electrical engineering courses? What should be the proportion between the basic courses and the applications?

If you have any ideas, let me know, and I would like to publish them.

Happy holidays to all of you.

Sincerely yours,

Ruzena Bajcsy

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

1) A new Pattern Recognition and Image Processing
   Association has been formed in the Netherlands.

   The Deutch pattern recognition community was
   first organized as a Working Group within the
   Netherlands Psychonomics Foundation. (Note: I
   consulted my Webster's, Chambers and Oxford
   Dictionaries. I found a lot about psychodelic--
   the correct version for psychedelic--psychopath,
   etc. But not one word about psychonomics. ??

   In the spring of this year, a Deutch Association
   for Pattern Recognition and Image Processing has
   been founded with *Edzard Gelsema* as President
   and *Eric Backer* as Secretary.

2) IAPR has received a formal application for
   membership from the Indian Unit for Pattern
   Recognition and Artificial Intelligence (IUPRAI).
   The chairman of IUPRAI is *Prof. Dwijesh Dutta
   Majumder* from the Indian Statistical Institute,
   Calcutta, India

3) As of July 1981, *Dr. T. Kasvand* is the Canadian
   representative on the Governing Board of IAPR.
   He replaces *Prof. M. Levine* in that position.
   Dr. Kasvand is with the National Research
   Council of Canada.

4) People Moving

   Dr. Stephano Levialdi (IAPR Conference & Awards
   Committees) formerly with CNR, Napoli, Italy,
   is now with:

           *Istituto Scienze dell'Informazione
           Universita degli Studi
           Via Amendola 173
           I - 70 126 Bari, ITALY
           Phone 080-580626
           Telex OGTSBA8 10333*

   Dr. H. Mäder (individual member IAPR) formerly
   with ETH-Zentrum Zürich, is now with:
           *Machine Tool-Works Oerlikon-Buhrle
              LTD
           Department KFK-EST
           Birchstrasse 155
           CH - 8050 Zürich, Switzerland*

   Dr. K. Chidananda Gowda (individual member IAPR)
   formerly with the University of Mysore, India
   is now with:
           *Earth Resources Group
           Goddard Institute for Space Studies
           2880, Broadway, New York
           NY 10025, USA*

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

1) The Conference should be assigned to a sponsoring
   society or institution, rather than a group of
   individuals. However, the names of general
   chairman, program chairman, and local arrange-
   ments chairman should be submitted with the
   proposal together with two alternate names of
   people who may replace one of the above, if for
   some reason they cannot carry out their duties.

2) A proposal should contain documented estimates
   of attendance, both local and international, in
   order to substantiate the budget and the
   proposed registration fees. The proposal should
   also contain cost estimates for international
   travel from various countries.

3) Proposals should contain description of confer-
   ence and hotel facilities.

4) Proposals should be submitted at least three
   months before the ICPR where the decision will
   be made. A copy of the proposal should be sent
   to each of the conference committee members and,
   optionally, to the IAPR executive committee
   and governing board. (If the conference
   committee recommends consideration by the
   governing board, then the additional copies
   should be brought at the ICPR meeting).

   These guidelines were prepared by the
Conference Committee of IAPR and discussed at the
last executive committee meeting in Dallas, August
1981.

   The members of the 1981-1982 Conference
Committee are:

           Dr. T. Pavlidis (Committee Chairman)
           *Bell Laboratories (2C-519)
           Murray Hill, NJ   07974
           USA
           (201-582-7582)*

           *Prof. T. Chang
           Dept. of Automation
           Ging-Hua University
           Beijing, China*

           *Prof. T. Kohonen
           Dept. of Technical Physics
           Helsinki Univ. of Technology
           SF-02 150 Espoo 15, Finland*

           Instituto Science dell'Infornazione

           *Universita degli Studi
           Via Anendola 173*

           I-70126 Bari, Italy
   Members of IAPR are invited to send their
proposals to the above committee for the future
locations not later than July 31, 1982. These
proposals will be considered at the 6-ICPR in
Munich in October 1982.

PROFESSOR FU RECEIVES RECOGNITION

Prof. King-Sun Fu, who was the first president of IAPR, received the senior research award of the American Society for Engineering Education for "outstanding contributions to the development of pattern recognition, theory, and its practical application." The award was given to him at the Society's annual meeting, June 21-25, 1981 at the University of Southern California, Los Angeles. We sincerely congratulate him for this well deserved award.

CONFERENCE REPORTS

As mentioned before, the second ASSP WORKSHOP ON TWO-DIMENSIONAL DIGITAL SIGNAL PROCESSING was held in New Paltz, New York on October 5-7, 1981. The meeting was in part organized by

Dr. Thomas L. Marzetta
Schlumberger-Doll Research
Old Quarry Road
Ridgefield, CT   06877

There will be a complete report from the meeting. Anybody interested in obtaining a copy should write to the above address.

We were fortunate to receive one report on the Panel on Signal Processing and Artificial Intelligence, summarized by R.O. Duda.

R.O. Duda opened the session by observing that both signal processing (SP) and artificial intelligence (AI) are concerned with extracting information from data, but that SP typically applies analytical methods to numerical data, whereas AI typically applies logical methods to symbolic data. The challenge is to capitalize on the advances that have occurred in both fields and identify promising opportunities for cooperative work.

Many of the other panelists made more detailed but similar comparisons between SP and AI. Perhaps the most radical was made by M.A. Fischler (SRI International), who emphasized the fact that the two fields often employ fundamentally different models of reality, with SP usually requiring analytically well structured models. Fischler felt that AI researchers should be devoting more effort to the task of building models (learning), a once-popular topic that currently is receiving little attention.

J.K. Aggarwal (U. Texas, Austin) pointed out some opportunities and problems for using AI in SP. He used a synthetic seismic signal to show that people often want to extract more information from a signal that is carried by the signal itself. To do this requires external knowledge which must be brought to bear on the signal processing. He also gave examples showing that humans (who presumably possess extensive knowledge) sometimes make quite different interpretations of the same data.

L.N. Kanal (U. Maryland) noted that AI provides graph search and problem solving methods that can provide greater flexibility for SP. He described how a problem in biomedical waveform analysis could be solved by data-driven procedures or hypothesis-driven procedures, but was best solved by a combination of these two strategies. R. Reddy (Carnegie-Mellon) pointed out that while knowledge can constrain search, some search problems (such as looking for flaws in integrated circuits) seem inherently exhaustive.

A. Oppenheim (MIT) observed that cooperative work in SP and AI is an interdisciplinary problem. He said that he is aware of systems that employ separate SP and AI components, but could not cite a system in which these components interact in a mutually reinforcing fashion. He also observed that there is a large amount of knowledge that is implicitly contained in many SP procedures, but this knowledge is not formally represented. If this knowledge were appropriately represented, AI methods could be used to allow greater flexibility, provide explanations, etc.. Thus, AI might provide different architectural ideas of great value.

J.M. Tenenbaum (Fairchild) thought that the distinction between "compiled" (SP) and "interpreted" (AI) representations was not as fundamental as the question of what knowledge is needed for a given set of tasks. He then argued that when people do signal interpretation--particularly at the direct, perceptual level--they make use of very general kinds of constraints to restore information missing in the signal. These mechanisms sometimes lead to illusions, but the fact that they are very general and should be a part of any system for machine perception. Finally, he outlined a parallel processing scheme that makes use of illumination and geometry constraints to recover reflectance, range, and orientation information from a monocular image.

Many of the points made by the panelists were debated and clarified in the subsequent discussion. Although no new suggestions for fruitful possibilities for cooperative research emerged, the session may have served to lower the communication barrier between workers in the two disciplines.

Also, for your information, I would like to publish at least the flavor of the WORKSHOP ON HUMAN AND MACHINE VISION held in Denver, Colorado on August 10-12, 1981 by citing the speakers and their topics:

Speaker: Jay M. Tenenbaum, Fairchild Artificial Intelligence Research Laboratory:
Issues in computational vision

Discussants: Michael Arbib, Univ. of Massachusetts
What is vision for? Clues from Neuroscience
Fred Attneave, University of Oregon
Myron L. Braunstein, Univ. of California, Irvine
Contrasts between human and machine vision: should technology recapitulate phylogeny?

Speakers: Thomas O. Binford, Stanford University
Representation in selected computer vision systems

Michael I. Posner and Avishai Henik, University of Oregon
Isolating representational systems

Discussants: Lynn A. Cooper, Univ. of Pittsburgh
Flexibility in representational systems
Martin A. Fischler, SRI International
Machine vision: Issues concerning goals, knowledge requirements, representations, and computational processes

Speakers: Jacob Beck, University of Oregon
Textural Segmentation
Steven W. Zucker, McGill University
Computational and psychophysical experiments in grouping

Discussants: Robert M. Haralick, Virginia Polytechnic Institute and State University
Low level representation by function approximation
Larry S. Davis, University of Maryland
Edge detection

Speakers: Jerome Feldman, University of Rochester
Organization: Taking parallelism seriously
Steven E. Palmer, Univ. of California, Berkeley
Transformational structure and perceptual organization

Discussants: Takeo Kanade, Carnegie-Mellon Univ.
Organization of computer vision system
Paul A. Kolers, University of Toronto

Speaker: Shimon Ullman, Massachusetts Institute of Technology
Measuring Motion

Discussant: K. Prazdny, University of Maryland
A sketch of a theory of the perception of egomotion

Speakers: Mike Brady, Massachusetts Institute of Technology
Some issues arising in the perception of space
Harold A. Sedgwick, State Univ. of New York College of Optometry
Spatial layout information for monocular stationary observers

Discussants: Harry Barrow, Fairchild Artificial Intelligence Research Laboratory
Representation of shape and space
David N. Perkins, Harvard University
Assumption handling in perception

Speaker: Richard L. Gregory, Univ. of Bristol
Perceptive perception

CONFERENCE ANNOUNCEMENTS

PRELIMINARY ANNOUNCEMENT
OF
ITALIAN IAPR INTERNATIONAL WORKSHOP
ON
CYBERNETICS SYSTEMS: RECOGNITION, LEARNING, SELF ORGANIZATION

UNIVERSITY OF SALERNO 9-10-11-12 DECEMBER 1981

SCIENTIFIC PROGRAM

The scientific program will cover the following topics:

Section A) *NEURON NETS AND SELF ORGANIZING SYSTEMS*
Section B) *NATURAL LANGUAGES*
Section C) *PATTERN RECOGNITION OF IMAGES AND SPEECH*

TIMETABLE

8 December 1981		RECEPTION
9 December 1981		
	– morning	INVITED CONTRIBUTIONS (Section A)
	– afternoon	SHORT COMMUNICATIONS, DISCUSSIONS, GROUP SESSIONS
10 December 1981		
	– morning	INVITED CONTRIBUTIONS (Section B)
	– afternoon	SHORT COMMUNICATIONS, DISCUSSIONS, GROUP SESSIONS
11 December 1981		
	– morning	INVITED CONTRIBUTIONS (Section C)
	– afternoon	SHORT COMMUNICATIONS, DISCUSSIONS, GROUP SESSIONS
12 December 1981		
	– morning	IAPR ITALIAN GROUP MTG.
	– afternoon	DEPARTURE

ITALIAN IAPR INTERNATIONAL WORKSHOP, Contd.

Two kinds of papers will be read:
- Invited contributions, consisting of 60 minute lesson on the main topics;
- Accepted contribtuions, consisting of a 20 minute presentation of scientific results by researchers working in the above mentioned fields

English is the official language of the Workshop.

It is planned to publish all contributions presented in a PROCEEDINGS book.

SIXTEENTH ANNUAL CONFERENCE ON INFORMATION SCIENCES AND SYSTEMS

Circuits, Communications, Computers, Controls
March 17, 18, 19, 1982

PRINCETON UNIVERSITY

DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

Authors are invited to submit papers describing new advances, applications and ideas in the fields of communication theory, computer science, control and circuit theory, including contributions which explore the application of these and related disciplines.

Two kinds of contributed papers are solicited. The first consists of regular papers requiring approxiamtely thirty minutes for presentation: these will be reproduced in full (up to six pages) in the conference PROCEEDINGS. The second consists of short papers suitable for presentation in fifteen minutes or less; one page summaries of these papers will be published in the PROCEEDINGS. (One Proceedings page is approximately two standard double-spaced pages.)

INSTRUCTIONS FOR AUTHORS--A regular or short disignation, title, and summary are to be submitted by January 15, 1982. Summaries should be of sufficient detail and length to permit careful reviewing. Authors will be notified of acceptance by February 15, 1982. Instructions for the preparation of accepted papers for the PROCEEDINGS will be sent to each author. All manuscripts are to be submitted to *Stuart Schwartz, Department of Electrical Engineering and Computer Science, Princeton University, Princeton, New Jersey 08544.*

CALL FOR PAPERS

1982 IEEE COMPUTER SOCIETY CONFERENCE On PATTERN RECOGNITION AND IMAGE PROCESSING

June 13-17, 1982, Anaheim, California

The Conference is being held in conjunction with the National Computer Graphics Association '82 Conference. There will also be two days of preconference tutorials covering basic aspects of pattern recognition and image processing conducted by leading experts in the field.

The program will consist of submitted and invited papers (not more than 3000 words). Papers are sought in all aspects of pattern recognition and image processing, including:

* *Enhancement and Restoration*
* *Segmentation, Edge, and Feature Detection*
* *Image Data Base Management*
* *Special Purpose Hardware*
* *Texture Analysis*
* *Image Encoding and Approximation*
* *Reconstruction from Projections*
* *Region Representation and Shape Description*
* *Scene Analysis*
* *Clustering, Statistical and Structural Pattern Recognition*
* *Image Understanding* * *Medical Imaging*
* *Remote Sensing* * *Image Sciences*

With special sessions on:
* *TIME-VARYING IMAGERY*
* *3-D OBJECT REPRESENTATION*
* *AUTOMATIC GENERATION OF RECOGNITION STRATEGIES*
* *MAP DATA PROCESSING*
* *COMPUTER VISION AND ROBOTICS*

The papers accepted for the conference will be published by the IEEE Computer Society in a conference proceedings which will be distributed to all registrants at the conference. Persons interested in participating should send four (4) copies of their papers by January 25, 1982 to:

Dr. Richard P. Kruger
Los Alamos National Laboratory
Los Alamos, New Mexico 87545

Selected papers of exceptional interest and merit will be considered for publication in IEEE Transactions on Pattern Analysis and Machine Intelligence.

1982 EUROPEAN CONFERENCE ON ARTIFICIAL INTELLIGENCE

ECAI-82, *8-10 July 1982* in *ORSAY, FRANCE*

General Chairman:
Yves Kodratoff
Institut de
    programmation
4, Place Jussieu
F-75230 Paris Cedex 05,
FRANCE
33-1-329 12 21,
ext. 53-90

Program Chairman:
Peter Raulefs
Institut für
    Informatik II
Universität Bonn
Postfach 2220
D-5300 Bonn 1, West
    Germany
49-228-738721

Program Committee:
L. Bolc (Warsaw), *A. Bundy* (Edinburgh), *G. Guiho*
(Paris), *I. Havel* (Prague), *L. Henschen* (Evanston),
Y. Kodratoff (Paris), *J. Mayhew* (Sheffield),
D. Michie (Edinburgh), *R. DeMori* (Turin), *L.M.*
Pereira (Lisbon), *R. Poppelstone* (Edinburgh),
P. Raulefs (Bonn), *D. Sleeman* (Leeds), *N.S. Sridharan*
(New Brunswick), *W. Wahster* (Hamburg), *Y. Wilks*
(Colchester).

Invited speakers include:
H. Berliner (Carnegie-Mellon University, Pittsburgh),
H. Gallaire (CGE Marcoussis), *G. Huet* (INRIA, Paris),
R. Kowalski (Imperial College, London), *R. Schank*
(Yale University, New Haven).

The conference will accept both regular and short
papers. Papers should be submitted to the Program
Chairman for one category only. The conference
language is English. REGULAR PAPERS must not exceed
15 typewritten pages (A4 format). SHORT PAPERS must
not exceed 5 typewritten pages (A4 format). Papers
in both categories should include name(s) and address
of the author(s), a 100-word abstract, and a list of
descriptive keywords. All papers will be refereed.
Please include office and/or home telephone number(s)
in an accompanying letter when submitting your paper.
Final papers must be typed camera-ready on special
forms for inclusion in the Conference Proceedings.

Submission deadline:	*30 November 1981*
Notification of acceptance:	*15 February 1982*
Camera-ready copy due:	*15 March 1982*

Conference Proceedings will be ready for
distribution at the conference. General inquiries
about the conference should be addressed to
Y. Kodratoff (General Chairman). For further
information on details of submission contact
P. Raulefs (Program Chairman).

ECAI-82 is sponsored by the Society for the
Study of Artificial Intelligence and the Simulation
of Behaviour (AISB), and succeeds to the AISB
meetings on Artificial Intelligence held at Brighton
(74), Edinburgh (76), Hamburg (78), Amsterdam (80).
It is concerned by all aspects of Artificial
Intelligence and its applications.

FIRST INTERNATIONAL CONFERENCE ON
COMPUTER APPLICATIONS
IN PRODUCTION AND ENGINEERING

Internationaal Congrescentrum RAI Amsterdam
The Netherlands
April 25-28, 1983

OBJECTIVES, THEMES AND TOPICS

The international conference on Computer Appli-
cations in Production and Engineering (CAPE '83) is
intended to highlight the development and applica-
tions of computer programs and computer systems
that will improve the specification, design, produc-
tion planning, manufacture and production phases of
industrial and consumer products.

One of the objectives of the conference is to
promote and to understand current developments,
the furthering and exchange of information in
Research, Development and Use of Computer Aided
Design (CAD), Computer Aided Manufacture (CAM) and
Production Management (PM) systems.

Since the advent of computer technology and
information processing techniques, attempts have
been made to introduce these new technologies in
various phases of product realization and the
results of these attempts are reflected in many
computer programs and systems. However, even the
most successful of these developments solve only
parts of the product realization process. In
addition, the available programs and systems are
suited solely for one product or a limited range
of products.

Consequently, another objective of the conference
is the identification of interfaces between the
specification, design, manufacture and production
processes: the information flow between such
processes; the integration of CAD, CAM and PM. It
is expected that presentation on experiences gained
in the automated process of product realization will
stimulate further work in developing integrated CAD
CAM and PM systems.

The conference plans to bring together special-
ists in a variety of engineering disciplines, systems
designers and computer users, so as to improve the
cross fertilization in the construction and use of
CAD/CAM and PM systems.

A *special emphasis* will also be focused on the
specification of such systems, the *human-machine*
dialogue and the aspects of generating the required
technical product documentation.

The Technical Programme of the conference will
address topics related to the use and the informa-
tion techniques of CAD, CAM and PM systems.

CAPE '83 IS sponsored by:
    IFIP (International Federation for Information
        Processing)
    FACE (International Federation of Associations
        of Computer users in Engineering and
        Architecture)

FIRST INTERNATIONAL CONFERENCE ON COMPUTER APPLICA-
TIONS IN PRODUCTION AND ENGINEERING, Contd.

and supported by:
    CIAD (Netherlands Association of Computer users
        in Engineering)
    NGI Section CAD/CAM (CAD/CAM section of the
        Netherlands Society for Informatics)
    NETHERLANDS MINISTRY OF ECONOMIC AFFAIRS

LANGUAGE
The conference language is English.

REQUIREMENTS FOR SUBMITTING PAPERS
    Extended summaries of minimal 300 and maximal
500 words must be submitted as soon as possible
but not later than February 1, 1982. The extended
summary must include a 50 word abstract and should
be typed single-spaced. A presentation period of
20 to 25 minutes will be allotted to each paper.
Authors will be informed for submitting full unpub-
lished papers by the Program Committee's decision
by June 1, 1982.

        The summaries must be mailed to:
            Mr. S.D. Duyverman
            2de Schuytstraat 171
            2517 TM THE HAGUE, The Netherlands

IFIP will hold the copyright of accepted papers
which will be published in the Conference Proceedings.

IMPORTANT DATES

    February 1, 1982:   Extended summary due
    June 1, 1982:   Authors notified
    October 1, 1982:   Full version due
    April 25-28, 1983:   Conference

EXHIBITION
    An exhibition of hardware and software, includ-
ing graphics and numerically controlled equipment
and peripherals will be held in the lounges of the
Congress Centre.

SPECIAL PROGRAMME AND INDUSTRIAL VISITS
    An extensive programme of social events and
industrial visits is scheduled.

LOCATION
    The conference will be held in the Internationaal
Congrescentrum RAI, which is located in the southern
part of Amsterdam and can be reached directly by
train from Rotterdam, the Hague, and the airport
of Amsterdam Schiphol.

ASSOCIATION FOR LITERARY AND LINGUISTIC COMPUTING
        SEVENTH INTERNATIONAL ALLC SYMPOSIUM
COMPUTERS IN LITERARY AND LINGUISTIC RESEARCH

Co-Sponsored by the Association for Literary and
        Linguistic Computing and the
Association for Computers and the Humanities

        7-11 June 1982   Pisa, Italy

    Papers are invited for presentation at the
Symposium. It is anticipated that they will be in
the following categories:

*Authorship studies, Concordances, Data bases, Edu-
cation, Input/Output, Language-oriented studies,
Lexicography, Literary statistics, Metrics,
Quantitative linguistics, Software, Stylistic
analysis, Textual criticism, and allied subject
areas.*

    Anyone wishing to present a paper should send
three copies of a typed abstract of approximately
300 words to *Dr. J. Hamesse* to be received before
31 December 1981. The Programme Committee will then
select suitable papers from the abstracts offered,
and request the submission of complete draft papers
to be received before *1 March 1982*. Speakers will
be informed by *15 April 1982* of the acceptance of
their papers.

    Papers should be original. The Association
reserves the right to consider papers presented at
the Symposium for publication in the ALLC Journal.

ABSTRACTS (3 copies) to: For further INFORMATION:

Dr. J. Hamesse	*Prof. A. Zampolli*
Université Catholique	*VII ALLC Symposium*
de louvain	*Via della Faggiola, 32*
Institut Supérieure	*I-56100 PISA*
de Philosophi	*ITALY*
Chemin d'Aristote, 1	Phone: *050 / 502082*
B-1348 LOUVAIN-LA-NEUVE	
Belgium	

OTHER SOCIETIES

    We have received a flyer describing IFIP.
Since our association is an affiliate member of the
International Federation for Information Processing
(IFIP), we thought that the readers might be
interested in learning a few facts about it.

IFIP
INTERNATIONAL FEDERATION FOR INFORMATION PROCESSING

THE AIMS OF IFIP ARE:

- *to promote information science and technology;*
- *to advance international cooperation in the field
    of information processing;*
- *to stimulate research, development and application
    of information processing in science and human
    activity;*
- *to further the dissemination and exchange of
    information on information processing;*
- *to encourage education in information processing.*

    In achieving these aims, IFIP fulfills the need
for better worldwide communication and increased
understanding among practitioners of all nations
of the role information processing can play in
accelerating technical and scientific progress.

    IFIP is both a catalyst and a focal point for
conceptual and technological developments which
advance the state of the information processing
art. It also performs a vital function in working

towards the maximum dissimination of significant information about a new and basic tool of all mankind—the digital computer and its applications.

IFIP came into official existence in January 1960. It was established to meet a need identified at the first International Conference on Information Processing which was held in Paris in June 1959 under the sponsorship of UNESCO.

ORGANIZATIONAL STRUCTURE

The supreme authority of the Federation is the *GENERAL ASSEMBLY,* which meets once every year. It consists of one national representative from each of the Member organizations. The General Assembly decides on all important matters, such as general policy, the programme of activities, admissions, elections and budget.

The day-to-day work of IFIP is directed by the Officers: the President, three Vice-Presidents, Secretary and Treasurer, who are elected by the General Assembly and together constitute the *EXECUTIVE BODY.*

The *COUNCIL,* consisting of the Officers and up to eight Trustees elected from the General Assembly, meets twice a year and takes decisions which become necessary between General Assembly meetings.

The legal location of the Federation is in Geneva, Switzerland. The IFIP Secretariat in Geneva administers the day-to-day operations of IFIP.

The IFIP Foundation, located in Amsterdam, the Netherlands, provides administrative support for IFIP technical bodies and also for other non-profit professional and technical organizations.

IFIP CONGRESSES AND CONFERENCES

A major event in the IFIP programme of activities is the Congress, held every three years. An IFIP Congress is an international occasion which attracts information scientists, managers and administrators from all over the world to listen, to learn, to educate and to exchange ideas with their colleagues from other countries.

The first was held in 1962 in Munich. Subsequent Congresses have been held in New York, Edinburgh, Ljubljana, Stockholm and Toronto. The selection of a dual site for 1980, Tokyo and Melbourne, established an interesting precedent for the International Congress.

FURTHER INFORMATION

Further information about IFIP and its activities may be obtained from the *IFIP Secretariat, 3 rue du Marché, CH-1204 Geneva, Switzerland. Telephone: (022) 28 26 49. Telex: 28 472 ifip ch.*

Another piece of news we obtained was about a name change for the International Society of Photogrammetry.

INTERNATIONAL SOCIETY OF PHOTOGRAMMETRY

changes name to:

INTERNATIONAL SOCIETY OF PHOTOGRAMMETRY AND REMOTE SENSING

The society held its 14th congress form *13-26 July 1980* in *Hamburg, FRG.* The name change reflects the current broadening of scope from the use of aerial photography for mapping to the use of a variety of sensors for topographic and thematic mapping as well as other special tasks.

The president of the society is *Dr. Frederick Doyle,* of the U.S. Geological Survey, Reston, Virginia. The next congress is to be held in the *summer* of *1984* in *Rio de Janeiro, Brazil.* In 1982, however, the society will arrange a series of 7 inter-congress symposia held in different countries on special topics. We will announce these when the exact locations and dates are known.

The International Society of Photogrammetry and Remote Sensing is organized in 7 Commissions, and each Commission is in turn operating several Working Groups. We will at a future time list all those Working Groups that could be of interest to IAPR members. Two Working Groups of Commission III are certainly of considerable interest. These are:

Working Group III-4 on

MATHEMATICAL ASPECTS OF IMAGE REGISTRATION, RECTIFICATION AND ENHANCEMENT

Chairmen: *Prof. Dr. E.M. Mikhail* and *Mr. Paul Anuta*
    Purdue University
    Laboratory for the Application of Remote
    Sensing
    1220 Potter Drive
    West Lafayette, Indiana   47906   USA

Working Group III-5 on

MATHEMATICAL PATTERN RECOGNITION AND IMAGE ANALYSIS

Chairman: *Prof. Dr. F. Leberl*
    Technical University Graz
    Rechbauerstasse 12, A-8010
    Graz, Austria

The two working groups are a result of the continued development of photogrammetry and remote sensing to incorporate the techniques previously developed in the areas of artificial intelligence, computer graphics, digital image processing. It is hope that these working groups will lead to an improved interaction with the pattern recognition community. Those interested in cooperating are invited to contact the chairman:

Prof. Dr. F. Leberl
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NEW TITLES

BOOKS

FAILURE DIAGNOSIS AND PERFORMANCE MONITORING (Control and Systems Theory Series, Volume 11). *L.F. Pau,* Ecole Nationale Supérieure des Télécommunications, Paris, France. May, 1981, 448 pages, illustrated; Marcel Dekker, Inc., 270 Madison Avenue, New York, NY 10016.

STATISTICAL PATTERN CLASSIFICATION USING CONTEXTUAL INFORMATION, *K.S. Fu* and *T.S. Yu,* Wiley.

SYNTACTIC PATTERN RECOGNITION AND APPLICATIONS, *K.S. Fu,* Prentice-Hall.

From IEEE Press

SENSORY AIDS FOR THE HEARING IMPAIRED. Edited by *Harry Levitt,* City University of New York, *James M. Pickett,* Gallaudet College, and *Robert A. Houde,* The Center for Communications Research, 1980, 576 pp. ISBN-Clothbound, 0-87942-134-7. A book of selected reprints.

PROGRAMS FOR DIGITAL SIGNAL PROCESSING, Edited by the *Digital Signal Processing Committee, IEEE Acoustics, Speech, and Signal Processing Society,* 1979, 592 pp., ISBN Clothbound 0-87942-127-4; Paper 0-87942-128-2.

SPEECH ANALYSIS, Edited by *Ronald W. Schafer,* Georgia Institute of Technology, and *John D. Markel,* Signal Technology, Inc., 1979, 480 pp. Selected reprints.

AUTOMATIC SPEECH AND SPEAKER RECOGNITION, Edited by *Rex Dixon,* IBM Research Center and *Thomas B. Martin,* Threshold Technology, Inc., 1979, 440 pp.

From Springer-Verlag

DATA BASE TECHNIQUES FOR PICTORIAL APPLICATIONS, Proceedings of the International Conference on Data Base Techniques for Pictorial Apllications, Florence, Italy, 1979, Editor: *A. Blaser,* Heidelberg, 1980, 599 pp. (Lecture Notes in Computer Science, Volume 80).

COMPUTERIZED TOMOGRAPHY, Proceedings of the International Symposium on Computerized Tomography, Bordeaux, France, 1979, Editors: *J.-M. Caille,* Hopital Pellegrin-Tripode, Bordeaux, and *G. Salamon,* Groupe Hospitalier de la Timone, Marseille; Translated from the French by *R. McKenna,* 1980, 310 pp. (Lecture Notes in Computer Science, Volume 80).

DIGITAL PATTERN RECOGNITION, Second revised and updated edition; Editor: *K.S. Fu,* Purdue University, 1980, app. 240 pp., 59 illus., 4 tables (Communications and Cybernetics, Volume 10).

PICTURE PROCESSING AND DIGITAL FILTERING, Second Corrected and Updated Edition; Editor: *T.S. Huang,* Purdue University, 1979, 297 pp., 113 illus. (Topics in Applied Physics, Volume 6).

IMAGE PATTERN RECOGNITION, *V.A. Kovalevsky,* Academy of Science of the Ukrainian SSR, Kiev; Translated from the Russian by *A. Brown,* 1980, 241 pp., 54 illus.

ALGEBRAIC METHODS IN PATTERN RECOGNITION, *J. Kulikowski,* Academy of Sciences, Warsaw, 1971, 82 pp., 4 illus. (CISM International Centre for Mechanical Sciences Courses and Lectures No. 85).

COMPUTER PROCESSING OF ELECTRON MICROSCOPE IMAGES, Editor: *P.W. Hawkes,* Laboratoire d'Optique Electronique du CNRS, Toulouse, 1980, 296 pp., 116 illus., 1 table (Topics in Current Physics, Volume 13).

IMAGE RECONSTRUCTION FROM PROJECTIONS, Implementation and Applications, Editor: *G.T. Herman,* State University of New York, Buffalo, 1979, 284 pp., 120 illus., 10 tables (Topics in Applied Physics, Volume 32).

From Plenum Publishing

PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE, Real-Time Medical Image Processing; Edited *Morio Onoe,* University of Tokyo, Japan, *Kendall Preston, Jr.,* Carnegie-Mellon University and *Azriel Rosenfeld,* University of Maryland, Proceedings of the Japan-United States Seminar on Research Towards Real-Time Parallel Image Analysis and Recognition, held in Tokyo, Japan, app. 250 pp., illus., 1980.

IMAGING FOR MEDICINE, Vol. 1, Nuclear Medicine, Ultrasonics, and Thermography; Edited by *Sol Nudelman* and *Dennis D. Patton,* University of Arizona School of Medicine, app. 500 pages, illus., 1980.

MEDICAL IMAGING TECHNIQUES, A COMPARISON, Edited by *Kendall Preston, Jr.,* Carnegie-Mellon University, *Kenneth J.W. Taylor,* Yale University School of Medicine, *Steven A. Johnson,* Mayo Foundation, Rochester, Minnesota, *William R. Ayers,* Georgetown University School of Medicine, 396 pages, illus., 1979.

COMPUTER VISION AND SENSOR-BASED ROBOTS, Motors Research Symposia Series, Edited by *George G. Dodd,* and *Lothar Rossol,* General Motors Research Laboratories, Proceedings of the Symposium on Computer Vision and Sensor-Based Robots, held at the General Motors Research Laboratories, Warren, Michigan, 364 pp., illus., 1979.

ACOUSTICAL IMAGING SERIES, Vol. 9, Visualization and Characterization, Edited by *Keith Y. Wang,* University of Houston, Proceedings of the Ninth International Syposium on Acoustical Imaging, held in Houston, Texas, 854 pp., illus., 1980.

ULTRASONIC VISUALIZATION AND CHARACTERIZATION, Edited by *A.F. Metherall,* South Bay Hospital, Redondo Beach, California; Proceedings of the Eighth International Symposium on Acoustical Imaging, held in Key Biscayne, Florida, 802 pp., illus., 1979.

HOLOGRAPHY AND COHERENT OPTICS, By *L.M. Soroko,* Joint Institute for Nuclear Research, Dubna, USSR; Trans. from Russian by *Albin Tybuliewicz,* Editor, Soviet Journal of Quantum Electronics, with a Foreward by *George W. Stroke,* State University of New York at Stony Brook, 836 pp., 1980.

PROCESSING OF VISIBLE LANGUAGE, Vol. 1; Edited by *Paul A. Kolers,* University of Toronto, Canada, *Herald E. Wrolstad,* Visible Language Journal, Cleveland, and *Herman Bouma,* Institute for Perception Research, Eindhoven, The Netherlands, Proceedings of the Conference held at the Institute for Perception Research, IPO, Eindhoven, 552 pp., illus., 1979.

PROCESSING OF VISIBLE LANGUAGE, Vol. 2; Editors same as Vol. 1, above; Proceedings of the second conference on Processing of Visible Language-sponsored by the Univ. of Toronto and the Ontario Institute for Studies in Education, and supported principally by the NATO Scientific Affairs Association and Communications Canada-- held at Niagara-on-the-Lake, Ontario, Canada, 634 pages, illus., 1980.

ADVANCES IN DIGITAL IMAGE PROCESSING, Theory, Application, Implementation; Edited by *Peter Stucki,* IBM Zurich Research Laboratory, Switzerland, Proceedings of the International Symposium on Advances in Digital Image Processing, held at Bad Neuenahr, Federal Republic of Germany, 342 pp., illus., 1979.

From Wiley-Interscience
DIGITAL TELEVISION, Bandwidth Reduction and Communication Aspects; *Dr. R.H. Stafford,* Halifix Engineering Corp., app. 432 pp. (1-07857-3) November 1980.

INTRODUCTION TO ADAPTIVE ARRAYS, *Robert A. Monzingo* and *Thomas W. Miller,* Hughes Aircraft Co., app. 616 pp. (1-05744-4) September 1980.

NICHTNUMBERISCHE INFORMATIONSVERARBEITUNG, Linguistische Datenverarbeitung, künstliche Intelligenz, Computerschach, Computerkunst, atuomatische Dokumentation, Bibliotheksautomatisierung, Rechtsinformatik; *von Herbert E. Bruderer,* Leiter des Instituts für nichtnumerische Informations-verarbeitung, CH-9400 Rorschach; Berater der Kommission der Europäischen

Gemeinschaften, Brüssel und Luxemburg; 1979, XII, 190 Seiten, 57 Abbildungen, 39.-SFr., broschiert, ISBN 3-85784-001-3, Verlag Linguistik, Rorschach, Schweiz; Thaler Strasse 8, Postfach 409, CH-9400 Rorschach, Schweiz; Ersatz für das folgende, vergriffene Buch: H.E. Bruderer, Sprache - Technik - Kybernetik.

JOURNAL

COMPUTERS AND GRAPHICS, An International Journal of Applications in Computer Graphics; Editor: *Larry J. Feeser,* Department of Civil Engineering, Rensselaer Polytechnic Institute, Troy, NY 12181; Published by PERGAMON Press: Headington Hill Hall
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TECHNICAL REPORT

Comunicaciones técnicas: Serie Naranja: Investigaciones, 1981, No. 280, A HETERARCHICAL MULTI-MICROPROCESSOR LISP MACHINE, *Adolfo Guzmán,* Technical Report AHR-81-17 (Presented at the 1981 IEEE Computer Workshop on Computer Architecture for Pattern Analysis and Image Database Management. Hot Springs, Virginia on November 18); Recibida: 7 de agosto de 1981.

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367 (EHO182–6): **August 1981**, 498 pp. **NM, $25.00; M, $18.75**

☐ **Tutorial: DATABASE MANAGEMENT IN THE 80's**
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369 (EHO181–8): **September 1981**, 472 pp. **NM, $25.00; M, $18.75**

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392 (THO092–7): **October 1981**, 304 pp. **NM, $22.00; M, $16.50**

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