



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

# NEWSLETTER

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**Editor**

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## FROM THE EDITOR'S DESK

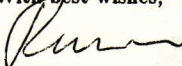
Dear Colleagues,

At the dawn of 1984 I cannot help but wonder how closely it will resemble Orwell's 1984. Robots are coming, if they are not already here, and we are jointly contributing towards their realization. Intelligent workstations, expert systems, talking and seeing machines are more and more creeping into our households. Is this good or bad? The ongoing debate at almost every conference on Automation is whether Robots will create more jobs than they will take away. If the latter is going to be the case, what are we to do in our free time? Play games? How can we feel useful without actually being employed?

I believe that we are living in truly revolutionary times, and I am proud (or should I not be?) that we are contributors to this revolution. However, there are severe social consequences of this revolution (as of every revolution) which I am afraid that insufficient attention is paid to. Is it our responsibility to worry about them? Please share your thoughts with us on this or any related subject!

In the meantime I wish to all of you a very successful and Happy 1984!

With best wishes,

  
Ruzena Bajcsy

**\*\*\*Don't Forget\*\*\***

## Seventh International Conference on Pattern Recognition

Montreal, Canada  
July 30 - August 2, 1984

The Seventh International Conference on Pattern Recognition will be held in Montreal, Canada from Monday, July 30 to Thursday, August 2, 1984. Subjects to be discussed include:

- Image Understanding and Recognition
- Speech Understanding and Recognition
- Computer Vision
- Image Processing
- Robotics
- Pattern Analysis
- Pattern Classification
- Modelling of Human Perception
- Specialized Architectures
- VLSI Applications
- Interactive Systems

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**September 1983**

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Central Research Laboratory, Hitachi Ltd.

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November 1983

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## IFIP ARTICLES

*The International Federation for Information Processing is a multinational federation of professional and technical organisations (or national groupings of such organisations) concerned with information processing. From any one country, only one such organisation—which must be representative of the national activities in the field of information processing—can be admitted as Full Member. In addition a regional group of developing countries can be admitted as a Full Member. On January 1, 1983, 43 national organisations were Members of the Federation, representing 48 countries.*

The aims of **IFIP** are to promote information science and technology by:

- fostering international cooperation in the field of information processing;
- stimulating research, development and the application of information processing in science and human activity;
- furthering the dissemination and exchange of information about the subject;
- encouraging education in information processing.

Since IAPR is an affiliate member of IFIP, we are pleased to present some recent work, in excerpt form, done on IFIP's behalf. The article from which the material was taken is the sixth in a series describing the technical work of IFIP undertaken by its Technical Committees and Working Groups covering the whole spectrum of Information Technology. The author is the well-respected British journalist, *Kenneth Owen*, former Technology Editor of **The Times**, London.

### The Art and Science of Programming

*(This article describes the activities of Technical Committee (TC) 2, which is concerned with Programming.)*

Programming arouses strong feelings—of incomprehensibility, alas, to many people outside computing; of partisan vehemence by factions of experts on the inside. In the world of computers, no subject is more basic, none so all-pervasive in its impact (for good or ill) on the performance of computing systems.

The work of TC 2 has evolved in response to developments in the science of programming over the years, Professor Paul [Chairman of TC 2 is Professor *Manfred Paul* of the Institut für Informatik at the Technical University of Munich.] points out. In the late 1950s, he recalls, programming really was the struggle to get away from assembler languages such as FORTRAN and ALGOL.

Working Group 2.1 (ALGOL) was formed in 1962...This led to TC 2's first working conference, held in Baden, Austria in 1964, at which languages for defining programming concepts were discussed... The following year a second working group, WG 2.2 (Formal description of programming concepts) was set up....

A decisive turning point came in 1966 when WG 2.1 (having revised the ALGOL 60 Report) started to think about further concepts which would enable a high-level language to deal more easily with more general, non-numerical algorithms, such as those for text handling, for instance. More general data structures than those of ALGOL 60 were sought, and to this end a new way of defining

programming languages was presented.

The working group commissioned a sub-group to define a successor to ALGOL 60 which would incorporate the new data structures and use a more rigid means of defining the language. The result was ALGOL 68...In 1969 the ALGOL 68 controversy led to the hiving-off from WG 2.1 of a new working group, 2.3, concerned with programming methodologies....

Up to this time the main interest in programming had concerned programs for user applications. But in the early 1970s a new interest emerged in the design of operating systems and systems software generally. A working conference on machine-oriented high-level languages was followed by the formation in 1973 of Working Group 2.4, concerned with system implementation languages...

...In 1974 (the interests of the numerical analysts) were formally recognised with the setting up of WG 2.5 (numerical software)... the study of data base languages and technologies was taken up by WG 2.6, the second working group to be formed in 1974. Command languages which give an interface to the system had also emerged as a potentially difficult area, needing further study, and this was reflected in the formation in 1975 of Working Group 2.7 (operating system interfaces).

### Today's Topics

The pressing issues in the field of programming today, Professor Paul says, are centred on concurrent programming, distributed systems, and expert systems in the widest sense. But, within these areas, the questions are the same as before: how to go about solving problems with the help of the systems that you have. The systems are now more sophisticated, they may be distributed via local area networks, they are likely to contain huge data bases.

[Prof. Paul believes that] some of the interesting issues of artificial intelligence—for example, artificial vision, pattern recognition in the area of audible transmissions, or robotics—all come together to form a very complex bunch of questions and problems which have to do with programming.

Programming is an engineering discipline, Professor Paul comments. While the classical engineering fields deal with matter, the software engineer's "matter" consists of information...Similarly, with programming, a new dimension is added to engineering...

### Group Activities

Starting point for the TC 2 work is the formal definition of the committee's scope. This says comprehensively that the committee's work includes:

- general considerations concerning programming principles and techniques, such as concept development, classification and description;
- the investigation and specification of particular programming languages;
- the investigation and specification of programming systems; and
- the identification, investigation and specification of programming techniques and their applications.

On occasions the committee as distinct from a particular working group will sponsor working conferences; a recent example (in Keszthely, Hungary, in May 1983) covered system description

methodologies.

The committee's longest-established working group, WG 2.1, takes as its general scope at the present the continuing support of ALGOL 60 and ALGOL 68; and "the exploration and evaluation of new ideas in the field of programming, possible leading to further languages."...

Over the past two years the group has explored some of the concepts involved in programming by transformation—that is, the search for methods to transform a formal specification into a runnable program...Now the group has narrowed down from the search for general concepts to a scrutiny of particular languages in the context of transformational programming. One example is the language CIP-L (CIP stands for Computer aided, Intuition guided programming) developed by scientists at Munich Technical University.

Working Group 2.2 (formal description of programming concepts) describes its scope as "to explicate programming concepts through the development, examination and comparison of various formal models of these concepts." Last year it held its second working conference...in Garmisch, F.R.G....

Working Group 2.3, set up in 1969 by a minority of 2.1 members who had opposed publication of ALGOL 68, "feeling that programmers needed tools other than bigger and better programming languages."... Its subject is programming methodology,... "The work of the group is directed towards increasing programmers' ability to compose programs."...The group sets out to provide an international forum for the discussion of programming methodology...

Machine-oriented higher-level languages, otherwise known as system implementation languages, are the concern of WG 2.4. In general these are characterized by:

- their intended application area (software development);
- their machine orientation (they may be used as assembler replacements);
- their concern with the efficiency of the object program; and
- their use of control features (but not necessarily data or operation features) of general purpose programming languages.

...Now the emphasis is changing towards programming environments, concurrent systems, machine architecture and compiler technology, with the goal of deriving requirements for future system programming languages.

As a group, the members aim to explore the techniques involved in their kind of languages, rather than to design a specific language of their own. In March 1983 at Dresden, G.D.R., a joint 2.1/2.4 open conference was held on programming languages and systems design. WG 2.4 members are now preparing for a 1984 working conference on *system programming languages—experiences and assessment*, which will be held in Canterbury, England.

Working Group 2.5 aims to improve the quality of numerical computation by promoting the development and availability of sound numerical software...Subject areas which have received the attention of 2.5 include the transportability of numerical software, languages for numerical software, programming environment for the development of numerical software, hardware requirements for numerical software, evaluation of numerical software, and numerical software for special areas.

Software for solving partial differential equations was the subject of a working conference in Sweden in August 1983. The group is working towards a closer collaboration between the designers of numerical software and of statistical software.

Working Group 2.6 (data bases), whose scope is *to investigate, evaluation and develop data base languages and technologies...* is now planning to launch a new programme, starting with a working conference on conceptual schema design methodology.

Working Group 2.7 aims to investigate the nature and concepts of the interfaces of operating systems. Within this broad scope the group is now working on a project to produce a framework in which user interfaces to an operating system can be described and modelled. Such a framework must be capable of modelling both existing and future command and response language, used both locally and in networks... The 2.7 project should provide a simpler and better organized framework within which the user interface can be tailored to different types of users.

Hence WG 2.7's draft *reference model for command and response languages*, which is now being further refined by the group. The model itself does not define the syntax of the language, but describes the underlying system. The user can then define the commands in one way or another—lines typed at a keyboard, for example, or spoken commands, or sensor devices, or network interfaces.

#### Future Directions

One area which is of increasing interest to TC 2, as mentioned by the chairman, is that of distributed data processing. Mr. T.B. Steel Jr. of the USA, a former TC 2 chairman, now acts as liaison officer between the committee and the Open Systems Interconnection (OSI) activity of the International Standards Organization (ISO), which is concerned with the underlying network aspects of distributed systems.

To achieve fully integrated distributed systems, Mr. Steel suggests, will take at least ten years' work. For TC 2 to address this subject in a more formal way—possibly by holding a working conference which might lead to the formation of a new working group—would be a logical future development.

...The committee's membership embraces both traditionalists, active in refining familiar techniques; and radicals, keen to investigate new concepts. Perhaps one of their future directions might even lead to the foolproof and almost fully reliable program.

Further information about *IFIP* and its activities may be obtained from the *IFIP Secretariat*, 3 rue du Marche, CH-1204 Geneva, Switzerland. Tel.: (022)28 26 49. Telex: 428 472 ifip ch.

#### \*\*CHANGE OF ADDRESS\*\*

On 1 November 1983, *Prof. Levaldi's* address changed to:  
S. Levaldi  
Dipartimento di Matematica  
Universita di Roma  
Piazzale A. Moro  
00185 Roma  
ITALY  
Phone: 06-497871

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## PUBLICATIONS

### Journals and Continuing Publications

#### Computer Compacts

North-Holland Publishing Company

#### Aims and Scope

In view of the need felt to provide quicker access to computer-related information in a more compact, more qualified form, the Publisher and Editors of the journal, *COMPUTER COMPACTS* have chosen to initiate an innovative, experimental form of information presentation. *This new journal is available in both a traditional (paper) version and as an experimental online retrieval system—the online journal—the ultimate objective of the project.*

The purpose of the online version of the journal is to provide news in key computer areas. The paper version will also serve as a forum for discussion of problems related to the electronic publishing of such news on a timely international scale.

To satisfy the desired restriction on spatial presentation, use will be made of the 'compacts' concept in both the paper and online versions of the journal. 'Compacts' is a collective term indicating a number of short communications fulfilling given format criteria for the data base: e.g. news, article, journal, conference, workshop, term-definition, and editorial-compacts. In principle, a compact is not to exceed two pages of text on a normal video display terminal, or to exceed 500 words.

In addition to the presentation of compacts, the paper version will also include article-length contributions. This version, which will initially precede and then accompany the introduction of the electronic journal, is intended to ease the transition from paper to electronic publishing by:

- alerting potential subscribers to the existence of an online journal;
- providing a forum for discussion of problems related to establishing and maintaining an electronic journal;
- providing users with a structured overview of material held online, including a calendar of events;
- increasing the efficient use of the online version.

Online journal projects are by definition experimental for the following reasons:

- little experience exists regarding the possibilities and potential of online publications;
- too little experience exists regarding interfaces for online reading;
- the infrastructure, such as networks, terminals, and standards, is as yet inadequately developed internationally.

Therefore it is the intention of the Advisory Board to use this project to promote research actively through participation.

The target group for *COMPUTER COMPACTS* will include computer professionals of all areas of specialization with a particular interest in the possibility of accessing publicly available scientific, technical and professional information through data communication means.

Examples of the subject coverage envisioned for *COMPUTER COMPACTS* include: *programming, microprocessing/hardware, communications/standards, industrial applications, CAD/CAM,*

medical applications, computer graphics, performance analysis, information systems, societal impacts, regulations, transnational data flow issues. In addition, experiments will be done with files in the areas of computer dictionaries, software development, equipment, trade and services.

The language of the system is English, with the option of developing parallel national online files in other languages being investigated.

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## Articles

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Computer-based Message Systems and Their Interconnection:

The Approach in the GILT Project, *Rolf Speth*

Mailnet: A Convenient Inter-campus Electronic Mail

Service, *Paul Heller*

KAYAK: A Key to Office Automation,

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## Feature Interview

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## Feature Institutions

IFIP, Geneva, Switzerland

FIZ-IV, Karlsruhe, Federal Republic of Germany

GMD, St. Augustin, Federal Republic of Germany

INRIA, Le Chesnay, France

NCC, Manchester, England

## Compacts

Abstracts of Forthcoming Publications

Conferences

News

For subscriptions:

In Europe:

**Elsevier Science Publishers**

Subscription Order Department

P.O. Box 211 - 1000 AE Amsterdam

The Netherlands

In U.S.A. and Canada:

**Elsevier Science Publishing Co. Inc.**

Attn.: Journal Information Center

P.O. Box 1663, Grand Central Station

New York, NY 10163

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## Association for Literary and Linguistic Computing

ALLC Bulletin

ALLC Journal

Posting dates for recent issues were as follows:

<b>Bulletin</b>	Vol. 10 No. 1 (1982)	12 November 1982
	Vol. 10 No. 2 (1982)	1 March 1983
	Vol. 10 No. 3 (1982)	23 September 1983
	Vol. 11 (1983) is being edited by <i>Mrs. J.M. Smith</i> (ALLC Chairman), but no publication dates are yet available.	

**Contents** (by article) of Vol. 10 No. 3 (1982), 23 September 1983:

Recent Progress in Computer Methods of

Authorship Determination, *Louis Ule*

Le VIIe Congres de L'Association for Literary

and Linguistic Computing, *Jacqueline Hamesse*

International Seminar on Information Problems

in Art History, *John L. Dawson*

<b>Journal</b>	Vol. 2 No. 1 (1981)	29 December 1981
	Vol. 2 No. 2 (1981)	12 November 1982
	Vol. 3 No. 1 (1982)	23 September 1983
	Vol. 3 No. 2 (1982)	in preparation
	Vol. 4 (1983) is being edited by <i>Prof. J.M. Sinclair</i> , but no publication dates are yet available.	

**Contents** of Vol. 3 No. 1 (1982), 23 September 1983:

Clustering Variants in the *Lai de l'Ombre* Manuscripts:

Techniques and Principles, *Patricia K. Galloway*

The Computer and Metrical Scansion, *H.M. Logan*

Computing Housman's Fleas: A Statistical Analysis of Manly's

Landmark Manuscripts in the General Prologue to the

Canterbury Tales, *Charles Moorman*

Enquiries about missing copies or the availability of back issues should be addressed to the new Secretary:

*Dr. Tom N. Corns*

Department of English

University College of North Wales

BANGOR

Gwynedd, Wales LL57 2DG, UK

## Committee

Nominations to the ALLC Committee are invited for the 1984 elections, which will take effect after the Annual General Meeting to be held on *Friday 6 April 1984 at Louvain-la-Neuve, Belgium*.

Nominations should be seconded and should be accompanied by the approval of the nominee and a 75-word autobiographical note.

Please send nominations to the new Secretary (see above) before 10 February 1984.

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**The Artificial Intelligence Report**

January, 1984, Vol. 1, No. 1

Publisher: *Artificial Intelligence Publications*

Editor: *Lou Robinson*

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Applied AI at Digital, *Bob Amramson*  
 DELTA/CATS-1: GE's Maintenance Expert System  
 AI Abroad: Edinburgh  
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 The New Companies: Thinking Machines Corp.,  
 Inference, Data Base Informatica

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Artificial Intelligence Publications  
 95 First Street  
 Los Altos, California 94022 USA  
 (415) 949-2324

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### Pattern Recognition

Volume 17 Number 1, 1984, SPECIAL ISSUE  
**Knowledge Based Image Analysis**  
**8th International Conference on Pattern Recognition**  
**Munich 1982**

#### List of Papers:

1. *A. Rosenfeld*: Image Analysis: Problems, Progress, and Prospects
2. *J.K. Tsotsos*: Knowledge and the Visual Process: Content, Form, and Use
3. *H. Tamura, N. Yokoya*: Image Database Systems: A Survey
4. *M. Nagao*: Control Strategies in Pattern Analysis
5. *M. Asada, M. Yachida, S. Tsuji*: Analysis of Three-Dimensional Motions in a Blocks World
6. *K. Akita*: Image Sequence Analysis of Real World Human Motion
7. *K. Inagaki, T. Kato, T. Hiroshima, T. Sakai*: MACSYM: A Hierarchical Parallel Image Processing System for Event-Driven Pattern Understanding of Documents
8. *R. Taniguchi, M. Yokota, E. Kawaguchi, T. Tamati*: Knowledge-Based Picture Understanding of Weather Chart
9. *Y. Fukuda*: Primary Algorithm for the Understanding of Logic Circuit Diagrams
10. *W.A. Perkins*: Model-Based Inspection System for Component Boards
11. *Rummel*: Workpiece Recognition and Inspection by a Model-Based Scene Analysis System
12. *J.K. Cheng, T.S. Huang*: Image Registration by Matching Relational Structures

13. *B. Radig*: Image Sequence Analysis Using Relational Structures

14. *E. Muhlenfeld*: Robot Vision by a Contour Sensor With Associative Memory

## Pergamon Press Journals

### Visual Sciences

#### OPHTHALMIC AND PHYSIOLOGICAL OPTICS

The Journal of the British College of  
 Ophthalmic Opticians (Optometrists)

Editor: *W.N. Charman*, Dept. of Ophthalmic Optics,  
 Univ. of Manchester, Inst. of Science and  
 Technology, PO Box 88, Manchester M60 1QD,  
 UK

#### PATTERN RECOGNITION

The Journal of the Pattern Recognition Society

Editor-in-Chief: *R.S. Ledley*, National Biomedical Research  
 Foundation Georgetown University Medical  
 Center, 3900 Reservoir Road NW, Washington DC  
 20007, USA

#### VISION RESEARCH

An International Journal in Visual Science

Distributing Editor for North and South American  
 Continents (including Canada):

*C.D.B. Bridges*, Dept. of Ophthalmology, Baylor  
 College of Medicine, Texas Medical Center,  
 Houston, TX 77030, USA

Distributing Editor for Europe, Africa,  
 Australasia and Asia (including Japan):  
*H. Spekreijse*, The Netherlands Ophthalmic  
 Research Institute and The Laboratory of Medical  
 Physics, University of Amsterdam, PO Box 6484,  
 1005 EL Amsterdam, The Netherlands

#### ADVANCES IN OPHTHALMIC PLASTIC AND RECONSTRUCTIVE SURGERY

Founding Editor: *B.C. Smith*, Oculoplastic Consultant, New York  
 Eye and Ear Infirmary, Manhattan, Eye, Ear and  
 Throat Hospital, New York, NY, USA

Editor: *S.L. Bosniak*, 133 East 73rd Street, New York,  
 NY 10021, USA

**METABOLIC, PEDIATRIC AND SYSTEMIC  
OPHTHALMOLOGY**

Formerly *Metabolic and Pediatric Ophthalmology*  
An International Journal of Basic Research  
and Clinical Applications

Official Publication of the International Society on  
Metabolic Eye Disease, the International Society of  
Pediatric Ophthalmology, and the World Society of  
Systemic Ophthalmology

Editor-in-Chief: *H.M. Haddad*, 9 East 96th  
Street, New York, NY 10028, USA

**PROGRESS IN RETINAL RESEARCH**

An International Journal for Scientists  
and Clinicians wishing to keep abreast with  
Current Advances in Retinal Science

Editors: *N.N. Osborne*, Nuffield Laboratory of  
Ophthalmology, University of Oxford, Walton  
Street, Oxford OX2 6AW, UK and  
*G.J. Chader*, Laboratory of Vision Research,  
Building 6A, Room B1A07, National Eye Institute,  
National Institutes of Health, Bethesda, MD  
20205, USA

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**Computer Science**

**CODATA BULLETIN**

Editor: *P.S. Glaeser*, CODATA Secretariat, 51 Boulevard  
de Montmorency, 75016 Paris, France

**COMPUTERS AND GRAPHICS**

An International Journal of Applications  
in Computer Graphics

Editor-in-Chief: *J.L. Encarnacao*, Technische Hochschule  
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**TITLE:** *GLASSY METALS: Magnetic, Chemical, and Structural Properties*

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Materials Laboratory  
Corporate Research and  
Development Center  
Allied Corporation  
Morristown, New Jersey, USA

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TITLE: *AMORPHOUS MAGNETISM*

AUTHOR: *Takahito Kaneyoshi, D.Sc.*  
Dept. of Physics  
Nagoya University  
Nagoya, Japan

### PUBLICATION INFORMATION:

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**Society of Exploration Geophysicists**

**TITLE:** *CONCEPTS AND TECHNIQUES IN OIL AND GAS EXPLORATION*

**EDITORS:** *Kamal C. Jain*  
*Venex Corporation*  
*Houston, Texas*  
**and**  
*Rui J.P. deFigueiredo*  
*Rice University*  
*Houston, Texas*

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*Society of Exploration Geophysicists*  
P.O. Box 3098  
Tulsa, Oklahoma 74101

## CALENDAR OF EVENTS

University of Cambridge  
Literary and Linguistic Computing Centre

### Twentieth Anniversary Meeting

The Literary and Linguistic Computing Centre was established on 1 October 1964 by Dr. (now Professor) Roy Wisbey.

To celebrate its twentieth anniversary on 1 October 1984 a two-day meeting is planned, with speakers describing the foundation and history of the Centre, as well as the range of research which has been undertaken with the assistance of the Centre's staff.

No more details are available at present, but if you are interested in attending please write to:

Dr. John Dawson

Literary and Linguistic Computing Centre  
University of Cambridge  
Sidgwick Avenue  
Cambridge CB3 9DA  
England

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### Workshop on Authorship Studies in English

University of Edinburgh  
Autumn 1984

A Workshop on Authorship Studies in English is being planned for Autumn 1984 by Sidney Michaelson and Tom Horton of the University of Edinburgh. If you have any suggestions for topics or speakers, or if you would like to be kept informed about arrangements for the Workshop, please write to:

Prof. S. Michaelson or Mr. T.B. Horton  
Department of Computer Science  
University of Edinburgh  
King's Buildings, Mayfield Road  
Edinburgh EH9 3JZ  
Scotland

## CALL FOR PAPERS

Artificial Intelligence  
and Productivity

2nd Symposium and Exhibit  
Paris, France - November 1984

### Presenting AFIAS

AFIAS is market-place for contact and exchange.

AFIAS is an industry-oriented scientific and technical non-profit association in the fields of *artificial intelligence, expert systems, simulations systems and training systems.*

AFIAS' goal is to improve application and increase utilisation of *simulation, productivity, expert system and CAL/CBT technics.*

AFIAS' objective is to ensure an improved promotion and distribution of these technologies and related services; to group together **researchers/designers, manufacturers, users, consultants/engineers, instructors, journalists**, through organization and sponsorship of: round-tables, seminars, conferences, exhibitions and demonstrations.

AFIAS' activities are centered on four study groups, each with Artificial Intelligence as their central theme:

- **"Productique"** - Robotics, CAD-CAM, Voice recognition, Vision, Automation, etc.
- **Simulation**
- **Expert Systems**
- **Computer-Aided Learning (CAL-CAI-CBT)**

### Objectives

An applications-oriented Symposium comprising demonstrations and roundtable debates directed at the presentation of industrial achievements in the field of intelligent machines and systems.

### Case Studies:

How to build an intelligent machine or system?

With what equipment, with which software, for what price?

What legal protection for Artificial Intelligence applications?

### Programme

- *Artificial intelligence and productivity (Robotics, CAD-CAM, Automation, Voice and Vision Processing)*
- *Artificial intelligence and simulation*
- *Artificial intelligence and expert systems ( industry, service sector, medicine, etc.)*
- *Artificial intelligence and CAL/CBT*
- *Ownership of knowledge and expertise*

### General Information and Important Dates

Papers at the Symposium can be presented in English, and should include a guided demonstration of an existing system or program, whether in its prototype or fully operational form.

Persons wishing to Speak/Demonstrate should correspond with the address below, indicating the title of their proposed presentation and enclosing a summary or plan (no more than two typed pages)

before February 15th 1984.

AFIAS' Scientific Committee is in charge of selection, and will individually notify authors of their choice.

For more information, contact:  
**SIMTEC CONSULTANTS**  
 211, rue Saint-Honore  
 75001 Paris, France  
 Phone (1)260.35.16  
 Telex: SIMTEC 214456F

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### International Conference on Fifth Generation Computer Systems, 1984

The scope of technical sessions of this conference encompasses the technical aspects of new generation computer systems which are being explored particularly within the framework of logic programming and novel architectures. This conference is intended to promote interaction among researchers in all disciplines related to fifth generation computer technology. The topics of interest include (but are not limited to) the following:

#### PROGRAM AREAS

##### Foundations for Logic Programs

- Formal semantics/pragmatics
- Computation models
- Program analysis and complexity
- Philosophical aspects
- Psychological aspects

##### Logic Programming Languages/Methodologies

- Parallel/object-oriented programming languages
- Meta-level inferences/control
- Intelligent programming environments
- Program synthesis/understanding
- Program transformation/verification

##### Architectures for New Generation Computing

- Inference machines
- Knowledge base machines
- Parallel processing architectures
- VLSI architectures
- Novel human-machine interfaces

##### Applications of New Generation Computing

- Knowledge representation/acquisition
- Expert systems
- Natural language understanding/machine translation
- Graphics/vision
- Games/simulation

##### Impacts of New Generation Computing

- Social/cultural
- Educational
- Economic
- Industrial
- International

#### PAPER SUBMISSION REQUIREMENTS

Four copies of manuscripts should be submitted by April 15, 1984 to:

*Prof. Hideo Aiso*  
 Program Chairman  
 ICOT  
 Mita Kokusai Bldg. 21F  
 1-4-28 Mita, Minato-ku  
 Tokyo 108, Japan

Papers are restricted to 20 double-spaced pages (about 5000 words) including figures. Each paper must contain a 200-250 word abstract. Papers must be written and presented in English.

Papers will be reviewed by international referees. Authors will be notified of acceptance by June 30, 1984, and will be given instructions for final preparation of their papers at that time. Camera-ready papers for the proceedings should be sent to the Program Chairman prior to August 31, 1984.

#### GENERAL INFORMATION

**Date:** November 6-9, 1984  
**Venue:** Keio Plaza Hotel, Tokyo, Japan  
**Host:** Institute for New Generation Computer Technology

#### Outline of the Conference Program:

General sessions  
 Keynote speeches  
 Report of research activities  
     on Japan's FGCS Project  
 Panel discussions  
 Technical sessions (Parallel sessions)  
 Presentation by invited speakers  
 Presentation of submitted papers  
 Special events  
 Demonstration of current research results  
 Technical visit

#### Official languages:

English/Japanese

**Participants:** 600

#### Further information:

*FGCS '84 Secretariat*  
 Institute for New Generation  
 Computer Technology (ICOT)  
 Mita Kokusai Bldg. 21F  
 1-4-28 Mita, Minato-ku  
 Tokyo 108, Japan  
 Phone: 03-456-3195  
 Telex: 32964 ICOT

#### Organization of the Conference

**Conference Chairman:**

*Tohru Moto-oka,*  
 University of Tokyo

**Conf. Vice Chairman:**

*Kazuhiro Fuchi,* ICOT

**Program Chairman:**

*Hideo Aiso,*  
 Keio University

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