IFIP newsletter
International Federation for Information Processing

Editor:
Dr. Jack L. Rosenfeld

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## CONGRESS'89 NEARING

*Program Now Complete*

Preparations for IFIP Congress 1989, the 11th World Computer Congress, are proceeding very well. This most important IFIP event will take place in San Francisco 28 August-1 September.

Over 360 papers were submitted from 40 countries. The U.S.A. led the way, with more than 70 papers, followed by China, with over 45. The International Program Committee met at the end of January and selected 113 of the submitted papers to complete the program. Invited papers and panel sessions had already been organized. The large number of papers submitted suggests that Congress '89 will be very well attended.

A highlight of the Congress program will be the following group of sessions, which will provide a forum for assessing global trends in information technology research and development:

- Europe, U.S.S.R., and U.S.A. on Software Engineering: Down and Upstream SE Environments
- The Software Engineering Institute (SEI): The Software Technology Transition
- Japan: New Computing Media
- Europe, U.S.S.R., and Japan on Computing Systems Architectures
- Software Productivity Consortium (SPC): Production-Oriented Software Engineering
- Europe and Japan on Logic Programming and Knowledge Base Systems
- ESPRIT on Office Systems and Computer Integrated Manufacturing

Following is a list of the panel sessions, along with the names of the organizers:

- Frontiers in Computing/T. Toffoli (USA)
- Foundations of Software Engineering—The Silver Bullet/M. Broy (D)
- Operating Systems—Evolution versus Revolution/R. Rashid (USA)
- Architectures for Man-Machine Interface/J.M. Hullot (F)

*continued on page 6*

## *MESSAGE-HANDLING SYSTEMS*

### WG6.5 Plays Major Role

IFIP's Working Group on International Computer Message Systems (WG6.5) held an International Working Conference on Message-Handling and Distributed-Application Systems 10-12 October 1988 in Costa Mesa, CA, U.S.A. The Conference provided an international forum for the exchange of information on the technical, economic, social, and political impacts and experiences with computer messaging and distributed applications in the automated workplace environment. The Conference consisted of two days of paper presentations and one day of workshops. One hundred forty professionals attended.

Thirty-two papers were presented, many dealing with implementations of message-handling systems (MHS), directory systems, privacy, and related matters. Others dealt with using MHS to support group activities and with other MHS applications.

*Dr. Pietro* Schicker *(CH),* chairman of WG6.5, and *Mr. Ole-Jorgen Jacobsen* (USA) were co-chairmen of the International Program Committee. *Mr. Einar Stefferud (USA)* served as chairman of the Organizing Committee.

*Dr. Schicker* presented a paper, entitled *Message-Handling Systems, X.400,* in which he briefly reviewed the history of MHS, especially the important role played by WG6.5 in this area. This section of the paper is quoted here: *

> The first data network not used entirely for a closed application and with a wide geographic distribution was the ARPA network in the U.S.A. First the object of research itself, it was soon utilized for information transfer between researchers. This transfer was executed mainly in the form of file transfers. The researchers soon felt the need to transmit messages. A message system based purely on file transfers did not provide any ancillary functional services, and soon a more

* IFIP

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**IFIP NEWSLETTER**

Editor:
**Dr. Jack L. Rosenfeld**
IBM Corporation
Thomas J. Watson Research Center
P.O. Box 704
Yorktown Heights, NY 10598, U.S.A.
tel. 1 (914) 789-7633
telex: 9102400632 ibm yorktown labs
or 137456 ibmresrch ykhg
facsimile: 1 (914) 789-7455
CSNET: ROSENJ@IBM.COM
BITNET: ROSENJ@YKTVMH

Assistant:
Mrs. Doris Engel

Published quarterly by-
**IFIP Secretariat**
16 Place Longemalle
CH-1204 Geneva, Switzerland
tel. 41 (22) 28 26 49
telex: 428 472 ifip ch
facsimile: 41 (22) 81 23 22 (old)
41(22) 781 23 22 (new)
*The change in facsimile number will take effect 21 April 1989 at 22:00 G.M.T.*

CORRESPONDENTS
TC2 R.K. DeBry
TC3 U. Brauer
TC5 L.H. Fransson
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Kindly submit material for the *Newsletter* three months before the publication date.

Please send the following **IFIP** information directly to the Secretariat: announcements of conferences, workshops, and other meetings; calls for papers; appointments to committees and other positions; and changes of address. The Secretariat is the clearinghouse for all such information; it will forward it to the *Newsletter.*

## *SENDOV PRESIDENT OF BULGARIAN ACADEMY*

*Acad. and Mrs. Blagovest Sendov meet with Indian Prime Minister Rajiv Gandhi at the time of the IFIP General Assembly in New Delhi last September.*

Acad. *Blagovest Sendovf,* president-elect of **IFIP,** was elected president of the Bulgarian Academy of Sciences (BAS) on 25 July 1988 by the Central Committee of the BAS.

BAS, the most important scientific organization in Bulgaria, was founded in 1869. It comprises approximately 15 000 employees, 4000 of whom are scientists, belonging to more than 100 bodies—institutes, laboratories, and so forth—covering almost all areas of science. A substantial number of Bulgarian graduate students complete their dissertations at BAS. **It is** the most important Bulgarian organizer of scientific events—both national and international.

BAS has close scientific relations with all Socialist countries' academies and promotes joint research and development projects, exchange visits, and so on. It also has relations with scientific organizations in many other countries.

BAS is the Bulgarian Member of IFIP, and *Acad.* Sendov is its representative!

t A biography of Acad. Sendov was printed on page 7 of the September 1985 ***IFIP*** *Newsletter.*

## WEST AFRICAN COMPUTER SOCIETY JOINS **IFIP**

*by Prof. S. B. Jaiyesimi (WRN) **

**The IFIP** General Assembly (GA), meeting in New Delhi in September 1988, voted to admit the West African Regional Computer Society (WARCS) as a full Member of **IFIP.** The WARCS will assume membership in **IFIP** when it sends a representative to the GA.

The WARCS was formed in 1987. Two meetings were held that year, in Accra, Ghana and in Banjul, The Gambia. During the past twelve months, a workshop on Information Technology in Government was held in Banjul. Since then, two meetings have been held to plan ahead for the coming years, in particular for **IFIP** Congress '89.

* West Africa regional coordinator and GA representative of Nigeria

At present, the WARCS membership comprises Nigeria, Ghana, Liberia, Sierra Leone, Sene-gambia, and Togo. Its seat is in Nigeria. An application received from Ivory Coast is being processed. Efforts are also being made to reach the remaining ten West African countries. To this end, a regional workshop was held in February 1989, which sought not only to bring together interested people but to encourage participation at the level of national governments and thereby create a more effective awareness in each country.

Contacts are being made with chairmen of **IFIP's** Technical Committees (TCs), to encourage TC activities in the region. Firm proposals are being worked out for submission to the TCs and appropriate **IFIP** committees.

The annual reports of **IFIP** Members were published at the 1988 General Assembly (GA) in September in New Delhi. These reports are intended to provide a means by which Members may learn of each other's accomplishments, problems, and interests. This set of reports included several that listed a number of interesting activities of the Members and a few that gave only basic statistics. There were reports from most geographical areas in which **IFIP** is represented; however, Hungary was the only Eastern European Member presenting a report to **IFIP.** The remainder of this article reflects the personal reaction of the ***IFIP*** *Newsletter* editor to the Member reports.

Honors go to the Dutch Computer Society (NGI) for writing a report totally in the spirit of the GA's request for Member reports. The NGI report listed three major events and commented on the significance of each: (1) NGI membership passed 10 000, (2) the society moved its office to a new location, with access to "teleport" facilities, and (3) a new NGI president succeeded one who had held office for 8 years. The commentary on these events makes interesting reading.

### Novel Activities

The French Computer Society (AFCET) reported, "It is now generally recognized that a growing number of activities should be organized at a European level, rather than at a strictly national one. AFCET is, therefore, promoting an increased cooperation with its sister computer societies, particularly the British, German, and Italian societies. As an example, the 1st European Conference on Software Engineering, organized by the four partners, took place in Strasbourg in September 1987." Similar regional cooperation is seen in Scandinavia, the Pacific rim, South America, Southern Africa, and elsewhere. Another example of cooperation among Members is the reciprocal membership agreements among many computer societies.

A novel item was mentioned in the report of the Norwegian Computer Society: "A collection of computer crime stories by major Norwegian authors was published under the title *Safe as Data Processing."* Another interesting activity is the National Students' Convention organized by the Computer Society of India. The American Federation of Information Processing Societies (AFIPS) reported that, "a recently completed AFIPS-sponsored project has resulted in the publication of a handbook for educators titled *Planning for Computers in Education.* The handbook is directed toward teachers and administrators and deals with the complex issues encountered when introducing computers into primary and secondary education programs."

### Computers for the Disabled

The Computer Society of South Africa (CSSA) wrote, "We continue to be active with computers for the disabled. During the past year, we have been instrumental in establishing a self-help, data-capture bureau, which is now providing meaningful employment for eight people with severe physical disabilities. We are currently expanding this concept to other parts of the country. We note that **IFIP** does not at present address the issue of computers for the disabled, and we strongly suggest that such support should be provided, either via the TC on the Relationship between Computers and Society (TC9) or the International Medical Informatics Association of **IFIP** (IMIA). The CSSA would be pleased to participate in any such activity and regret that as yet there does not appear to be any progress in this area."

An interesting aspect of the meetings of a branch of the Irish Computer Society was reported: "Following the meeting, it is customary to retire to the hotel bar for refreshments and to continue the discussion in less formal surroundings. This latter activity serves as an opportunity for social interaction between branch members."

The Spanish Computer Society (FESI), a federation of societies, reports that one of its members runs an annual Computer Science Summer School: "This year's summer school has been a great success, with an attendance of 100 participants. Most of the attendees have been young professors of computer science, who regularly take advantage of the Summer School to keep abreast of the different aspects of their profession. This year there were (short) courses given on Functional Programming, Expert Systems, and Industrial Electronics." FESI, the host for **IFIP** Congress '92, also reported that, "the different societies federated within FESI are engaged in a sincere effort of unification, as the best way to carry out future business in the interest of Spanish computer science professionals. This process of unification could be well considered a natural result of the preparation for Congress '92 and, as such, directly fostered by our affiliation with **IFIP."** Also, "We are planning a group trip for individual members to attend Congress '89 in San Francisco. The trip is planned to include three weeks in California and so to give Congress delegates the chance to spend some vacation time there."

We found the preceding items fascinating and hope that next year these societies will give more details of these activities and that other Members will give details of their unusual activities.

### Public Activities

An activity found in many reports was Members advising their governments on aspects of information processing. It seemed to us, in reading the reports, that this was more significant in smaller nations than in larger ones. Also, several Members reported designing information processing curricula, conducting tests for professional certification, and accrediting schools.

Many Members reported reorganizations, moves, and consolidations. The Irish Computer Society reported, "following on the success of Congress '87 [in Dublin], the Society saw an increase in membership." Other societies also reported increases, while a few reported decreases. Several mentioned the belief that large computer conferences of broad, general scope are a thing of the past.

### Funding Participation in IFIP

A universal concern is how to fund participation in **IFIP's** activities. This participation includes attendance by national representatives at GA and Council meetings, attendance by Technical Committee (TC) representatives at TC meetings, and by Working Group (WG) members at WG meetings. In addition, members of the Member societies should be able to attend workshops, symposia, seminars, Congresses, and other events sponsored by **IFIP.** The cost of such participation is a concern to many Members, from the smallest to the largest.

A related concern, voiced in several reports, is how can members of the Member societies best benefit from the national membership in **IFIP.** Holding **IFIP** events in the countries is one answer. Most developing countries, in their reports, asked that **IFIP** events be held in their regions. Another answer is for Members to publicize **IFIP's** activities, so that their members may be aware of the events and publications available to them from **IFIP.**

A further answer is found in the report of the New Zealand Computer Society (NZCS), which "looks forward to receiving more information about activities in WGs in this year's **IFIP** Annual

*continued on page 13*

The 1988 **IFIP** General Assembly (GA) approved the following Scopes and Aims for new Working Groups (WGs). The GA also approved the disbanding of WG11.6 on Multi-party Transaction Security.

**WG3.3: Research on Educational Applications of Information Technologies**

**Scope:** Following years of experimental use and pragmatic research, new opportunities and priorities for research present themselves. These opportunities encompass technology-led aspects (e.g., software environments, communications, artificial intelligence tools) as well as human-focussed issues (e.g., teacher-learner-machine interaction, developmental psychology) and educational systems issues (e.g., process and learning evaluation).

**Aims:**

- to provide a forum to identify issues and priorities for research
- to map research policies arising from the differing cultures in **IFIP** member countries
- to seek ways to foster collaborative international research
- to join with other WGs and TCs in sector- (and discipline-) focussed analysis of research priorities

**WG8.5: Information Systems in Public Administration**

**Scope:** The WG focuses on information systems in public administration at international, national, regional and local levels. The WG's special emphasis is on the relationship between central and local use of information systems and the provision of citizen services, together with the accomplishment of social goals.

**Aims:**

1. analyse information processing policies in public administration
2. discuss specific applications of information systems in public administration
3. analyse the impacts of information systems on public administration
4. apply the results of other **IFIP** WGs, and specifically of TC8 WGs, to public administration
5. improve the quality of information systems in public administration

**WG9.3: Home-Oriented Informatics and Telematics (HOIT)**

**Scope:** The WG is concerned with the social implications of the development of informatics, communications and telematics in the home and its environment.

The WG assesses

- actual and potential human usefulness of **HOIT**
- social impact of these technologies and their applications
- social issues at stake in the development of the underlying infrastructure
- rationale in innovation and design processes
- dynamics of technology development

WG9.3 explicitly cares about the position of and the potentials for vulnerable groups like children, less-educated, disabled, elderly and non-employed people, paid and non-paid workers at home, cultural minorities, unaware users and others.

**Aims:**

- foster benevolent design, development, implementation, applications and use of **HOIT**
- encourage surveys and studies on **HOIT**
- develop methodologies for studying social implications of **HOIT**
- establish a global platform for interaction, exchange, joint initiatives and cooperation between such groups as
  - the end users of HOIT; members of households
  - industrial developers and designers of **HOIT** technology and related services
  - implementation designers
  - policy, decision making, and consultative bodies
  - architects and urban planners
  - scientists

**WG11.7: Computer Security-Related Legislation**

Computer systems programs and data are subject to many types of threat. Physical, environmental and technical methods are available and used in order to prevent abuse of computer systems, programs or data. In addition to the above mentioned forms of protection, various forms of law, both civil and criminal, are used to provide another layer of protection for these computer systems, programs and data.

The security of computer systems, programs and data faces threats which are international in nature and which require international solutions. One of the fundamental goals of this WG is to increase understanding of international and transnational factors affecting computer security-related legislation leading, possibly, to establishment of increased international cooperation in investigation and enforcement activity related to abuse of computer systems, programs and data.

The aims of the WG are

1. to promote awareness and understanding of the need for meaningful and thoughtful computer security-related legislation as an essential element in the protection of computer systems, programs and data
2. to provide a forum for the discussion and analysis of computer security-related legislative policy
3. to provide a mechanism to initiate or respond to international computer security-related legislative initiatives affecting the computer industry

**In** order to meet these aims, the objectives of the WG are:

1. to study and share legislative experience, approaches and resources relating to security of computer systems, programs and data in the fields of both civil law and criminal law
2. to determine and study areas for potential international cooperation in the area of computer security-related legislation
3. to develop, where appropriate, model concepts, approaches or definitions leading to internationally consistent computer security-related legislation
4. to promote an understanding of computer security-related legislative issues for legislators
5. to initiate or respond to initiatives of other international organizations dealing with international or transnational issues affecting the security of computer systems, programs and data
6. to interact and cooperate with other interested WGs or TCs of **IFIP**

## Revised Scopes and Aims

The GA also approved the following revised Scopes and Aims.

**WG10.1: Systems Concepts and Characteristics**

**Aims:** The aims of the WG are to promote the exchange of information in the area of innovative computer system architecture and structure and to improve the understanding of the state of the art. To develop from there a methodology for the design of computer systems.

Scope: The scope includes

1. to make accessible accurate descriptions of system architectures and structures
2. to establish a list of architectural and structural features which are identical or similar
3. to describe common characteristics of those features and their differences
4. to develop the methodology of system architecture
5. to assess the impact of emerging technologies on systems

The activities of this WG are wide-ranging and therefore, from time to time, will interact with those of the other WGs within TC10.

**WG10.2: System Description and Design Tools**

**Aims and Scope:**

1. explore problem areas and solutions in the specification and design of languages which allow the description of all phases of the design, from that of multi-component complex system architectures down to the level of elementary building blocks, in a consistent way
2. explore problem areas and solutions in the development of design-automation tools bases on these design languages

The work of the WG will include the following tasks:

- the study of languages and tools for specification, description, simulation, testing, verification, synthesis, evaluation and documentation of digital systems
- consideration of the impact of system design methodology
- interaction between design tools and design methodology
- the study of the integration of design tools
- recommend specifications for design tool development

# IFIP NEWSLETTER IS 5 YEARS OLD: Happy Birthday to Us!

*by Dr. Jack Rosenfeld (USA) **

*[This article was planned for the December 1988 issue of the **IFIP** Newsletter, the fifth anniversary edition. There was no room in that issue, however, so we print it now.]*

This is the fifth anniversary issue of the ***IFIP*** *Newsletter.* Our history began at the 1982 General Assembly (GA) in Rome. At that time, Prof. *Herbert Freeman (USA),* the representative to **IFIP** of the International Association for Pattern Recognition, was commissioned by the GA to find someone to undertake the creation of a newsletter for **IFIP.**

My personal contact with **IFIP** started with **IFIP** Congress '65 in New York. Subsequently, I presented a paper on parallel processing at Congress '68, served as Registration and Accommodations chairman on the U.S. Committee for Congress '71 and was Associate Editor of the proceedings, edited the proceedings of Congress '74, and received the Silver Core at Congress '77. When Prof. *Freeman* contacted me in 1983 about a new **IFIP** newsletter, I was happy to rejoin the **IFIP** fold.

* editor of ***IFIP*** *Newsletter*

Excellent guidance on the formation of the newsletter was provided by *Mme.* Gwyneth Roberts, Administrative Manager of the **IFIP** Secretariat, *Mr.* George Glaser *(USA),* vice-president, and Mr. Ashley Goldsworthy (AUS), trustee and chairman of the Activity Planning Committee. A prototype issue was prepared for presentation to the 1983 GA in Paris, and the GA accepted the proposal, allocated the required funds, and appointed me as Editor.

A couple of busy months followed, during which details of the *Newsletter* were settled with the Secretariat and Elsevier/North-Holland, which offered to print it free of charge. Especially pleasurable was the enthusiastic cooperation of *Mrs. Stephanie Smit,* who has represented Elsevier in this endeavor.

## The First Issue

The first issue appeared in November 1983; the present issue is the 22nd.

No discussion of the *Newsletter* would be complete without a description of its global production process. The articles are written or edited in Yorktown Heights, New York and sent to six reviewers in five different countries, as well as to those people who originated the material. After their suggestions have been incorporated into the text, the photocomposing is done at Yorktown. The "camera-ready copy" is then mailed to Amsterdam, where Elsevier prints it. They ship the copies to Geneva, from where the Secretariat mails them to nearly 3000 recipients.

During the past five years, it has been gratifying to see an increase in the material voluntarily submitted to the *Newsletter.* The greatest satisfaction comes when the *Newsletter* meets the needs of **IFIP.** And the greatest pleasure is found in the friendships made in the **IFIP** community. Thank you all for your support. ■

WG10.3: Concurrent Systems (formerly named Software/Hardware Interrelation)

Aims: The aim is the study of computer systems having several computing elements, with the goal of improving the quality of attributes such as cost, performance, programmability, extendibility and function. The study includes the interrelation of software/firmware/hardware in specification, design and implementation.

Scope: The scope includes

1. exploration of problem areas and solutions pertaining to the interrelation between the hardware functions and the software functions in systems such as supervisors, data management, language translators, I/O systems, and user interface.
2. evaluation of the implications of trends in computer systems technology on the interrelation of software/firmware/hardware
3. evaluation of the implication of this interrelation on the trends in computer systems technology
4. development of principles and techniques which facilitate the software/firmware/hardware trade-off
5. consideration of methods to meet special requirements and applications

**WG10.4: Dependable Computing and Fault Tolerance** (formerly named Reliable Computing and Fault Tolerance)

Aims: Increasingly, individuals and organizations are developing or procuring sophisticated computing systems, on the services of which they need to place great reliance. In different circumstances, the focus will be on different properties of such services—e.g., continuity, performance, real-time response, ability to avoid catastrophic failures, prevention of deliberate privacy intrusions. The notion of dependability, defined as that property of a computing system which allows reliance to be justifiably placed on the service it delivers, enables these various concerns to be subsumed within a single conceptual framework. Dependability thus includes as special cases such attributes as reliability, availability, safety, security. The WG aims to identify and integrate approaches, methods and techniques for specifying, designing, building, assessing, validating, operating and maintaining computer systems which should exhibit some or all of these attributes.

Scope: Specifically, the WG is concerned with progress in

1. understanding faults (accidental faults, be they physical, design-induced, or originating from human interaction; intentional faults) and their effects
2. specification and design methods for dependability
3. methods for error detection and processing, and for fault treatment
4. validation (testing, verification, evaluation) and design for testability and verifiability
5. assessing dependability through modelling and measurement

**WG10.5: Very Large Scale Integration—VLSI**

**Aims:** To deal with all aspects of the interaction between semiconductor fabrication and computer system design. This can be defined as the new tools, designs and techniques required to deal with the interaction between VLSI technology and the design of computer systems.

Scopes: The scope includes

1. special purpose VLSI components
2. computer-based design tools for VLSI components
3. mathematical modelling of VLSI components
4. technology innovation and design methodology ■

*CONGRESS '89 continued from page 1*

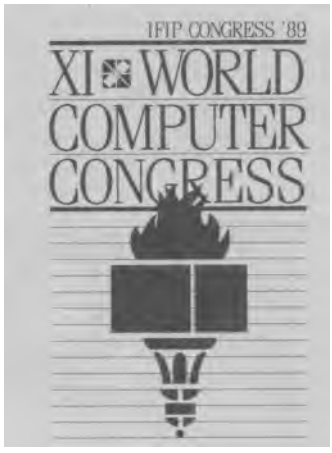
How to Use OSI—Practical Experience and Limitations/G. LeMoli (I)
Network Management Tools and Distributed Data Processing/J. Westcott (USA)
Expert Systems: Professional Tool for Data Communication?/D. Khakhar (S)
Knowledge Representation Systems: Implementations, Experiences, Directions/N. Cercone (CDN)
Knowledge Bases and Databases/R. Meersman (NL)
Can Software Faults be Tolerated?/B. Randell (GB)
Validation of Hardware and Software: Similarities and Differences/Y. Tohma (J)
Software Factories Around the World/C. Tully (GB)
Parallel Architecture for Supercomputing/H.T. Kung (USA)
Future Trends in Supercomputing: Access and Evaluation/J. Gurd (GB)
Zen and the Art of Analog Design Automation/R.A. Rutenbar (USA)
Design Automation in Industry: A View Across the World/J. Darringer (USA)
Silicon Compilers: How Well Have They Done, and Where Are They Headed?/R.E. Bryant (USA)
Intelligent User Interfaces: Boon or Bane/J. Harvey (GB)
Computer Supported Cooperative Work/I. Greif (USA)
Can Current Office Models Support Automation?/N. Reinhard (BR)
Flexible Integrated Automation Systems/J.P. Forestier (F)
Artificial Intelligence and Advanced Robotics/J.C. Latombe (USA)
Computers and Continuing Education/S. Charp (USA)
Personal Computers on Campuses: the Experience/W. Atchison (USA)
How Specialists Perceive the Social Impact of Computers/A. Goldsworthy (AUS)
Information System Design and Work in Organization Design/K. Fuchs-Kittowski (DDR)
Hardware and Software Dependability Evaluation/J.F. Meyer (USA)
Privacy and Security in International Data Networks/W. Caelli (AUS)

A list of the invited speakers and their topics was printed in the September 1988 issue of the ***IFIP*** *Newsletter,* and other information about IFIP Congress '89 was printed there and in the December 1987 issue.

Four new tutorial programs have been added to the ones already announced, resulting in ten excellent tutorials. The organizers are very excited about this segment of the program, which will take place 24-27 August, preceding the Congress. The added tutorials are

Nick Tredennick (USA): Trends in Microprocessor Design
John Musa (USA): Software Reliability Measures: Guiding Software Development for Cost-Effective System Quality
Clarence Ellis (USA): Principles and Practices of Object-Oriented Programming
Robert Brayton, Ernest Kuh, Richard Newton, Alberto Sangiovanni-Vincentelli, Carlo Sequin (all USA): Computer-Aided Design for VLSI

The original tutorials were listed in the September 1988 *Newsletter.*




Technical visits have been organized to a number of sites in Silicon Valley and San Francisco during the Congress: Amdahl Corp., Ampex Corp., Apple Computer, Hewlett-Packard Corp., IBM Corp., Lawrence Berkeley Lab., Lawrence Livermore National Lab., NASA/Ames Research Center, Olivetti Research Center, Silicon Graphics, Stanford Univ., Sun Microsystems, and Univ. of California at Berkeley.

In addition, there will be a major exhibition, sight-seeing tours, and social events.

Members of the General Assembly, Technical Committees, and Working Groups and other IFIP workers are urged to support this excellent Congress. The final program is now available. To receive a copy or to get further information, please contact

11th World Computer Congress
Convention Service Center, Inc.
P.O. Box 18-P
Denver CO 80218, U.S.A.
tel. 1 (303) 831-6338
telex: 168184 SVCCTR UT

**National Abbreviations Used in Newsletter**

| | | | | | |
|---|---|---|---|---|---|
| AUS | Australia | GB | United Kingdom | P | Portugal |
| B | Belgium | GR | Greece | PL | Poland |
| BG | Bulgaria | H | Hungary | S | Sweden |
| BR | Brazil | I | Italy | SEARCC | South East Asia Regional Computer Confederation |
| CDN | Canada | IND | India | SF | Finland |
| CH | Switzerland | IRL | Ireland | SU | U.S.S.R. |
| D | Fed. Rep. of Germany, | J | Japan | USA | U.S.A. |
| DDR | German Demo. Rep. | MEX | Mexico | YU | Yugoslavia |
| DK | Denmark | N | Norway | ZA | South Africa |
| E | Spain | NL | The Netherlands | | |
| F | France | | | | |

## INDIAN DIGEST OF IFIP PUBLICATIONS

In September 1988, during the IFIP General Assembly (GA) in New Delhi, the Computer Society of India (CSI) published the first issue of a new quarterly entitled ***CSI Digest.*** The editors of the *Digest* plan to publish articles selected from IFIP publications and other sources, on topics relevant to the computer profession in India, with an emphasis on applications. The *Digest* will also contain original, reviewed articles on the state of the art of selected topics and provide a forum for the concerns of computer professionals in India. It is hoped that issues of the *Digest* will serve as reference books in general and specifically for courses designed by the CSI.

The *CSI Digest's* editorial board is headed by *Maj. Gen. A. Balasubrahmanian,* IFIP trustee and representative of India to the GA.

The first issue, on the subject of Human-Computer Interaction, contained fourteen articles, all from the proceedings of two IFIP conferences: the Future of Command Languages, held in 1985, and INTERACT 84. Future topics will be Computer Communication, CAM-CAD Applications, Computer Security, Software Engineering, and Computer Education.

The concept of the *CSI Digest—a* low-cost collection of papers selected from IFIP publications more than one year old, with a nominal royalty paid to IFIP, to remain in India to support IFIP activities—was raised informally at the 1986 GA by Gen. *Balasubrahmanian* and was approved by the 1987 GA. The approval was expedited by *Mr. Hennie Leroux (ZA),* chairman of the Publications Committee, and the agreement with IFIP publisher Elsevier/North-Holland was obtained speedily by their representative, *Mrs. Stephanie Smit* (NL).

IFIP supports this endeavor for several reasons: it substantially assists a developing country to raise the level of competence of its computer professionals; it disseminates the leading-edge work of IFIP's Technical Committees and Working Groups to a wider community than has been reached previously; it enables important papers that may have been overlooked in the past to receive new life; and it makes known the work of **IFIP** to the Indian information processing community.

IFIP's Working Group on Numerical Software (WG2.5) held a Working Conference 22-26 August 1988 in Stanford CA, U.S.A. on Aspects of Computation on Asynchronous Parallel Processors. Seventy-five registrants attended. *Dr. Brian Smith (USA)* and Dr. *Richard Hanson (USA)* were co-chairmen of the International Program Committee. *Dr. Margaret Wright (USA)* was responsible for local arrangements.

This Conference, organized by one of the most active WGs of IFIP's Technical Committee on Software (TC2), concentrated on the methodology for solving large-scale problems on Multiple Instruction Stream - Multiple Data Stream (MIMD) computers. These multiprocessors, in contrast with Single Instruction Stream - Multiple Data Stream (SIMD) machines, are designed to run several tasks simultaneously. The tasks may be completely independent jobs, or they may be subtasks of a single job, which communicate with each other.

In the preface to the proceedings, published by Elsevier/North-Holland, Dr. *Wright,* the editor, described the state of the art of parallel processing: *

> Planning for the conference began in the summer of 1984, when it appeared that increasing availability of asynchronous parallel processors was beginning to provide major opportunities for original and useful work in scientific computing. In the intervening four years, both interest and activity in parallel computation have grown to a dramatic extent.
>
> The field of parallel computing is still in a highly volatile state, and researchers display a wide range of opinion about many fundamental questions such as models of parallelism, approaches for detecting and analyzing parallelism of algorithms, and tools that allow software developers and users to make effective use of diverse forms of complex hardware.

The chairman of WG2.5, *Prof. Lloyd* Fosdick (USA), indicated * how parallel processing fits into the work of WG2.5:

> Our WG interprets numerical computation broadly. We are interested in more than algorithms for solving numerical problems; we are interested in the whole framework and the mechanics of numerical computation. Thus, in addition to algorithms, our working conferences have been concerned with software tools and libraries, with programming languages, with arithmetic, and with the portability and reliability of programs—all in the context of numerical computation.

Ours is an international organization, so we have another objective, indeed an important obligation. That is to bring together scientists from all over the world and to assure a world-community representation among speakers and attendees. This is not easy to do. Nevertheless, in organizing these conferences, we seek participants from all parts of the world, and we do our best to assure fair and balanced representation.

## Portability—A Problem

Among the major topics considered was how to provide portable (able to be moved from one type of CPU to another) libraries of subroutines, so that users who have problems to solve can use the power of parallel processors without having to write the numerical subroutines themselves. *J. Demmel (USA), J.J. Dongarra* (USA), *J. DuCroz (GB),* A. *Greenbaum (USA), S.J. Hammarling* (GB), and *D.C.* Sorensen (USA) presented a paper entitled *A Project for Developing a Linear Algebra Library for High-Performance Computers* in which they addressed this problem. Following are quotations from the paper: *

> We are developing a transportable linear algebra library in Fortran 77. The library is intended to provide a uniform set of subroutines to solve the most common linear algebra problems and to run efficiently on a wide range of high-performance computers.
>
> To be effective, the new library must satisfy several criteria. First, it must be highly efficient, or at least "tunable" to high efficiency, on each machine. Second, the user interface must be uniform across machines. Otherwise, much of the convenience of portability will be lost. Third, the programs must be widely available. The library will be designed to perform efficiently on machines with a modest number of processors (say, 1-20), each having a powerful vector-processing capability.

The authors presented a table of efficiencies of high-performance machines running standard benchmark tests. Efficiency is the number of megaflops (millions of floating-point operations per second) actually achieved when running the benchmark programs divided by the number possible when executing only vector floating-point operations. For machines with peak rate greater than 100 megaflops, efficiencies range from a high of .24 to a low of .02.

## Tailoring Code to the Machine

On the other hand, by appropriately tailoring the code to the machine, one can obtain excellent efficiency and performance. Ramesh *Agarwal (USA)* and *Fred Gustayson* (USA) described how this can be done, in the paper *A Parallel Implementation of Matrix Multiplication and LU Factorization on IBM 3090.* They discussed how a general dense matrix multiplication routine was parallelized, to take advantage of the vector multiply-add instruction of the processors and to use all the processors available in a multi-processor configuration, with the greatest efficiency. The following* is taken from their paper:

> Typically, several subtasks are created, with each subtask assigned a part of the matrix. The operating system assigns these subtasks to available processors. If the computational load can be split equally among the available processors, then close to full efficiency can be obtained in parallelization.
>
> Since each processor has its own cache [high-speed local memory] and the shared matrix data can reside in "read only" mode on several processors, these processors can work in parallel without interference. The algorithms for these routines are carefully tuned to take advantage of the memory hierarchy, especially the cache. To get cache data reuse in a matrix multiplication routine C=A x B, we bring a block of *A* into cache and operate with the applicable part of B on it, thereby block updating a part of C.
>
> Measurements were made for the matrix multiply routine. The performance quickly approaches the asymptotic value of 104 megaflops. This is 91% of the possible peak rate of 114 megaflops. The speedup is very close to the number of processors used, and this is achieved even for a small problem.

## Enormous Computation

Another talk, *Monte Carlo Simulations of Lattice Gauge Theories* by *Philippe de Forcrand (USA),* discussed the enormous amount of computation required

*continued on page 10*

* © IFIP

Dr. Peter Kovács, **IFIP's** treasurer, was born in Budapest. He graduated from the University of Economics in Budapest in 1959 and was awarded a Ph.D. degree in informatics in 1973 from the Academy of Sciences of Hungary. He has worked in the field of computer applications since 1959. For the last 15 years, he has specialized in the banking sector, mainly in research on and application of computer system analysis. He is active as a visiting professor at the University of Economics in Budapest and has published several books and articles.

Dr. Kovacs was a charter member of the John von Neumann Computer Society, in which he has served in many capacities. At present, he is the president responsible for international relations.

His connections with **IFIP** go back many years. First, he belonged to the **IFIP** Administrative Data Processing Group (IAG), which has since been dissolved. Since the establishment of the Technical Committee on Information Systems (TC8), he has served as the Hungarian representative. He was chairman of the TC8 Conference on Governmental and Municipal Information Systems, which was held in Budapest in September 1987. Conference attendees expressed the desire to establish an **IFIP** Working Group on Information Systems in Public Administration and selected Dr. Kovacs to head this activity.

Dr. Kovács has served as Hungary's representative to the **IFIP** General Assembly (GA) since 1984. He was elected **IFIP** trustee by the GA in 1986, and then elected treasurer by the GA in 1987.

*MESSAGE SYSTS. continued from p. 1*

functional message system was developed. For the actual message transfer, this system was still based on the file transfer mechanism. Through several revisions, the functionality has been enhanced, and the current protocols (RFC-821 and RFC-822) have probably been implemented in more operating systems and on more hardware types than any other message-handling system.

### Incompatible Systems

In the wake of this development, many computer manufacturers implemented message systems within their operating systems. Realizing that the different systems are incompatible, and detecting the growing need for interconnecting the different electronic mail systems, IFIP's Technical Committee 6 (Data Communication) established WG6.5 in 1979. It is important to note that **IFIP** is not an organization that produces standards. In this case, WG6.5 was a forum for the open exchange of information between scientists working in the field, to develop conceptual models and architectures in anticipation of future standards work.

In 1979 and 1980, the North American subgroup of WG6.5, in which considerable expertise was concentrated, defined a model that was adopted by the International Telegraph and Telephone Consultative Committee (CCITT). This model is still guiding the structure of message-handling systems. The transfer of knowledge from the **IFIP** working group to CCITT was accomplished by many members of the **IFIP** working group becoming members of the CCITT group working on the message-handling recommendations. By the spring of 1984, the first set of 8 recommendations were completed and subsequently published by CCITT. They are known as "X.400".

### Collaboration on Standards

The most recent CCITT study period (1985 to 1988) was marked by the fact that the problem of message-handling systems was divided into several study points (questions), and collaboration with ISO, the International Standards Organization, was achieved. This collaboration resulted in both organizations publishing, in 1988, "aligned" texts as standards for message-handling systems (they differ only in editorial conventions and some minor aspects, reflecting the fact the CCITT produces "recommendations" for public service providers, and ISO produces "standards" for general applications).

While CCITT was completing its work on message-handling systems, WG6.5 worked out a scheme for a user-friendly naming convention and researched the foundations for an international directory system. The two documents resulting from this research have both been introduced to CCITT, which carried the work further. Recently, WG6.5 has finished the definition of a gateway between the RFC-822 and X.400 systems.

Currently, the WG is studying group communication, i.e., the organization of communications within groups, and has started research in multi-media, multi-mode (real-time and non-real-time) conference systems. In addition, an electronic conference has been set up to discuss the problems of interworking between the systems adhering to either the RFC-822 standard or the 1984 or 1988 set of X.400 recommendations. A further electronic conference was just started on the topic of MHS management, a topic that is growing vitally important now that X.400 MHS are beginning to be deployed. An additional electronic conference links the implementers of directory systems and provides a forum for the exchange of problems and their resolution.

The proceedings of the Conference will be published by Elsevier/North-Holland in April.

SECRETARIAT **FACSIMILE NUMBER**

The masthead on page 2 gives a change of facsimile telephone number for the **IFIP** Secretariat.

Please keep the Secretariat informed of changes of **your** address, telephone, and other numbers.

CORRECTION

On page 6 of the December 1988 ***IFIP** Newsletter,* the copyright for the paper *NODEN: An Engineering Approach to Hardware Verification* by Dr. Clive *Pygott* (GB) was incorrectly attributed to **IFIP.** The proper designation is: © Controller HMSO, London, 1988.

# THE IFIP LOGO: Its History and Proper Display

At a meeting of the **IFIP** Activity Development Board, instances of the **IFIP** logotype being printed incorrectly on announcements of **IFIP** events were displayed by Mr. George Glaser (USA), then chairman of the ADB and **IFIP** vice-president. This encouraged the ***IFIP*** *Newsletter* to investigate the origin of the "logo."

*Mr. Isaac Auerbach* (USA), founder and first president of **IFIP,** wrote us that *Mr. Evan* Herbert (USA) was its originator:

> During the first two World Computer Congresses (Paris in 1959 and Munich in 1962), Evan chaired the U.S. Public Relations Committee and organized many news conferences during and following the conference, to publicize the creation of **IFIP** and the importance of computers to society. He did an outstanding job. The logo came about as a result of our discussions about the need for a graphical symbol. It is a superb symbol that, I believe, should continue to be used, since it is a clear identification of **IFIP** and our global interest and activity.

*Mr. Herbert* wrote us the following brief history:

> It is a simple story of pragmatism. The power of the computer had been perceived across all international boundaries, and the United Nations Economic, Scientific and Cultural Organization (Unesco) was about to provide a common ground for an exchange of information and yearnings. The First International Conference on Information Processing (ICIP) was to be held in Paris in 1959. **IFIP** was given birth there.
>
> I was an editor of *Automatic Control* magazine in 1958 when Isaac *Auerbach* asked me to work on public information aspects of ICIP. Outside of a small part of the technical community, few people would appreciate the potential outreach of computers and information processing across many disciplines. More practically, few editors would think the conference agenda might touch their readership.
>
> I thought, "Maybe if we looked universally important, we would get good press coverage." I decided that an international conference needed posters and press release headers with an international-looking logo. But there wasn't much of a budget to get a professional designer.
>
> So I wandered up and down New York's Fifth Avenue, collecting travel posters, until one design struck my fancy. It had a doughnut-looking world that reminded me of a magnetic core.
>
> Strictly an amateur, I used photocopying and reverse prints to generate some stark representations of core arrays. I pasted one over the world on the poster and added printed material. When I took on similar tasks for the newly formed **IFIP,** I tried to use the symbol on everything in sight—letterheads, bookmarks, badges, etc.—hoping that it would become a recognizable symbol for universal use as **IFIP** grew.
>
> That's how it happened: high aspirations; low budget; scissors and paste.

Just as there are rules for the proper display of national flags, there is a rule for the proper display of the **IFIP** logo. The magnetic core symbol must slant from lower left to upper right, and the "globe" in the center must appear as if viewed from north of the equator. (There are no provisions for those who live in the Southern Hemisphere to print the globe as if viewed from below the equator.)

The logo is to appear on all **IFIP** literature (including posters, calls for papers, and conference announcements), as well as on similar literature for events **IFIP** co-sponsors. The **IFIP** Secretariat will gladly supply the logo in a variety of sizes.

Over the past decade, there has been thought about whether the magnetic core should be replaced with a more modern symbol of the computer and information processing. Some argue that the core labels **IFIP** as an organization out of touch with modern times. Others think that anachronistic symbols (e.g., the shaving pan that is used as the symbol of the barber shop in some European countries) should be retained and cherished because they represent charming ties with the past. In this era of unbelievably swift scientific evolution, it may be desirable to cling to a symbol of a technology that, although still in use a decade ago, is now virtually obsolete.

The ***IFIP*** *Newsletter* had considered holding a contest for the design of a new **IFIP** logo, with the grand prize to be a lifetime subscription to the *Newsletter.* On second thought, however, we decided that we liked the logo as it is (as long as it is printed right side up). ■

## IFIP CONFERENCE IN LATIN AMERICA

**I FIP** is always happy to organize conferences in developing countries and is especially pleased to have sponsored a very successful conference entitled CAD/CAM Technology Transfer to Latin America: Application of Computers to Engineering Design, Manufacturing and Management in Latin American Countries. This Conference, sponsored by IFIP's Technical Committee on Computer Applications in Technology (TC5), was held 22-26 August 1988 in Mexico City. Over 300 attended. They came from 8 Latin American countries, the U.S.A., and 9 European countries. The co-chairmen of the International Program Committee (IPC) were *Prof. Aristides Requicha (USA), Prof. Jose Encarnaçao (D),* and Mr. Gerardo *Lastra (MEX). Ing. Alberto* Garcia *(MEX)* was chairman of the Organizing Committee (OC).

The program consisted of 34 presentations, including 12 by invited speakers, as well as 3 panels. There were also 10 pre-conference tutorials, of 4 hours each, by specialists from around the world.

Organizing the Conference was not without its difficulties. Due to reductions in expenditures by the Mexican government, the OC received only 10% of the money it had requested and was forced to seek elsewhere. Funds for assistance to participants with no other means to attend were requested from the Organization of American States, the United Nations Industrial Development Organization, and local organizations—without success. However, the OC ultimately managed to provide some financial aid and hold a successful event.

During the Conference, Latin American delegates met to promote mutual cooperation on CAD/CAM activities, with the thought of forming a Latin American association for such activities. ■

# CODE OF ETHICS

The first phase of a project to investigate the desirability of creating a Code of Ethics was approved by the **IFIP** General Assembly (GA) in September. This activity was originally suggested by several Member societies in their annual reports to the GA. Mr. George Glaser *(USA),* then chairman of the Activity Development Board, requested *Prof. Hal Sackman (USA)* to formulate a project proposal. In June, *Prof. Sackman,* chairman of the Technical Committee on the Relationship between Computers and Society (TC9), presented the idea to the annual meeting of that TC. The response was enthusiastic. Eventually, the proposal was accepted by the GA.

*Prof. Sackman* pointed out that there is a massive and sophisticated social science literature that has evolved fairly recently on the social responsibilities of organizations, businesses, and professional groups. "**IFIP** would be seriously behind the times to ignore these developments as they pertain to international information science and technology."

### Questionnaire

The plan involves the administration of an "ethics survey" questionnaire, which was sent to approximately 100 **IFIP** professionals in December 1988. The questionnaire called for structured and open-ended responses. For the "structured" items, the respondents indicated the desirability of including each item in the Code (e.g., from "excellent" to "very poor"). These responses distinguished between the most desirable versus the least desirable items, and indicated the level of consensus among those surveyed for the composition of the Code. In addition, open-ended comments were solicited for items not included in the questionnaire, for different classifications of ethical groupings, and for highlighting the most urgent ethical challenges and problems faced by the international information processing community. Emphasis was placed on international concerns, as distinguished from national concerns, of information processing technology.

The results are expected to provide the basis for an initial draft Code. Four areas of ethics were considered:

- individual professional ethics
- multi-national organizational ethics
- international legal informatics ethics
- international public policy ethics

The GA approved the initial phase of the project and requested that a progress report be made to the next TA, in order to determine the future direction of the activity.

## DR. E.D. TAGG

It is with a feeling of personal loss that we record the death of Donovan Tagg, at the age of 74, on the eve of the 1988 TC3 European Conference on Computers in Education (ECCE '88). His name has been closely associated with the **IFIP** Technical Committee on Education (TC3) for twenty years. He was awarded the Silver Core in 1983 for his editorial services on TC3 publications, and this work continued right up to the summer of 1988 with his co-editorship of an anthology of 25 years of TC3 publications and of the proceedings of ECCE'88, the latter being dedicated to his memory. In addition to performing editorial tasks, he served as an active member of WG3.1 for twenty years and also joined WG3.2 in 1981.

His work for **IFIP** was preceded by a range of activities in the computer education field in Britain. He was the first Chairman of the British Computer Society's (BCS) Schools Committee in 1963.

His dedication to both the BCS and **IFIP** was accompanied at all times by a unique charm and deep concern for his fellows. Wise advice, encouragement and practical help were never lacking. We both have warm memories and deep gratitude to him for the contribution he made to many publications. It was wonderful to have a co-editor with such a fine eye to detail, who would spend so much time on the task, taking particular care to assist authors whose first language was not English.

*Bob Lewis* and Frank Lovis t*

* chairman of WG3.3 I· chairman of WG3.5

To **Organizers of IFIP** Conferences:
Please send several copies of your Calls for Papers to the **IFIP** Secretariat in order that the staff may be able to handle queries.

*PARALLEL PROCS. cont. from p.7*

to solve some problems in physics. Here are sections of that paper: *

> Lattice gauge theories provide high-energy physicists with a simulation tool enabling them to check the validity of their model for strong interactions among quarks. They also allow the construction and testing of other models, which may be of relevance in other fields (e.g., condensed matter, high-temperature superconductivity).
>
> Huge resources are invested in this field of research. It is believed that roughly 20% of the computer time allocated at the National Science Foundation supercomputer centers is spent on lattice gauge simulations. In addition, at least five groups worldwide have decided to design and build dedicated supercomputers to attack the problem. Performance of supercomputers is assessed, in part, by how well they do on lattice gauge simulation codes.
>
> Theoretical physicists have a great impact on the acceptance of large-scale computing. They are redefining the scale of computer usage. Thanks to them, it will soon be considered normal to use a thousand machine hours on a single project. The "kilo-hour" is fast becoming a standard unit in this field.

In addition to the papers delivered at the Conference, the proceedings contain summaries of the lively discussions that followed presentation of the papers.

Parallel processing is an active field. **IFIP's** Working Group on Concurrent Systems (WG10.3) held a Working Conference on Parallel Processing in April 1988. An article on page 10 of the September 1988 ***IFIP*** *Newsletter* reported on that Conference. There was much overlap in the topics covered by these two Conferences, although WG10.3 placed greater stress on parallel processing architectures.

* © IFIP

## ACAD. ANDREI ERSHOV

**IFIP** has been informed of the death of *Acad. Andrei* Ershov (SU) on 8 December 1988. An obituary will be printed here when more information is available.

# NEW IFIP PUBLICATIONS FROM NORTH-HOLLAND

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Proceedings of the IFIP TC2 WG2.6 Working Conference, Tokyo, Japan, April 1989

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1989 xiv + 546 pages
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The large amount and complex structure of visual information make visual database systems storage- and computation-intensive. However, recent advances in memory size and processing power make the practical application of visual databases a reality.

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**Invited Papers:**
Visual Structure and Databases *(A. Klinger, A. Pizano).*
Image-Processing Application Generation Environment: A Laboratory for Prototyping Visual Databases *(P. Stucki, U. Menzi).*
Model-Driven Image Analysis to Augment Databases (G. *Wiederhold, J. Brinkley, R. Samadani, C.R. Clauer).*
Visual Databases Need Data Models for Multimedia Data (W. *Klas, E.J. Neuhold, M. Schrefl).*

## Aspects of Computation on Asynchronous Parallel Processors

Proceedings of the IFIP WG2.5 Working Conference, Stanford, CA, USA, August 1988

*edited by* **M. Wright**

1989 xii + 272 pages
Price: US $84.25/Dfl. 160.00
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The field of parallel computing is still in a highly volatile state, and researchers display a wide range of opinion about fundamental questions such as models of parallelism, approaches for detecting and analyzing parallelism of algorithms, and tools that allow software developers and users to make effective use of diverse forms of complex hardware.

This volume collects the work of researchers specializing in different aspects of parallel computing, who met to discuss the framework and the mechanics of numerical computing. The far-reaching impact of high-performance asynchronous systems is reflected in the wide variety of topics.

Contents: Effective Scientific Applications. Languages and Programming Issues. Libraries, Environments and Tools. Language Design Issues. System Design Issues.

### Network Information Processing Systems

Proceedings of the IFIP TC6/TC8 Open Symposium, Sofia, Bulgaria, May 1988

*edited by* **K. Boyanov** *and* **R. Angelinov**

1989 xiv + 350 pages
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Proceedings of the IFIP WG 5.7 Working Conference, Galway, Ireland, August 1988

*edited by* **J. Browne**

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### Security and Protection in Information Systems

Proceedings of the Fourth IFIP TC11 International Conference, IFIP/Sec '86, Monte Carlo, Monaco, December 1986

*edited by* **A. Grissonnanche**

1989 xvi + 478 pages
Price: US $118.50/Dfl. 225.00
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### Systems Development for Human Progress

Proceedings of the IFIP WG8.2 Working Conference on Information Systems Development for Human Progress in Organizations, Atlanta, GA, USA, May 1987

*edited by* **H.K. Klein** *and* **K. Kumar**

1989 x + 306 pages
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### The Social Implications of Robotics and Advanced Industrial Automation

Proceedings of the IFIP TC9 International Working Conference, Tel-Aviv, Israel, December 1987

*edited by* **D. Millin** *and* **B.H. Raab**

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### Office Information Systems *The* Design Process

Proceedings of the IFIP WG8.4 Working Conference, Linz, Austria, August 1988

*edited by* **B. Pernici** *and* **A.A. Verrijn-Stuart**

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### Message Handling Systems and Distributed Applications

Proceedings of the IFIP TC6 WG6.5 Working Conference, Costa Mesa, CA, USA, October 1988

*edited by* **E. Stefferud, O.J. Jacobsen** *and* **P. Schicker**

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## *COMMUNICATION NETWORK MANAGEMENT*

IFIP's Working Group on Network Management for Communication Networks (WG6.6) met 24-26 October 1988 in Yorktown Heights, New York. WG6.6 is the newest of the WGs of TC6 (Data Communication). It was conceived at a TC6 workshop in July 1986. The first meeting took place in December 1986, with Ms. *Kimberly Kappel* (USA) and Ms. *Jil Westcott* (USA) serving as co-chairmen. The WG meets twice a year. A majority of its members are from the U.S.A. Seventeen members attended the October 1988 meeting.

Management of a data communication network involves collecting information on the status and history of the network, distributing these data, and using them to control the network. The goal is to improve throughput, availability, quality of transmission, and other measures of performance. There are not, as yet, any universal standards concerning what information is needed for network management. The aims of WG6.6 include identifying the information that is required, establishing formats for transmitting it, and using it to control networks. Some day this may lead to standards that will be promulgated and adopted by those concerned. At present, WG6.6 is focussing on two areas: user requirements (how to use the data about network operation that can be gathered by the networks) and modelling of the networks.

The 3-day meeting of WG6.6 consisted of members' presentations of current work and standards activity in network management. Small working groups were formed to discuss key areas of activity and to present conclusions to the membership at large.

### Symposium Planned

Plans for the *First International Symposium on Integrated Network Management,* which is being organized by WG6.6, were reviewed. It will take place 14-17 May in Boston.

A unique feature of the symposium is the joint involvement of representatives from the telecommunications industry, academia, the user community, and standardization bodies. Another novel feature is the inclusion of sessions dedicated to presentations by commercial "patrons." The patrons will be assigned half-hour periods during which they will present their network management philosophies and describe new networking products. By the end of 1988, twelve industry leaders had signed up as patrons.

Program chairmen are *Dr. Branislav Meandzija (USA)* and Ms. *Westcott. Dr. Paul Brusil (USA)* is general chairman. For further information, contact

Hershey Young
NIST, Building 225, Room B217
Gaithersburg, MD 20899, U.S.A.
tel. 1 (301) 975-5267

For information about industry patrons, please contact the chairman of the Industry Liaison Committee:

Ms. Kimberly Kappel
DCA 1000 Alderman Dr.
Alpharetta, GA 30201, U.S.A.
tel. 1 (404) 442-4726
e-mail: dnkwk%dcatla.uucp@gatech.edu ■

*MEMBER REPORTS cont. from p. 3*

Report. So many of these groups are engaged in matters of interest to NZCS members, but their work is effectively inaccessible until proceedings of working conferences are published."

The report of the Danish Federation for Information Processing (DANFIP), a federation of associations, addressed some of these matters: "Regular information exchange between officers of DANFIP member associations and our GA and TC representatives is most important. The biggest problem seems to be how to make **IFIP** visible among the local professional community, of which only a minor part may feel a need for international contacts through **IFIP.** Local events with active participation of prominent people from TCs and WGs appear to be useful—in particular, if they focus on emerging fields of common interest. As often emphasized, it all depends upon people, and even though the people in **IFIP** may have their own network, the Member societies have a great responsibility in appointing, monitoring and supporting competent representatives. Neglecting this responsibility may deprive their own members of stimulating opportunities to international contacts and may ultimately erode **IFIP.** DANFIP has encouraged TC representative to form 'backing-groups' with local professionals, and some have done so; they may be instrumental in identifying new candidates for WG membership." These thoughts are relevant to all Members. ■

## FUTURE IFIP MEETINGS

### GENERAL ASSEMBLY AND COUNCIL (and related meetings)

| | | | |
|---|---|---|---|
| GA | | 1-5 Sep 89 (Friday—Tuesday) | San Francisco |
| 1 Sep | a.m. | Executive Board, DCSC, Publications Committee | |
| | p.m. | Technical Assembly, Publications Committee | |
| 2 Sep | a.m. | Technical Assembly, Marketing Committee | |
| | p.m. | Activity Management Board | |
| 3-5 Sep | all day | GA | |
| Council | | early Mar 90 | Jerusalem |
| GA | | first week of Sep 90 | Buenos Aires |

### TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

| | | |
|---|---|---|
| TC2 | 2-10 Apr 90 | Sea of Galilee, Israel |
| WG2.1 | 21-26 Aug 89 | Palo Alto |
| | Jun 90 | Manchester, U.K. |
| WG2.2 | 2-10 Apr 90 | Sea of Galilee, Israel |
| WG2.3 | 19-25 Jun 89 | Poland |
| WG2.4 | Sep 89 | Poland |
| | May 90 | Canada |
| WG2.5 | next meeting | Beijing |
| WG2.7 | 6-10 Mar 89 | Edinburgh |
| | 21-25 Aug 89 | Napa Valley, CA, U.S.A. |
| | first quarter 90 | Brussels |
| WG2.8 | Jul 89 | Glasgow |
| TC3 | 25-27 Jun 89 | Reykjavik |
| WG3.4 | 30 Jul 89 | Helsinki |
| WG3.5 | 16-19 May 89 | Sofia |
| TC5 | meeting Originally scheduled for May 89 was held in Jan | |
| | 1 Oct 89 | Tokyo |
| WG5.10 | Jul 89 | Lowell, MA, U.S.A. |
| TC6 | 28-29 Apr 89 | Aachen, F.R.G. |
| | Sep 89 | U.S.A. |
| | May 90 | Budapest |
| | Sep 90 | Spain |
| TC7 | 3-7 Jul 89 | Leipzig, G.D.R. |
| TC8 | end of Aug 89 | San Francisco |
| TC9 | 15-16 Jul 89 | Hamburg |
| TC 11 | 21-25 Aug 89 | Vancouver |

* Some meetings are scheduled in conjunction with Working Conferences, for which the conference dates are listed.

Will TC and WG chairmen kindly keep the Secretariat advised of the dates and locations of their future administrative meetings and also send a copy of the minutes to the Secretariat.

# CHANGES IN IFIP

## NEW APPOINTMENTS

GA MEMBER

Representative for Sweden: Dr. Dipak Khakhar
IB-ADB, Univ. of Lund
Sölvegatan 14A
S-223 62 Lund, Sweden
tel. +46 (46) 108026
+46 (40) 460256 (residence)
email: Bitnet ADBDK @ SELDC52.UUCP
telex: 33533 LUNIVER S
(succeeding Mr. Knut Hernaes)

TC AND WG OFFICERS

TC7 Chairman: Prof. P. Thoft-Christensen
University of Aalborg
Inst. of Building Technology & Structural Eng.
Sohngaardsholmsvej 57
DK-9000 Aalborg, Denmark
tel. 45 (8) 14 23 33
fax:45 (8) 14 82 43
telex: 69523
(succeeding Prof. M. Lucertini)

WG2.5 Vice-Chairman: Dr. J.K. Reid
Building 8.9, Harwell Laboratory
Didcot
Oxford OX I I ORA, United Kingdom
tel. 44 (235) 24141, ext. 2320
telex: 83135
(succeeding Prof. J.R. Rice)

WG3.3 Chairman: Prof. R.E.J. Lewis
Dept. of Psychology
Univ. of Lancaster
Lancaster, LAI 4YF United Kingdom
tel. 44 (524) 65 201, ext. 9547
telex: 65111
fax: 44 (524) 63 806

WG8.1 Chairman: Prof. A. Olive
Facultad de Informatica
c/o Pau Gargallo 5
Apartat de Correus 30 014
E-08028 Barcelona, Spain
(succeeding Prof. A. Solvberg)

TC AND WG MEMBERS

TC6: Prof. Jorge Santos
Alsina 162, Piso 14, Dpto G
8000 Bahia Blanca, Argentina
tel. 54 (91) 30 992

TC10: Prof. Jorgen Staunstrup
Dept. of Computer Science
Bldg. 334, Technical Univ. of Denmark
DK-2800 Lyngby, Denmark

WG2.5: Prof. J.R. Rice (USA)
WG3.6:
Dr. T.A. Szabo (H) Mrs. G. Zentai (H)
WG5.4:
Mr. B. Runge (DK) Mr. I.C. Smith (GB)
Dr. J. Schlesinger (CH) Mr. R. Yunker (USA)
Prof. L. Sintoncn (CH) Dr. J. Zalewski (PL)
WG5.7:
Prof. M. Fuyuki (J) Dr. Ing. K. Mertins (D)
Dr. R.M. Kerr (AUS) Dr. H. Steinen (NL)
WG5.10:
Mr. G.S. Carson (USA) Mr. P. ten Hagen (NL)
WG8.2:
Prof. Dr. J. Gricar (YU)
Prof. D. Ngwenyama (USA)
Dr. R. Hellman (DK) Prof. Ph.S. Seligmann (NL)
Prof. Dr. M. Lynne (USA) Dr. P.D. Truex (USA)
Dr. M. Newman (GB) Dr. J. Venable (USA)
WG8.3:
Dr. D. Berkeley (GB) Dr. G. Widmeyer (USA)
Dr. P. Gelleri (H)
WG8.4:
Prof. D.W. Conrath (CDN) Dr. H. Ishii (J)
Prof. P. Constantopoulos (GR)
Prof. M. Leppanen (SF)
Prof. B. Croft (USA) Prof. V. Savolainen (SF)
Dr. L.H. Geesink (NL) Mr. G. Smit (NL)
Mr. H. Hammainen (SF) Prof. G. White (CDN)
Dr. M.E. Harper (CH) Mr. J. Yang (N)
WG9.3:
Mr. A. de Beer (F) Mr. **I.** Pietarienen (SF)
Mr. R. Jacobson (USA) Mr. J. Wajcman (GB)
Mr. A.L. Mol (NL)
**WG10.3:**
Dr. Gunnar Carlstedt (S)
Prof. M. Cosnard (F)
Dr. Kemal Ebcioglu (USA)
Mr. E. Dirkx (B) Dr. B. Samadi (USA)
Dr. R.D. Dowsing (GB) Dr. B.A. Sanders (CH) resigned
Prof. Lawson (S) Prof. Tiberghien (B)

## ADDRESS AND OTHER CHANGES

MEMBER AND AFFILIATED SOCIETIES

**Swedish International Federation for Information Processing (SIFIP)**
Box 399
S101 25 Stockholm, Sweden
tel. 46 (8) 24 85 55

**Swiss Federation of Informatics SVI/FSI**
**Prof. Dr.** K. Bauknecht
fax: 41 (1) 257 4004
telex: 817 251 unii ch
e-mail: K01091@CZHRZU I A (EARN)
bauknecht@ifi.unizh.ch (EAN)

Mrs. K. Havrilla
**Honorary Secretary, FIACC**
**c/o IMEKO**
P.O. Box 457
111371 Budapest, Hungary

GA, TC, AND WG MEMBERS AND OTHERS

Vice-President and GA **Representative of** Norway:
Prof. A. Rolstadås
telex: 4740096 UW ui
e-mail:
AROLST@MAX.ACS.WASHINGTON.EDU

GA **Representative of Zimbabwe:** Mr. G.R. Fairall
Computer Society of Zimbabwe
P.O. Box 8385
Causeway
Harare, Zimbabwe
tel. 263 (4) 796550
telex: 22488 DATCEN

TC2 **Secretary:** Dr. R. Zobel-Pocock
tel. 32 (2) 236 0324
telex: 21877 comeu b
fax: 32 (2) 235 0655

**WG2.2** Chairman: Prof. Dr. E.J. Neuhold
Inst. f. Int. Pub. & Inf. Gesell. f Mathem. & Datenverarb.
Dolivostr. 16
Postfach 10 43 26
D-6100 Darmstadt, F.R.G.
tel. 49 (6151) 875 802
telex: 6151713 gmdibs

TC5 Chairman: Mr. M. Tomljanovich
fax: Milan: 39 (2) 301 3288
Rome: 39 (6) 884 1336
telex: 351479 ITCMIL i
625189 ITCRM 1

**WG5.10 Chairman:** Prof. J.L. Encarnação
fax:49 (6151) 1000 99
tel. 49 (6151) 1000 29
telex: 4197367 agd d
e-mail: mcvax!unido!zgdvda!fgh
PSI%45615143161::FHG

# CALLS FOR PAPERS

TC11 6th International Conf. on **Information Security**
23-25 May 90, Helsinki
**papers due:** 31 Mar 89
contact: Congrex (Finland)
Linnankatu 3
SF-00160 Helsinki, Finland
tel. +358-0-175355, fax: +358-0-175172
telex: 123898 congx sf

TC9 4th World Conf. on Human Choice and Computers
9-12 Jul 90, Dublin
**abstracts due:** 30 Apr 89
**contact:** Secretary of HCC 4 Organising Comm.
2nd Floor, 5-7 Upper O'Connel St.
Dublin 1, Ireland

**IFIP** International Conf. on **Human Factors in Information Systems Analysis and Design (WHISAD 90)**
5-7 Jun 90, Schaerding, Austria
**papers due:** 31 May 89
contact: Prof. Dr. Roland Traunmüller
Institut fur Informatik
Johannes-Kepler University Linz
4040 Linz, Austria

WG I0.2 4th Intl. Workshop on **High-Level Synthesis**
15-18 Oct 89, Kennebunkport, Maine
**extended summary due: 16 Jun 89**
**contact:** HLSW-request@cs.wisc.cdu

WG2.2 and 2.3 Conf. on Programming **Concepts and Methods**
2-5 Apr 90, Sea of Gallilee, Israel
**papers due: 10** Sep 89
**contact:** Prof. Dr. Manfred Broy
Fakultät fur Mathematik and Informatik
Universität Passau, Postfach 2540
D-8390 Passau, West Germany ■

IFIP
PUBLICATIONS AVAILABLE

New **IFIP** workers should be aware of the availability of the following **IFIP** publications from the **IFIP** Secretariat:

Information Bulletin
Statutes and Bylaws
Standing Orders
*What* ***Is IFIP?***
6-Year Plan (list of planned **IFIP** events)

**TC8 Member:**
Dr. R. Welke has moved to the U.S.A.

**TC11 Chairman:** Dr. W.J. Caelli
preferred numbers and address:
tel. 61 (7) 223 2752 (off.)
telex: AA 44699
fax: 61 (7) 229 1510
e-mail: W.Caelli@qut.oz.au
Director F.A.C.S.
Inf. Sec. Research Centre
Queensland Univ. of Technology
GPO Box 2434
Brisbane, Qld 4001, Australia

**Congress '92 Chairperson:** Mrs. R. Alonso
tel. 34 ( 1 ) 230 3350
fax: 34 (I) 230 8438 or 228 6122

**IMIA President: Prof.** S. Kaihara
telex: 2723 669 todaim J

## CORRECTIONS

to December 1988 ***IFIP*** *Newsletter:*

to membership of Activity Management Board, please add the Executive Board, ex officio

in the membership list of WG3.6, change Mr. D. Gordon to Mr. G. Davies (GB) ■

## CALENDAR OF EVENTS

(continued from page 16)

| Event | Date | Location | Organized by |
|---|---|---|---|
| Purdue Intl. Workshop on *Industrial Computer Systems* | 30 Oct-2 Nov 89 | West Lafayette, Indiana | Purdue TC5 WG5.4 |
| *Pacific Computer/Communication Symposium* | Oct 89 | Australia | TC6 PCCS |
| Work. Conf. on *Modeling and Simulation for Optimization of Manufacturing Systems Design and Application* | 8-10 Nov 89 | Tempe, Arizona | TC5 WG5.3 |
| Workshop on *Safety of Computer Control Systems—SAFECOMP '89* | 15-17 Nov 89 | Vienna | I**FAC IFIP** |
| Intl. Symp. on *Skill-Based Automated Manufacturing* | 15-17 Nov 89 | Vienna | I**FAC IFIP** IMACS |
| Work. Conf. on *Robotics for Assembly* | Dec 89 | Tel Aviv | TC5 WG5.3 Israel CAD/CAM & ME socs. |
| Workshop on *The Role of GaAs in VLSI* | 89 | Princeton | TCI0 WG10.5 |
| Workshop on *Structural Synthesis* | 89 | ?? | TCI0 WG10.2 WG10.5 |
| Fourth Workshop on *High-Speed LAN* | Feb 90 | Aachen, F.R.G. | TC6 WG6.4 |
| Seventeenth Workshop on *Reliable Computing and Fault Tolerance* | Feb 90 | ?? | TCIO WG10.4 |
| Intl. Conf. on *Modelling the Innovation: Commo., Automation and Info. Systs.* | 21-23 Mar 90 | Rome | **IFIP** AEI IEEE IFAC |
| *INDC '90* | Mar 90 | Oslo | TC6 SDF SSE DANFIP/DND |
| *Knowledge-Based System Design Tools* | Mar 90 | Amsterdam | TC10 WG10.2 |
| Work. Conf. on *Programming Concepts and Methodology* | 2-5 Apr 90 | Sea of Gallilee, Israel | TC2 WG2.2&2.3 |
| Purdue Intl. Workshop on *Industrial Computer Systems* | 23-26 Apr 90 | West Lafayette, Indiana | Purdue TC5 WG5.4 |
| Work. Conf. on *Occam and Transputers* | Apr 90 | U.S.A. | TC10 WG10.3 |
| *COMNET '90: Forward into the 2nd Quarter-Century in Networking* | 8-10 May 90 | Budapest | TC6 J. v.N. Soc. |
| Sixth Intl. Conf. on *Information Security—IFIPSEC '90* | 23-25 May 90 | Helsinki | TC11 |
| Work. Conf. on *Human Factors in Info. Systs. Anal. and Design—WHISAD '90* | 5-7 **Jun** 90 | Schaerding, Austria | TC8 WG8.1 |
| Work. Conf. on *Environments for Supporting Decision Processes* | Jun 90 | Budapest | TC8 WG8.3 |
| Work. Conf. on *Social Communication and Information Systems* | Jun 90 | Finland | TC8 |
| Eighteenth Workshop on *Reliable Computing and Fault Tolerance* | Jun 90 | Newcastle | TC10/WG10.4 |
| Tenth Work. Conf. on *Protocol Specification. Testing and Verification* | Jun 90 | Ottawa | TC6/WG6.1 |
| Fourth World Conf. on *Human Choice and Computers* | 9-12 Jul 90 | Dublin | TC9 |
| Fifth World Conf. on *Computers and Education—WCCE 90* | Jul 90 | Sydney, Australia | TC3 |
| Fourth Intl. Conf. on *Advances in Production Management Systems—A PMS'90* | 20-22 Aug 90 | Helsinki | TC5/WG5.7 |
| Symp. on *International Computer Message Systems* | Aug 90 | Venice | TC6/WG6.5 |
| Conf. *IBERICOM-90* | Sep 90 | Spain | **TC6/FESI** |
| Intl. Conf. on *Harmonization of Technology with Society: "Toward the Advanced Information Society"* | I Oct 90 | Tokyo | **IFIP/IPSJ/IPSC** IEEE/AC |
| Intl. Workshop on *Industrial Computer Systems* | 8-11 Oct 90 | W. Lafayette, Indiana | Purdue/TC5/WG5.4 |
| Work. Conf. on *Formal Product Information* | Oct 90 | Amsterdam | TC5/WG5.2 |
| Work. Conf. on *Design Methodology in Manufac. Systems and the Human Role* | 90 ? | C.S.S.R. | TC5/WG5.3 |
| Work. Conf. on *Women, Work and Computerization* | 90 | Scandinavia | TC9/WG9.I • |
| Workshop on *CAD/CAM Interfaces in Mechanical Engineering* | 90 | Darmstadt | TC5 WG5.2 |
| Intl. Workshop on *Industrial Computer Systems* | 15-18 Apr 91 | W. Lafayette, Indiana | Purdue/TC5/WG5.4 |
| Tenth Intl. Symp. on *Computer Hardware Description Languages and Their Applications—CHDL 91* | Apr 91 | Europe | TC 10/WG 10.2. |
| Work. Conf. on *Collaborative Work. Social Communication and Information Systems Theories, Methods, Tools and Impacts* | Jun 91 | Finland | TC8/FIPA |
| Work. Conf. on *Impacts of Informatics on the Organization of Education* | Jul/Aug 91 | Santa Barbara | WG3.1 |
| Work. Conf. *VLSI 91* | Aug 91 | Edinburgh | TC10/WG10.5 |
| Intl. Workshop on *Industrial Computer Systems* | Oct 91 ? | W. Lafayette, Indiana | Purdue/TC5/WG5.4 |
| Intl. Conf. on *Computing in the 21st Century* | 91 | London | I**EEE/IFIP** |
| Fourth Intl. Conf. *CAPE 91—Computer Applications in Production and Engineering* | 91 | Bordeaux | TC5 et al. |
| Intl. Workshop on *Industrial Computer Systems* | 6-9 Apr 92 | W. Lafayette, Indiana | Purdue/TC5/WG5.4 |
| **IFIP Congress '92-12th World Computer Congress** | **31 Aug-4 Sep 92** | **Madrid** | **IFIP** |
| Eighth Conf. on *Software for Discrete Manufacturing—PROLAMAT 92* | 92 | Japan | TC5/WG5.3/IFAC |
| Work. Conf. *VLSI 93* | **Aug 93** | Grenoble | TC10/WG 10.5 |

Please see page 13 for schedule of **IFIP** administrative meetings.

The **IFIP** Secretariat can **furnish** details of most of the events listed.

## CALENDAR OF EVENTS

| Event | Date | Location | Organized by |
|---|---|---|---|
| Third Workshop on *High-Speed LAN* | Mar 89 | Liege, Belgium | TC6 WG6.4 |
| Work. Conf. on *Visual Database Systems* | 3-7 Apr 89 | Tokyo | TC2 WG2.6 |
| Purdue Intl. Workshop on *Industrial Computer Systems* | 17-20 Apr 89 | West Lafayette, Indiana | Purdue TC5 WG5.4 |
| Work. Conf. on *Implementation and Evaluation of Decentralized Systems* | 24-28 Apr 89 | Lyon, France | TC10 WG10.3 |
| *ISDN in Europe—ISDN '89* | 25-27 Apr 89 | The Hague | TC6 **IFIP** ICCC |
| Workshop on *Protocols for High-Speed Networks* | 9-11 May 89 | Ruschlikon, Switzerland | TC6 WG6.1 |
| Work. Conf. on *Design, Implementation and Opn. of Databases for Production Mgt.* | 10-12 May 89 | Barcelona | TC5 WG5.7 |
| Intl. Symp. on *Integrated Network Management* | 14-17 May 89 | Boston | TC6 WG6.6 |
| Workshop on *What Should be Done with a Single Computer in a School?* | 16-19 May 89 | Sofia | TC3 WG3.5 |
| Sixteenth Workshop on *Real-Time Programming* | 16-19 May 89 | Berlin, G.D.R. | IFAC **IFIP** |
| Third Intl. Conf. on *Children in the Information Age* | 20-23 May 89 | Sofia | Bulg. Min. of Culture **IFIP** Unesco IIASA |
| Workshop on *Advances in Geometric Modelling* | May 89 | Berlin, F.R.G. | TC5 WG5.2 |
| Tenth *Tunisian-French Computer Science Seminar* | May 89 | Tunis | TC2 ENSI |
| Intl. Symp. on *Urban Data Management* | May 89 | Lisbon | TC8 UDMS |
| Work. Conf. on *The Information Systems Research Arena in the Nineties* | 2-4 Jun 89 | Ithaca, New York | TC8 WG8.2 |
| Work. Conf. on *CAD Systems Using A.I. Techniques* | 6-7 Jun 89 | Tokyo | TC10 WG10.2 |
| Third Workshop on *Wafer Scale Integration* | 6-8 Jun 89 | Como, Italy | WG10.5 |
| Ninth Work. Conf. on *Protocol Specification, Testing and Verification* | 6-9 Jun 89 | Twente, The Netherlands | TC6 WG6.1 |
| Work. Conf. on *Educational Software at Secondary Level to be Used in and out of School* | 18-22 Jun 89 | Reykjavik | TC3/WG3.1 |
| Ninth Intl. Symp. on *Computer Hardware Description Languages and Their Applications—CHDL '89* | 19-21 Jun 89 | Washington | TC10/WG10.2 |
| Work. Conf. on *Computer Integrated Quality Systems in CIM Systems* | 20-23 Jun 89 | Beograd, Yugoslavia | TC5 WG5.3 |
| Fifth Symp. on *Control of Distributed Parameter Systems* | 26-29 Jun 89 | Perpignan, France | IFAC **IFIP** IMACS INRIA |
| Sixth Symp. on *Dynamic Modelling and Control of National Economies* | 27-29 Jun 89 | Edinburgh | IFAC **IFIP** IFORS SEDC |
| Sixteenth Workshop on *Reliable Computing and Fault Tolerance* | Jun 89 | Urbana | TC10 WG10.4 |
| Fourteenth Conf. on *System Modelling and Optimization* | 3-7 Jul 89 | Leipzig, G.D.R. | TC7 IFAC IFAC IFORS |
| Intl. Symp. on *Information Technology Standardization* | 4-7 Jul 89 | Braunschweig, F.R.G. | **IFIP** GI |
| Work. Conf. on *Information System, Work and Organizational Design* | 10-13 Jul 89 | Berlin, G.D.R. | TC9 WG9.1 |
| Work. Conf. on *Opportunities and Risks of A.I. Systems—ORAIS'89* | 17-20 Jul 89 | Hamburg | TC9 GIS |
| Work. Conf. on *Workstations for Experiments* | 27-29 Jul 89 | Lowell, Massachusetts | WG5.10 U. of Lowell |
| Work. Conf. on *Methodologies of Training Data Processing Professionals and Advanced End Users* | 31 Jul-4 Aug 89 | Helsinki | TC3 WG3.4 |
| Fifth Intl. Work. Conf. on *Stochastic Programming* | 13-18 Aug 89 | Ann Arbor, Michigan | TC7 WG7.1 |
| *VLSI '89* | 16-18 Aug 89 | Munich | TC10 WG10.5 |
| *Third Pan Pacific Computer Conference—PPCC'89* | 16-19 Aug 89 | Beijing | CCF **IFIP** NSF CIE-CEAS |
| *IJCAII '89* | 20-26 Aug 89 | Detroit | IJCAII |
| Work. Conf. on *Engineering for Human-Computer Interaction* | 21-25 Aug 89 | Napa Valley, California | TC2 WG2.7 |
| *VLDB '89* | 22-25 Aug 89 | Amsterdam | VLDB |
| *Dependable Computer Systems for Critical Applications* | 23-25 Aug 89 | Santa Barbara, California | TC10 WG10.4 |
| **IFIP** Congress '89-11th World Computer Congress | 28 Aug-1 Sep 89 | San Francisco | **IFIP AFIPS** |
| Work. Conf. on *Concepts and Characteristics of Fifth Generation Computers* | Aug 89 | | TC10 WG10.1 |
| Fifteenth Symp. on *Microprocessing and Microprogramming—EUROMICRO '89* | 4-8 Sep 89 | Cologne | EUROMICRO |
| Fourth Intl. Conf. on *Man-Machine Systems (MMS'89) Analysis, Design and Eval.* | 12-14 Sep 89 | Xian | IFAC **IFIP** IEA IFORS |
| *Decisional Structures in Automated Manufacturing* | 18-21 Sep 89 | Genoa | IFAC **IFIP** CIRP IFORS |
| Symp. on *Control, Computers and Communication in Transportation* | 19-21 Sep 89 | Paris | IFAC **IFIP** AFCET |
| Sixth Symp. on *Information Control Problems in Manufacting Technology* | 29 Sep-1 Oct 89 | Madrid | IFAC **IFIP** IFORS IMACS |
| Work. Conf. on *Human Factors in CAD* | Sep 89 | Laxenburg, Austria | TC5 WG5.2 |
| Conf. on *Computer Arithmetic—Arith 9* | Sep 89 | Santa Monica | TC2 WG2.5 IEEE |
| Third Intl. Conf. on *Comp. Applications in Production and Engineering—CAPE'89* | 2-5 Oct 89 | Tokyo | TC5 IPSJ JSPE IFAC |
| Fourth Intl. Workshop on *High-Level Synthesis* | 15-18 Oct 89 | Kennebunkport, Maine | ACM/SIGDA & IEEE/DATC&CAN DE WG10.2 |
| *MEDINFO '89* | 16-20 Oct 89 | Beijing | IMIA CMIA |
| Work. Conf. on *An In-Depth Analysis of Information System Concepts* | 18-20 Oct 89 | Namur, Belgium | TC8 WG8.1 FRISCO |
| *Real-Time Programming* | 20-22 Oct 89 | Berlin, G.D.R. | IFAC **IFIP** |

(continued on page 15)

| | | | |
|---|---|---|---|
| **IFIP** Congress '89-11th World Computer Congress | 28 Aug-1 Sep 89 | San Francisco | **IFIP** |
| **IFIP** Congress '92-12th World Computer Congress | 31 Aug-4 Sep 92 | Madrid | **IFIP** |

Please see page 13 for schedule of **IFIP** administrative meetings.

The **IFIP** Secretariat can furnish details of most of the events listed.