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International Federation for Information Processing

Editor:
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PROGRAMMING SEMINARS FOR DEVELOPING NATIONS

Major TC2 Initiative Planned

*by Dr. Roger deBry (USA) **

IFIP's Technical Committee on Programming (TC2) has undertaken a significant new experiment, which will bring a series of state-of-the-art seminars on programming topics to developing regions of the world. In 1986, IFIP's Activity Development Board made an appeal to the TCs to come up with ideas to support the development of informatics in these regions. Prof. *Erich Neuhold* (D), chairman of the Working Group on Formal Description of Programming Concepts (WG2.2), and Prof. Robert *Meersman (NL),* chairman of WG2.6 on Database, responded to this appeal with proposals for a series of seminars to be held in Latin America and in Asia on subjects from their WGs.

These seminars will be significantly different from typical IFIP conferences, symposia, and other technical meetings, which are devoted to advancing their fields. These TC2 state-of-the-art seminars are dedicated to bringing current information about developing fields to developing countries. It is anticipated that the two seminars will be repeated in other developing countries in the near future. A further benefit of the seminars will be derived from their lecture notes, which will be published in the form of state-of-the-art reports. It is anticipated that these will be extensively used throughout the world.

* ***IFIP*** *Newsletter* correspondent for TC2

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Details Announced

Many details about IFIP Congress '89, IFIP's premier event, have been announced recently by the Program and Organizing Committees. Congress '89, the 11th World Computer Congress, will take place 28 August-1 September 1989 in San Francisco. (An article in the December 1987 ***IFIP*** *Newsletter,* on page 5, presented preliminary information.)

The list of invited speakers is now complete. It comprises "superstars" from the world of information processing, including a Nobel laureate. There are 37 invited speakers from 13 countries, with the largest number coming from the U.S.A., Federal Republic of Germany, France, and Switzerland. "Respondents" have been invited to present different viewpoints following each talk.

These experts, too, will lend excitement to the Congress. The invited speakers, the titles of their talks, and the respondents are listed here:

Fundamental Tools

J.W. de Bakker (NL): Designing Concurrency Semantics / V.E. Kotov (SU)
G. Jager (CH): Proofs as Advanced and Powerful Tools / M.E. Stickel (USA)
L. Lovàsz (H): Designing Faster Algorithms for Hard Problems / R.M. Karp (USA)
S. Micali (I): Power of Randomization
J.H. Reif (USA): From Computer Models to Computer Designs / W.J. Paul (D)
M.O. Rabin (IL): Randomization in Distributed and Parallel Computing

Languages and Operating Systems

K. Ueda (J): Parallelism in Logic Programming / M. Dincbas (D)
G. Berry (F): Real-Time Programming: Special Purpose or General Purpose Languages / J. Storbank Pedersen (DK)
D. Maier (USA): Object-Oriented Databases / L. Rowe (USA)

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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.*

THE COMPUTER SOCIETY OF INDIA

*by Maj. Gen. A. Balasubrahmanian **

The Computer Society of India formally came into being on 6 March 1965, upon the renaming of the All-India Computer User's Group, which had been constituted in June 1964 by sixteen pioneers in the field of computers in India. *Prof. R. Narasimhan* and Maj. Gen. (then Major) *A. Balasubrahmanian* were elected Founder President and Secretary, respectively. Since then, the Society has grown to the current membership of over 10,000 individuals and 800 institutions.

The Society conducts its operations through various geographical (4 Regions) and technical (8 Divisions) groups. The Divisions are: Hardware, Software, Scientific Applications, Business Applications, Data Communications, Education, Data Security, and Microcomputers. The CSI's principal activity centres are the 35 Chapters, located in townships all over the country. There are also 13 branches for Student Members.

Activities

One of the main activities of CSI is the Annual Convention. Twenty-three Conventions have been held in 10 cities, since 1965. The numbers of participants reach well over 2000. Apart from technical sessions, tutorials and panels, another principal feature has been the Exhibition. The latest Exhibition, during CSI88, had over 100 exhibitors from the country participating. The CSI has endeavoured to bring into focus problems of national purport through adoption of appropriate themes for the Conventions. The logo for CSI88, reproduced below, attempts to depict the Tower of Babel within the Indian subcontinent: 16 major regional languages, 10 different scripts, 67 educational languages, and several hundreds of mother-tongues, through which all information flows.

The *CSI Communications* is the monthly medium of communication between CSI and its members. *Computer Science and Informatics Journal* is a half-yearly publication which contains reviewed articles of theoretical interest, case studies of successful applications of national relevance, and reviews of books and journals.

CSI started conducting the National Standard Test for Programming Competence in 1975. A Directorate of Education was set up in 1985, and a number of modules, such as Systems Analysis and Design, Data Communication, OS, and DBMS, are being brought under the National Standard Test scheme, which aims at ensuring a minimum level of professional competence, especially amongst those without university backgrounds.

Student activities have been encouraged through the student branches as well as Student Paper Contests at the Annual Conventions. National Student Conventions have been annual events since 1985.

Through the initiatives of *Prof. Narasimhan,* the CSI has been in close liaison with IFIP, from its inception in 1965, when observers from India attended the IFIP Council meeting. Since 1974, when CSI became a member of **IFIP,** CSI has organised many **IFIP** sponsored events and was host for the 1978 **IFIP** Council meeting in Bombay.

CSI and Government Policies

The CSI has always provided an open forum for frank exchange of opinions amongst the members and also between members and the policy makers in Government. CSI has met with Committees of the Government of India, and committees of CSI have also met with Government Departments on major policy matters. CSI is also closely associated with the Bureau of Indian Standards.

CSI has taken on projects beyond the normally understood roles of professional bodies. The project relating to Computers for the Blind, led by *Prof. P.V.S. Rao* (CSI President 1980-82), could be the forerunner of many more challenges that a socially-conscious professional group such as CSI would be involved in.

CSI President *Mr. Hemant Sonawala* and the CSI fraternity heartily welcome IFIP President *Mr. Ashley Goldsworthy (AUS)* and the General Assembly to India!

* representative of India to the GA and **IFIP** trustee

PARTIAL EVALUATION AND MIXED COMPUTATION

TC2 Workshop Held in Denmark

A Workshop on Partial Evaluation and Mixed Computation was held 18-24 October 1987 in Gammel Avernaes, Denmark by IFIP's Technical Committee on Programming (TC2). Sixty-eight participants from 14 countries attended, including seven from the Soviet Union. This is believed to be the first international gathering of specialists in the field.

The significance of this relatively new area of study was outlined by *Prof. Dr. Neil* **Jones** *(DK)* in the Scientific Foreword to the proceedings, which will be published by Elsevier/North-Holland shortly. Part of the Foreword is quoted here: *

> The idea expressed by the terms partial evaluation, mixed computation or program specialization (PE for short) appears to be one whose time has come. After pioneering work by McCarthy, Lombardi, Futamura and others, and important early work in the U.S.S.R., Sweden and the U.S.A., the full potential and importance of PE is beginning to be realized, and in recent years much PE-related activity is seen in many places in the world, Fundamental concepts and techniques are now beginning to be understood and realized independently in different places—a sure sign that a significant body of ideas is emerging.
>
> In the large, the goal of PE is to construct, when given a program and some form of restriction on its usage (e.g., knowledge of some but not all of its input parameter values), a more efficient new or "residual" program that is equivalent to the original program when used according to the restriction. Compiling and compiler generation are but two of its many applications. PE is, thus, a form of program transformation, but with a greater emphasis on purely automatic methods than traditional program transformation.
>
> It is still a very young field of endeavour, though, with as yet unstablized terminology, techniques, algorithms and even basic assumptions.

Prof. Dines Bjørner (DK), who was International Program Committee (IPC) chairman of IFIP Congress '86, served as chairman of both IPC and Organizing Committee of this TC2 Workshop, as well as editor of the proceedings, along with Prof. *Andrei Ershov* (SU) and Prof. Jones.

Prof. Ershov, who wrote seminal papers in this field, delivered the opening keynote speech, in which he described the evolution of PE, from his perspective. In the address, he described how certain insights came on a single day: *

The Excitement of Discovery

> The most exciting feeling was a clear vision that mixed computation explains and integrates everything: code generation, compilation and compiler construction, a variety of compilation schemes, many ad hoc optimizations (constant propagation, procedure integration, loop unrolling, dead code elimination, and loop unloading), not to speak of casing, compile time facilities, etc. Outside of the field of compilation, mixed computation embraces all issues of program specialization and adaptation, deriving ad hoc algorithms from universal ones, simplifying modular systems, and fighting overhead and redundancy wherever they appear.
>
> I wish that everybody in the audience could experience, if only once in a lifetime, such an overwhelming feeling, when one day of thinking provides you with a work plan for many years.

Prof. Ershov concluded with a common "complaint" of those who do basic work:

> I was happy to realize that my work was useful, intensively referred and cited. But very recently I found several publications in which the concept was taken for granted without any references to sources. We are only human, and, having painfully overcome my own ignorance, I jealously felt myself obsolete and dead, my ashes gradually dissolving in the quiet waters of the Ganges. But, a few minutes later, a saving thought came to my mind: that there is no higher award for a scientist than to have his notion became an anonymous, general commodity. I cannot inhibit this thought and only insist that it should be shared by all the pioneers and prophets of partial evaluation and mixed computation.

Prof. Ershov noted, "...the scientific activity in PE and MC gained momentum necessary for further steady development...in the near future we might witness some continuation of **IFIP** activity in the field." *Prof. Bjørner* informed the ***IFIP*** *Newsletter,* "Overlapping groups of participants are now actively engaged in preparations for (1) a follow-on Symposium on Partial Evaluation and Mixed Computation and (2) a European Common Market ESPRIT II Basic Research Action Project (`Semantique')." ■

* IFIP

PROGRAMMING SEMINARS

continued from page 1

Each seminar will consist of a set of lectures by experts in their fields, along with class exercises and time for the participants to interact with the lecturers.

Funding for these seminars will come largely from royalties on the publication of the state-of-the-art reports. The host countries will be responsible for covering the local costs, such as accommodations for the lecturers, classroom facilities, and local advertising and promotion. The United Nations Economic, Scientific and Cultural Organization (Unesco) has also allocated some funds for the seminars.

Formal Descriptions

Dr. Neuhold is the TC2 organizer for the seminar on Formal Descriptions of Programming Concepts. This seminar will be held in April 1989 near Iguazu Falls, located on the border between Argentina and Brazil, and very close to Paraguay. Iguazu Falls will soon be the headquarters of a joint program for research and advanced studies on informatics, between Brazil and Argentina.

The program will consist of 8 days of lectures, with 6 hours of lecture each day. Topics to be discussed include

- Denotational Semantics
- Algebraic Specifications
- Operational Semantics
- Functional Programming
- Parallelism
- Proof Systems
- Applications

Seminar on Databases

Prof. Meersman is the TC2 organizer of the seminar on Databases. It will be held in Bombay. The tentative dates are December 5-17 this year. The local organizer is *Dr. K.* Nori. Topics to be covered in this seminar include

- Object Oriented Databases
- Logic and Databases
- Database Security
- Conceptual Modeling
- Distributed Databases
- Relational Databases and SQL
- Entity-Relationship Theory
- Database System Implementation ■

WORLD CONFERENCE ON COMPUTERS IN EDUCATION

Major IFIP Event Planned for Australia

Australia will be host to the Fifth World Conference on Computers in Education (WCCE) in July 1990 in Sydney. Held every five years, the WCCE is a major IFIP event. The other WCCEs have been held in The Netherlands (1970), France (1975), Switzerland (1981), and U.S.A. (1985). The WCCE/90 will be organized by IFIP's Technical Committee on Education (TC3).

Announcing the venue for the Conference, International Program Committee chairman Ms. *Sandra Wills (AUS)* said

> World Conferences on Computers in Education address all aspects of computer education, ranging from primary grade to university level and including industrial and community education. They cover both learning ABOUT computers and learning WITH computers. They sponsor debate on social and ethical issues arising from technological change in education. They provide an opportunity for cross-fertilisation of ideas and experiences between the diverse sectors of this developing field and between countries of the world.

Large Attendance Anticipated

> We expect over 600 delegates from overseas. Based on attendance figures of previous Conferences, WCCE/90 should see at least 1000 delegates meeting at the stunning Darling Harbour convention complex. The centre is situated right on Sydney Harbour, one of the world's most magnificent panoramas.
>
> This is the first time a major world computer education conference has been held in the southern hemisphere. One reason for the decision to hold WCCE/90 here is that Australia is in a key position to co-operate with developing nations. It provides an opportunity to bring to the people of this region the cream of educational research and development from overseas. At the same time, it enables the rest of the world to view at first hand the strategies employed to tackle the problems of computer education faced by countries over here.

Negotiations are under way with the United Nations Economic, Scientific and Cultural Organization (Unesco) to help insure that the Conference meets the needs of the developing nations of the region. To further Asian-Pacific co-operation, there will be a pre-conference workshop in New Zealand and a post-conference event in Japan.

Australian Hospitality

Mr. *John Hughes,* Dean of Computing Science at the University of Technology, Sydney, has recently been appointed chairman of the WCCE/90 Organizing Committee. He stresses that the Conference aims to achieve the widest possible participation plus maximum value for money:

> We have plans underway for two innovative schemes which will be of interest to delegates, particularly to teachers on tight budgets— "Australian Home Hospitality" and "Australian School Visits." The former will provide overseas teachers with free accommodation in Australian homes. Both host and guest gain companionship at the Conference and an opportunity to compare different education systems. The Australian School Visits Scheme will enable overseas teachers to visit Australian schools and colleges near Sydney or even farther afield in another state of Australia, if they wish to explore our country before or after the Conference. In Australia the main school holidays are in our summer—January rather than July. Schools, therefore, will be open during the Conference.
>
> These two schemes, combined with the pre-conference and post-conference offerings, add up to the educational opportunity of a lifetime: a major conference plus workshops plus a study tour in countries you've always dreamed of visiting.

For further information contact:

WCCE/90
Australian Computer Society
PO Box 319
Darlinghurst
NSW 2010, Australia
tel. (+612) 211-5855
fax. (+612) 281-1208

■

TC3 ANTHOLOGY PUBLISHED

*by Prof. Robert Lewis (GB) **

IFIP's Technical Committee on Education (TC3) announces the publication of *Information and Education,* an anthology of papers selected from TC3 publications since the establishment of TC3 in 1963. The book, edited by *Dr. E. Donovan Tagg (GB)* and me, was published by Elsevier in July, at the time of the twenty-fifth anniversary celebration of TC3 in Lausanne. It is about 750 pages long and contains approximately 100 papers and extracts from reports. The majority are drawn from the proceedings of World and Regional Conferences and Working Conferences.

The anthology is made up of 10 sections, the first being an outline history of TC3. Then follow sections on nine themes that span the main concerns of TC3:

- The Impact on Society
- Developing Countries
- Information Technology Literacy
- Computers in Support of Learning
- The Impact of Computers on the Curriculum
- The Role of Programming
- Teacher Education
- The Provision of Hardware Resources
- Computer Science Curriculum

Each section contains papers selected to illustrate the changing perspective of contributors over the period since the first World Conference on Computers in Education in 1970. There are large (full papers) and small (panel contributions) papers from 150 authors, and all TC3 publications are represented.

The anthology contains a foreword by the president of IFIP and a preface from the chairman of TC3. The history of TC3 has been prepared from contributions of past chairmen. ■

* editor of many **IFIP** proceedings, and recipient of the **IFIP** Silver Core award

NATIONAL ABBREVIATIONS USED IN NEWSLETTER

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

Who's Who in **IFIP: MR. JAMES FINCH**

IFIP trustee *Mr.* James *Finch* is a computer systems consultant specializing in data processing security. He currently is Managing Director of Cerebrus Computer Security, which provides computer security consulting services in North America and overseas.

Mr. *Finch* was born in Toronto, graduated from the University of Toronto in 1955, and began his professional career working for large corporations. In 1967 he left industrial employment to found a computer services organization. In 1974 he became deeply involved in the study of computer fraud and abuse and has specialized in consulting in this area ever since. In addition to computer security, he consults for industry and government on policy development and strategic planning, mostly related to Management Information Systems.

He is a member of a number of professional societies, including the Canadian Information Processing Society (CIPS). He has served CIPS as president and in many other capacities. In particular, he organized the CIPS National Seminar on EDP Security and Audit for 1978-79, and in 1980 he was the founding chairman of the CIPS Toronto Special Interest Group on Security. In May, CIPS honored him as the first recipient of the CIPS Contribution Award. The citation noted his being "...widely recognized for years of substantial efforts."

Mr. *Finch's* earliest contact with **IFIP** came when he served as Organizing Committee chairman for **IFIP** Congress '77, in Toronto. He has served as CIPS representative to **IFIP** since 1980. His roles in **IFIP** have been varied. He was trustee from 1980 to 1986 and was elected trustee again in 1987. He is chairman of the Congress Site Evaluation Committee and the Congress Guidelines Committee and a member of several other committees. He serves as Cognizant Officer for the Technical Committees on Data Communication (TC6) and Computer Systems Technology (TC10).

Mr. *Finch* was instrumental in founding the Technical Committee on Security and Protection in Information Processing Systems (TC 11) and served as International Program Committee chairman of its first conference: IFIP/Sec'83, which was held in Stockholm. Presently, he is chairman of the Working Group on Security Management (WG11.1).

Mr. Finch and his wife Pat are the parents of 5 children (ages 20 to 32) and the grandparents of 3 children. In their spare time, they sail and race their 28 ft. (8.5 m.) boat. They also enjoy skiing and traveling.

NETWORK INFORMATION PROCESSING SYSTEMS

*by Prof. Dr. Kiril Boyanov (BG) **

A Symposium on Network Information Processing Systems, sponsored by **IFIP's** Technical Committees on Data Communication (TC6) and Information Systems (TC8), was held in Sofia 9-12 May. Nearly 200 registrants from 22 countries heard the two invited papers and 44 submitted papers that were presented (chosen from 93 submitted papers). Selected papers from the Symposium will be published by Elsevier/North-Holland.

The first plenary paper, on Integrated Services Digital Networks (ISDNs) was delivered by *Dr. Ronald Uhlig* (USA), chairman of TC6. He presented an analysis of the development of communication-oriented computers and the future of ISDN. The second plenary paper, *Computer Networks for Information Systems*, was presented by *Dr. Dipak Khakhar* (S). He examined questions related to building communication links in information networks and described the necessity for developing functional standards. Information was presented about the status of these standards.

A panel discussion treated three basic subjects: ISDNs, Local Area Networks (LANs), and Office Automation. As to the choice between ISDN and LAN, two opinions were given. One, backed by *Dr. Uhlig,* was that the future belongs to ISDN, with a cost only 20% higher than LAN, in the U.S.A. The other point of view, supported by *Prof. Andre Danthine (B),* former chairman of TC6, was that ISDN is too expensive and does not ensure a sufficient bandwidth. According to him, the cost would be about 50% higher than for LAN, bearing in mind that the bandwidth proposed for ISDN is not sufficient. He underlined the necessity for workstations to be more intelligent and to use less communication, but with more purpose. He expressed the opinion that with ISDN, the interface was very well defined, as opposed to the services. All speakers predicted an increase of bandwidth requirements in the next five years.

Another question debated was who should be the leading force for defining standards—users or industry. The unanimous opinion was that the latter would play the leading role—first, because they have a forceful standpoint, and second, because the users are not able to state their wishes clearly.

The Symposium was closed by *Prof. Kiril Boyanov (BG),* chairman of the International Program Committee, who presented a short analysis of the work described.

* representative to TC8 from Bulgaria

CONGRESS '89 continued from page 1

Communication and Distributed Systems

P. Kuehn (D): From ISDN to IBCN (Integrated Broadband Communication Network) / H. Ikeda (J)
C. Sunshine (USA): Computer Network Interconnection / J. Postel (USA)
A. Danthine (B): Communication Support for Distributed Systems—OSI vs. Special Protocols / R. Watson (USA)

Knowledge-Based Systems

J.M. Nicolas (D): Logic-Based Knowledge Base Management Systems / K. Yokota (J)
M. Fox (USA): Experiences with Expert Systems / D. Parnas (CDN)
V. Lifschitz (USA): Logical Foundations of Deductive Databases / J. Lloyd (GB)

Software Engineering

D.E. Perry (USA): Industrial-Strength Software Development Environments / W. Royce (USA)
B. Sufrin (GB): Industrial Application of Formal Methods / M. Thomas (GB)
A. Avizienis (USA): Software Fault-Tolerance / T. Anderson (GB)

Supercomputing

K. Wilson (USA): Supercomputing in Physics
Hopfield (USA): Effectiveness of Neural Network Computing
C.G. Bell (USA): Graphics and Personal Supercomputing
P. Rubbert (USA): Supercomputing in Airplane Design

VLSI-CAD for Professionals

D. Borrione & P. Prinetto (F & I): Zero-defect Designs, Why and How: Formal Verification vs. Automated Synthesis
A. Sangiovani-Vincentelli (USA): Design Methods and Tools for Application-Specific Integrated Circuits
R. Waxman (USA): The Evolution of VHDL
J.A. Abraham (USA): Advances in VLSI Testing / T. Williams (USA)

Office Automation

N. Naffah (F): The Future of Office Automation / G. Bracchi (I)
D. Tsichritzis (CH): Advanced Software Technology for Automating the Office / I. Chang (SGP)
T. Winograd (USA): Can Office Technology Support Office Dialogues? / C. Hewitt (USA)

Factory Automation

G. Spur (D): Advanced Design for Automated Production / J. Gero (AUS)
J. Solberg (USA): Production Planning and Scheduling in CIM / K. Takeda **(J)**
E. Eloranta (SF): Artificial Intelligence and Production Management / J. Browne **(IRL)**

Education

W. Brauer (D): Computer-Aided Education and Education about Algorithms and Concurrency / R.M. Aiken (USA)
J.C.M.M. Moonen (NL): Impact of Computer Technologies on Education and Training / B. Collis (CDN)

Computers and Society

H. Zemanek (A): Formal Structures in an Informal World / G. Sacerdoti (I)
H. Coelho (P): Developing Competence in a Developing Environment / S.C. Bhatnagar (IND)
H.-O. Peitgen (D): Modelling Reality: New Tools for Mankind / Bl. Sendov (BG)

Reliable Computing **and Fault Tolerance**

J.C. Laprie (F): Hardware and Software Dependability Evaluation / R. Iyer (USA)

NEWSLETTER SIZE INCREASED

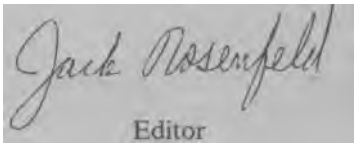
Dear Reader:

In March, the **IFIP** Council voted to allocate a page of each issue of the *IFIP* Newsletter to Elsevier/North-Holland for the purpose of promoting **IFIP** publications. In addition, the Council agreed to have a sheet of advertisement for Elsevier enclosed with the *Newsletter,* in return for which Elsevier would continue to print the *Newsletter* free of charge. Further negotiations have resulted in the present format: 16 pages, two of which promote **IFIP** publications, and a loose sheet of Elsevier advertising.

You may recall that the *Newsletter* started as an 8-page publication five years ago, expanded to an occasional 12-page issue a year later, and has been a 12-page publication since December 1986.

In this first 16-page issue, we have printed the Calendar of Events on two pages, thereby increasing the number of events included. We have increased the type size of the Changes in **IFIP** and similar material, so you no longer need a magnifying glass to read it. We have added almost no additional text.

Now we would like to hear what you think about the changes. Does the increased size discourage you from reading the entire *Newsletter?* Please let us know.



The first submitted papers have been received by the International Program Committee. For further information about submitting papers, which are due by 1 November, see the Calls for Papers column on page 13.

Panel Sessions

Panel sessions are being organized for each of the "tracks" listed above. The panel titles and the names of the organizers will be printed in a future issue of the ***IFIP*** *Newsletter.*

In addition to invited speaker, panel, and submitted paper sessions, there will be sessions in which speakers from the European Community, Japan, U.S.S.R., and U.S.A. describe the world's major technology programs. These sessions, too, will be described in a future *Newsletter.*

Prof. Gerhard *Ritter* (USA) has been appointed as editor of the Congress proceedings.

The Organizing Committee announces that six tutorial programs will be held 24-25 August, preceding the Congress:

Barry Boehm (USA): Software Risk Analysis
David Choy (USA): Integrated Office Systems
Joelle Coutaz (F) and Leonard Bass (USA): **Human-Computer** Interaction
Radu Popescu-Zeletin (D): Computer Networks **and Telematic** Services
Paul Schneck (USA): **Supercomputer Systems and Applications**
Benjamin Wah (USA): Computers for Artificial Intelligence Applications

Technical Visits

In addition to the technical program, the tutorials, and the exhibition, there will be technical visits to seven sites. San Francisco and the Silicon Valley, with one of the densest concentrations of computer research and manufacturing facilities in the world, offer unparalleled opportunities for attendees to see, firsthand, the American information processing industry. Technical visits to manufacturing facilities and research laboratories before and during the Congress will supply a stimulating supplement to the technical program for Congress delegates.

Finally, an extensive social and sightseeing program will help delegates and guests experience the excitement and beauty of San Francisco and the surrounding area. Wine tastings in the Napa Valley, cruises on the Bay, and drives along the beautiful Monterey Peninsula are just a few of the opportunities to explore the cultural, historic, and scenic highlights of the San Francisco area.

For further information, 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: 168184SVCCTR UT

STAFF CHANGE AT SECRETARIAT

*by Mme. Gwyneth Roberts (CH) **

Mme. Lorna Goerg, member of the **IFIP** Secretariat staff since June 1987, was recently forced to cease all professional activity, for family reasons. We thank her most sincerely for her services and wish her complete serenity.

Mme. *Ruth Lawson,* a colleague of mine from Public Relation days and a friend for many years, succeeded Lorna as of 1 July. Ruth is Swiss-German, with a complete command of the English and French languages, and is well acquainted with **IFIP,** as she has often helped me out, as a friend, with Annual Report work, *Newsletter* mailings, etc. etc. In her latest professional activity, of over six years, Ruth shared responsibility for the production and distribution of the *World Information Bulletin,* German language news releases of the Lutheran World Federation; she also performed various associated tasks.

We know **IFIP** people will appreciate her very sunny, conscientious and devoted character.

* Administrative Manager of **IFIP** Secretariat

CHANGE IN IAPR CONFERENCE

The International Association for Pattern Recognition (IAPR), an Affiliate Member of **IFIP,** announces that the 9th International Conference on Pattern Recognition will be held in Rome 14-17 November 1988. This is a change of date and location. The program, which consists of some 200 technical papers and 100 poster presentations, has been organized into 4 parallel tracks.

For further information, one may contact either

Prof. Stefano Levialdi
Dipartmento di Matematica
Universita' di Roma
Piazzale Aldo Moro 2
1-00185 Roma, Italy
tel. (39) (6) 4991-3249 or -3250
telex: 613255 INFNRO I
fax: (39) (6) 495-7697

or

Prof. Herbert Freeman
CAIP Center, CN-1390
Rutgers University
Piscataway, NJ 08855-1390, U.S.A.
tel. 1 (201) 932-3443
telex: 6502497820 mci
fax: 1 (201) 932-4775 ■

COMPUTER HARDWARE DESCRIPTION LANGUAGES

The Ninth International Symposium on Computer Hardware Description Languages and their Applications (CHDL '89) is to be held 19-21 June 1989 in Washington, D. C. Sessions at the Symposium will focus on hardware description languages and their use for synthesis, simulation, verification, and testing, and as parts of design systems. Emphasis will be on the challenges in these areas in the years ahead, and how coming changes will influence future CHDLs.

The Symposium is held every other year and is sponsored by **IFIP's** Technical Committee on Computer Systems Technology (TC10), in cooperation with the Association for Computing Machinery (ACM) and the Computer Society of the Institute of Electrical and Electronics Engineers (IEEE).

"This Symposium is returning to the U.S. after meetings in Tokyo and Amsterdam. By holding this year's meeting the week before the Design Automation Conference in Las Vegas, we hope to attract an international range of speakers and attendees," said *Dr. John Darringer (USA),* this year's general chairman. "The use of hardware description languages is expanding to the extent that standard interchange languages at various levels are being adopted. We want to assemble the best work in this area at the Symposium."

For more information, contact

Dr. John A. Darringer
CHDL '89 Chairman
IBM Research Division, P.O. Box 218
Yorktown Heights, New York 10598, U.S.A.
tel. 1 (914) 945-1018

or

Prof. Dr. Franz J. Rammig
CHDL '89 Program Chairman
University of Paderborn
D-4790 Paderborn, Fed. Republic of Germany
tel. 05251-602069 ■

MANUFACTURING SYSTEM DESIGN

The International Working Conference on Modeling and Simulation for Optimization of Manufacturing Systems Design will provide an international exchange of experience about the outstanding developments in the comprehensive integration of the functions and activities (including people) within a manufacturing enterprise. Sponsored by IFIP's Working Group on Computer-Aided Manufacturing (WG5.3), it will be held 8-10 November 1989 in Tempe, Arizona, U.S.A. It will bring into focus critical issues, strategies, and decisions that go into the selection and design of manufacturing systems. Attendees—both academics and practitioners—will share the latest results of research and practice in this area, as well as assess future trends.

Participation in the Conference will be by invitation only and limited to 60, with a maximum of 15 paper presentations. For further information, contact the International Program Committee chairman:

D.L. Shunk, Director
Center for Automated Eng. and Robotics
Arizona State University
Tempe, Arizona 85287, U.S.A.

HUMAN-COMPUTER COMMUNICATION

IFIP's Working Group on Computer System Interfaces (WG2.7) is planning its next Working Conference for September 1989 in California. The title will be *Foundations of Human-Computer Communication.* The organizers want a broad spectrum of participants who can provide insights into the problems of human-computer communication and the management of these problems.

Topics will include

- interface design—examples of system interface designs that advance the state of the art
- interface design tools and techniques—tools and techniques that advance the technology of human-computer interaction, including
  - -user interface tool kits
  - -adaptive systems
  - -intelligent interfaces
- aspects of distributed systems that bear upon the user interface, including
  - -cooperative work
  - -user perceptions of distribution
- user models—models of user characteristics, performance, and perception

For further information, contact

Prof. Dr. C. Unger
Fachbereich Mathematik and Informatik
Fern-Universität Gesamthochschule
Feithstrasse 140

WOMEN, WORK, AND COMPUTERIZATION. STRATEGIES AND PROGRESS

*by Mrs. Ria Hermanussen (NL) **

New technology has a double-sided effect on the work of women. The use of computers in many routine administrative and clerical jobs severely threatens and reorganises women's jobs and the role of women in the workplace. At the same time, computer-based technology is creating new jobs which might improve women's opportunities on the labour market. In order to broaden knowledge in an international context, IFIP's Working Group on Computers and Work (WG9.1) organised, from April 27 to 29, the third International Conference on Women, Work, and Computerization (WWC). This time, the Netherlands was the host country, where the debate held during the two former Conferences, in Italy (1984) and Ireland (1986), was continued.

The Conference comprised two parts, one plenary day and a two-day workshop. The Conference was attended by delegates from 22 countries. Ninety percent of the participants were women.

Third World Participants

At this Conference, a special place was given to participants from third world countries. Four women—two researchers, a computer professional and a trade-unionist—from the Philippines, Singapore and Mexico accepted the invitation of the Organizing Committee to attend the Conference. A special, plenary meeting was devoted to their views on technological developments in their countries and its impact on the position of women in the labour market.

On the plenary day, which was attended by 300 participants, keynote speeches were given by five guest speakers. The first presentation was given by *Saskia van den Hoek (NL).* Her conclusion was that special training courses in information technology for women are very stimulating and a great help for women with outdated education or working experience to find jobs. Because of rapid changes in computer-related occupations, permanent training and retraining, however, is a necessity. Van der Hoek warned that training needs to be accompanied by initiatives like affirmative action.

The second guest speaker was *Judith* Gregory (USA), who discussed the role of the trade-unions in the United States in relation to the use of computer technology. Although trade-union membership is only 17% in the United States, female membership is increasing rapidly. This has resulted in a greater concern within the unions about women's issues. One of the great dangers Gregory foresaw, was the increase of "computer monitoring" of individual workers. It is estimated that already productivity is being recorded for 20-40% of office workers.

In a clear and comprehensive way, *Kari Thoresen (N)* explained her plea that systems should be developed as a "tool" for the user, who keeps responsibility for decision-taking.

Organizational Changes

Ursula Huws (GB), the fourth speaker, pointed to the linkages between technological and organizational change such as decentralization, flexible labour contracts and an increase of subcontracting. The geographical re-allocation of work was considered, not only within the industrialised countries, but between the first and the third world as well. This was illustrated with examples from the textile-industry, in which big parts have been re-allocated from developing countries to the poor, urban areas in London.

The last speaker of the day was *Cynthia Cockburn (GB).* She dealt with the question of why women have been invisible or even absent in the history of technology.

At the end of the day, Boel *Carlsson* (S), one of the organizers of the first and second WCCs, summarized the strategies mentioned during the day, which women can use to improve their position on the labour market.

The speeches of the first day set the tone for the two-day workshop of the second part of the Conference. One hundred forty people took part in the workshops, which were aimed at taking an in-depth look at issues connected with the theme of the Conference. The Organizing Committee had received more than 60 abstracts, of which 30 were selected. These 30 papers were used as starting points for the discussions in the workshops. The authors gave short explanations, and special referees were asked to comment on the papers. The proceedings of the Conference will be published by Elsevier/North-Holland by the end of the year.

The general opinion of the participants was that the debate and discussions in the workshops were very fruitful. This, together with the big interest in the Conference and the increased number of participants, demonstrated the importance of the theme. It was decided to organize a fourth international Conference in 1990, for which one of the Scandinavian countries will be host. ■

* member of Conference Organizing Committee

SOCIAL IMPLICATIONS OF ROBOTICS

*by Dr. Daniel Millin (IL) **

The Social Implications of Robotics and Advanced Industrial Automation was the topic discussed at an **IFIP** Working Conference held in Tel Aviv 14-16 December 1987. The Conference was initiated by the Technical Committee on Relationship between Computers and Society (TC9) and the Israeli Information Processing Association. Over 60 participants from 12 countries attended. Dr. *Daniel Millin (IL)* served as chairperson for the International Program Committee and the local Organizing Committee. *Prof. Klaus Brunnstein (D)* and *Mr. Benjamin Raab (IL)* served as Co-Chairpersons. *Millin* and *Raab* edited the proceedings, which will be published by Elsevier/North-Holland later this year.

Three major areas were discussed at the Conference: impacts of artificial intelligence and robots, vulnerability of the information society and impacts of advanced technology on kibbutz life.

Robotics Leads to Unemployment?

Mr. Yisrael *Keisar,* Member of the Israeli Parliament and Secretary-General of Histadrut (the General Federation of Labor in Israel), was the guest

* vice-chairman of TC9

of honor and welcomed the delegates. From his point of view, advanced technologies and robots do not necessarily bring only benefit to society but also cause unemployment, particularly within the age group of 20 to 25.

Mr. Barrie Sherman (UK) delivered the first keynote address, in which he stated that although our society is going through the "second industrial revolution," technology changes but the institutions governing our lives remain static. This leads to conflicts, stresses, and strains within society. *Mr. Sherman* said: "Within manufacturing industries, robots and carrying systems will diminish the need for human labor."

Mr. Israel Meidan (IL) was the second keynote speaker, and he presented a slightly different approach concerning the impact of advanced technology on industry, stating that there has been no significant change in the relative share of capital and labor in the production function. This type of change does not affect the quantity of labor required; it only affects the characteristics of the labor.

The general conclusion reached by *Prof. Harold Sackman (USA),* chairman of TC9, was that AI and robotics tend to accelerate existing trends in positive and negative social impacts of computers that have long been documented prior to the current efflorescence of AI. In particular, AI and robotics developments tend to exacerbate the ever-growing gap between the information rich and information poor at international, national, regional, institutional and individual levels.

Effects of Computer Intelligence

Mr. Yosef *Regev (IL)* raised the question, What will be the outcome if we do succeed in giving computers and robots the gift of intelligence? His response was very skeptical about the capability of AI and expert systems to see the whole picture and take into account more things than human beings can.

Prof. Menachem Rosner (IL) presented some findings of research carried out on the introduction of high-tech into kibbutz society. Introduction of robots led, in many plants, to an increase in the autonomy of different sub-units; due to the relatively high level of participation and limited hierarchy, only small organizational changes will be needed to adopt the new conditions.

All the speakers at the panel expressed their hopes that new technologies will improve our lives and make the world better and more human. The real challenge is to use the technologies in an appropriate way—not to impose them. The challenge should be to help poor children and families rather than to provide more for those who already have. ■

NEWS FROM TC9

*by drs. Felix van Rijn (NL) **

IFIP's Technical Committee on the Relationship between Computers and Society (TC9) held its annual meeting in Namur, Belgium June 4 and 5. A major issue was the updated Long Range Plan, which aims at strengthening the awareness, among professionals and the public, of the relationship between information and communication technology and society. Progress reports for several planned Working Conferences (WCs) were also presented.

At the debriefing for the very successful third WC on Women, Work and Computerization, it was reported that the next WC in this series is planned for 1990 in one of the Scandinavian countries. For the time being, a subgroup on Work, Women and Computerization will be set up within the Working Group on Computers and Work (WG9.1), but the establishment of a new WG is under consideration.

TC9 approved the proposal for a new WG (9.3) on Home-Oriented Informatics and Telematics. This activity resulted from the WC on Social Implications of Home Interactive Telematics in June 87. Upon the formal approval by the General Assembly, which is expected at the GA meeting in September in New Delhi, further information about WG9.3 will be given in this newsletter. Other new WGs being planned for the near future are Applications and Implications of AI Systems and the Impact of Information Systems in Developing Countries. Furthermore, WG9.2 on Social Accountability will set up a Task Group on Computers and the Law to create a WG on this subject.

Following immediately after the TC9 meeting was the WG9.2 WC (6-9 June) aimed at discussing and completing a students' textbook, *Report from Namur: Landscapes for an Information Society*. Members of WG9.2 and authors of the textbook, which deals with the social accountability of computing and telecommunications, had three days of exciting and inspiring discussions, which, no doubt, will be reflected in the final product. A more detailed report will be submitted for the next ***IFIP*** *Newsletter.*■

* TC9 correspondent to the ***IFIP*** *Newsletter*

MEDINFO 89 PLANNED FOR BEIJING

The sixth World Congress on Medical Informatics (MEDINFO 89) will be held in Beijing 16-20 October 1989. This Congress, sponsored by the International Medical Informatics Association of **IFIP** (IMIA), will cover all aspects of health care computing from countries and regions the world over.

The technical program will consist of lectures, demonstrations, workshops, Meet the Expert sessions, tutorials, and video presentations. In addition, there will be technical and commercial exhibits, vendor demonstrations, visits to universities, hospitals, research institutions, and libraries. Participants will also be able to learn about traditional Chinese medicine and health care delivery in China.

The opening ceremony will be held in the Great Hall of the People.

Contributions to the MEDINFO 89 program, due 10 January 1989, are solicited in the following four categories:

- Research Papers
- Descriptive Papers—descriptions of innovative systems of general interest
- Opinion Review or Analytical Papers—reviewing topics or analyzing trends in the field
- Scientific Demonstrations—summaries of systems suitable for demonstration at the Congress

The Scientific Program Committee is headed by Dr. Phil Manning (USA); the Organizing Committee is headed by *Mr. Ouyang Zhineng* (PRC).

For further information, see the Calls for Papers column on page 13. ■

WORKING CONFERENCE ON PARALLEL PROCESSING

WG10.3 Attacks Difficult Problems

Even though speed, density, and cost of computer components are continually improving, the demands of some computer users for more and faster computation have yet to be met. The use of large numbers of computers (even in the thousands) working in parallel to solve massive problems is one approach. In order to advance the state of the art, IFIP's Working Group on Software/ Hardware Interrelation (WG10.3) held a Working Conference on Parallel Processing 25-27 April in Pisa, attended by 75 participants. International Program Committee chairman Prof. *Michel Cosnard (F)* described the scope of the Conference in the preface to the proceedings: *

> The Conference on Parallel Processing addressed recent and important issues in the design of closely coupled computer systems. The emphasis was put on architectures with parallelism, local memory and message-passing communication mechanisms.
>
> New parallel algorithms were described in various fields of applications: matrix computations, combinatorics, image processing, dynamic programming, and symbolic computations. The performance of these algorithms were compared on various existing parallel computers. New parallel architectures, including systolic arrays, were presented.
>
> Models of parallel computations—Petri Nets, statistical modeling, and distributed algorithms—were also addressed, in order to evaluate the performance of parallel computer systems or to validate and prove parallel programs.

Difficult to Use

The difficulty in efficiently using the parallel processing systems that have been developed up to now were underscored by Dr. *Kemal Ebcioglu* (USA) in the introduction to his paper describing a novel architecture: *

> It appears that a certain amount of the inherent parallelism in ordinary programs is fine-grain; in fact, fine-grain parallelism often appears to be the only type of parallelism available in a large body of non-scientific programs. Unfortunately, the major trends in parallel architecture are not geared toward exploiting such irregular fine-grain parallelism. They tend to work well on an important but limited class of scientific problems but fail to achieve speedup on problems that do not belong to their domain. For example, a typical scientific supercomputer reduces to a uniprocessor on program segments where vectorization is not possible.
>
> The problem of transforming ordinary programs to run on Multiple Instruction Stream-Multiple Data Stream (MIMD) multiprocessor architectures has also received much attention, and while a speedup by a factor of thousands appears to be possible for certain scientific problems with a large degree of inherent parallelism, the speedup results with non-numerical algorithms have not been very promising.
>
> It should be noted that techniques of program restructuring for parallel processors are best capable of exploiting the *coarse grain* parallelism in scientific code, which does not seem to be common in non-numerical code. While there is a modest amount of fine-grain parallelism in non-numerical programs, practical MIMD architectures cannot exploit it well, because even a few cycles of communication overhead can cause the speedup to be much less than ideal.

The bulk of the paper was devoted to a description of a computer designed to achieve good performance on both parallel scientific and sequential non-numeric applications.

Hardware Monitoring

Another paper called attention to the problem of debugging and monitoring the performance of a massively parallel computer system with perhaps thousands of processors. The following excerpts are taken from the paper *Hardware Instrumentation Techniques for Multiprocessors* by Dr. Thomas *Bemmerl (D)* and *Mr. Josef Haunerdinger (D): **

> Very limited possibilities are at hand for looking at the dynamic behavior of parallel computers and their software. No adequate tools are available for debugging, performance analysis, testing and visualization of executing programs.
>
> The aspect of timing is very important when executing concurrent parallel programs. The main reason for this concern with timing is the asynchronism of parallel programs. Therefore, a nonintrusive instrumentation technique is indispensable for monitoring parallel programs. This means that the instrumentation of the parallel program and the multiprocessor must not be allowed to slow down program execution. Because of this necessity, one major objective during the development of our tool environment was the design and implementation of a hardware monitor for parallel programs. One hardware monitor is placed in each node of the multimicroprocessor.
>
> Today, almost all 32-bit, high-performance microprocessors contain structures for increasing the execution speed. These structures include multiple-stage pipelines (prefetch queues), cache memories and on-chip memory management units (MMU). All cause difficult problems during hardware monitoring of these microprocessor chips.
>
> With pipelining and cache memories, the internal processor state is not always reflected at the processor pins. This sometimes introduces inaccuracy during the evaluation of events. The disabling of the on-chip cache memory during monitoring is not the appropriate strategy, because this slows down program execution and leads to an intrusive instrumentation technique.
>
> An external hardware monitor for a microprocessor with on-chip MMU is only able to trigger on physical addresses. This increases the complexity of the tool's software, because a translation of virtual addresses into physical addresses has to be done, in addition to the translation of symbols to virtual addresses.
>
> Solutions for these problems in hardware monitoring of high-performance microprocessors are bondout chips or an integration of the monitor circuits into the processor chips.

The authors described a monitor system consisting of hardware and software which could effectively monitor system performance without significantly affecting it.

Proceedings of the Conference, edited by Prof. *Cosnard,* Prof. Michael *Barton (GB),* and *Prof.* Marco *Vanneschi (I),* will be published by Elsevier/North-Holland later this year.

* C) IFIP

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Proceedings of the IFIP TC3 1st European Conference on Computers in Education (ECCE 88), Lausanne, Switzerland, 24-29 July 1988

edited by **F. Lovis** *and* **E.D. Tagg**

1988 xxiv + 690 pages
Price: US $131.50/Dfl . 225.00
ISBN 0-444-70483-3

Past and future changes in teaching methods resulting from the use of computers in the classroom are the main concerns of this volume. Among the aspects considered are: the teaching of specific subjects (e.g. Mathematics), social and psychological aspects, learning difficulties, the uses of modelling and simulation in the classroom, language teaching, and national curricula. The 115 invited and contributed papers are from both Western and Eastern Europe.

Informatics and Education

An Anthology of Papers Selected from IFIP TC3 Publications since the Establishment of TC3 in 1963

edited by **R. Lewis** *and* **E.D. Tagg**

1988 750 pages
Price: US $39.50/Dfl . 250.00
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The educators and computer professionals in TC3 are involved with both perspectives on the subject, *i.e.* the role of information technology in supporting education, and the educational needs of an informatics society.
This anthology, a selection of papers from the last twenty-five years, is arranged in ten sections. Each section covers a particular aspect of Informatics and Education, aiming to be:
- characteristic of contributions in that domain
- illustrative of the changes in technology and perception
- indicative of the various cultural and economic concerns.

Contents: **I. The History of TC3 (2** *papers).*
II. The Impact on Society *(9 papers).*
III. Developing Countries *(9 papers).*
IV. Information Technology Literacy *(9 papers).*
V. Computers in Support of Learning *(11 papers).*
VI. The Impact of Computers on the Curriculum *(12 papers).*
VII. The Role of Programming *(9 papers).*
VIII. Teacher Education *(13 papers).*
IX. The Provision of Hardware Resources *(9 papers).*
X. Computer Science Curriculum *(9 papers).*

Partial Evaluation and Mixed Computation
Proceedings of the IFIP TC2 Workshop, Gammel Averns, Denmark, October 1987
edited by **D. Bjørner, A.P. Ershov** *and* **N.D. Jones**
1988 xxxiv + 626 pages
Price: US $131.50/Dfl. 250.00
ISBN 0-444-70491-4

Crypto Users' Handbook
A Guide for Implementors of Cryptographic Protection in Computer Systems
Prepared under the Auspices of IFIP WG 11.4
by **P. Christoffersson, S.-A. Ekhall, V. FM(** (editor), **S. Herda, P. Mattila, W. Price** *and* **K.-O. Widman**
1988 viii + 94 pages
Price: US $39.50/Dfl. 75.00
ISBN 0-444-70484-1

Database Security: Status and Prospects
Results of the IFIP WG 11.3 Initial Meeting, Annapolis, MD, USA, October 1987
edited by **C.E. Landwehr**
1988 x + 332 pages
Price: US $79.00/Dfl. 150.00
ISBN 0-444-70479-5

Computerized Assistance During the Information Systems Life Cycle
Proceedings of the IFIP WG8.1 Conference (CRIS 88), Egham, Surrey, UK, September 1988
edited by **T.W. 011e, A.A. Verrijn-Stuart** *and* **L. Bhabuta**
1988 xvi + 540 pages
Price: US $115.75/Dfl. 220.00
ISBN 0-444-70512-0

Information Systems in Practice and Theory
Proceedings of the IFIP TC8 International Symposium, Johannesburg, South Africa, April 1987
edited by **P.C. Pirow, N.M. Duffy** *and* **J.C. Ford**
1988 About 510 pages
Price: US $105.25/Dfl. 200.00
ISBN 0-444-70462-0

Tool Integration and Design Environments
Proceedings of the IFIP WG10.2 Workshop, Paderborn, FRG, November 1987
edited by **F.J. Rammig**
1988 About 334 pages
Price: US $79.00/Dfl. 150.00
ISBN 0-444-70446-9

Towards New Hospital Information Systems
Proceedings of the IFIP-IMIA Working Conference, Nijmegen, The Netherlands, May 1988
edited by **A.R. Bakker, M.J. Ball, J.R. Scherrer** *and* **J.L. Willems**
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IFIP/ICCC International Conference **Integrated Services Digital Networks (ISDN) in Europe**
25-27 Apr 89, The **Hague**
papers due: 15 Sep **88**
contact: Secretariat, ISDN in Europe
Ms. Marijke Newman-van Aalderen
IBM Nederland N.V.
Johan Huizingalaan 265
1066 **AP Amsterdam, The Netherlands**

TC5 Third Intl. Conf. on Computer Applications in Production and Engineering-CAPE'89
2-5 Oct 89, Tokyo
abstracts due: 30 Sep 88
contact: Conference Secretariat-CAPE'89
c/o **Conference Department**
Business Cent. for Academic Societies Japan
2-40-14, Hongo Bunkyo-ku
Tokyo 133, Japan
tel. 03-817-5831, fax: 03-817-5836 Int'l
telex: 0 2722268 BCJSP J

TC9 Working Conf. on Shaping Organisations, Shaping Technology—SOST 89
3-5 May 89, **Sydney**
papers due: 30 Sep 88
contact: Roger Clarke
Programme Chairman SOST 89
Dept. of Commerce
Australian National Univ.
Canberra Act 2601, Australia
tel. +61.62.493666 (ANU)
+61.62.886916 (home)
fax: +61.62.480026, telex: AA62760

TC9 Working Conf. on **Information System, Work and Organization Design**
10-13 Jul 89, Berlin, **G.D.R.**
abstracts due: 1 Oct 88
contact: K. Fuchs-Kittowski
Humboldt Univ. of Berlin
Sektion Wissenschaftstheorie and Wissenschaftsorganisation
August-Bebel-Platz Kommode
1086, Berlin, G.D.R.

9th Intl. Symp. on **Computer Hardware Description Languages and Their Applications—CHDL 89**
19-21 Jun 89, Washington
abstracts due: 31 Oct 88
contact: Prof. Dr. Franz J. Rammig
Universität Paderborn, Warburger Str. 100
D-4790 Paderborn, Fed. Rep. of Germany

11 **th World Computer Congress—IFIP Congress '89**
28 Aug-1 Sep 89, San Francisco
papers due: 1 Nov 88
contact: Dr. Hervé Gallaire
ECRC, Arabellastrasse 17
D-8000 Munich 81, Fed. Rep. of Germany
tel. 49-89-92 69 91 00, telex: 5216910
fax. 49-89-92 69 91 70
e-mail: mcvax!unido!ecrcvax!ifip

WG8.2 Working Conf. **on Desktop Information Technology**
2-4 Jun 89, Ithaca, NY, U.S.A.
papers due: 28 Nov 88
contact: Kate M. Kaiser
College of Business
Marquette University
Milwaukee, WI 53233, U.S.A.
tel. 1 (414) 224-7338
Bitnet: 6621KAIS@MUCSD

Fourteenth IFIP Conf. on System **Modelling and Optimization**
3-7 Jul 89, Leipzig, G.D.R.
abstracts due: 15 Dec 88
contact: Dr. K. Tammer
Leipzig Univ. of Technology
Dept. of Math. and Informatics, PF 66
Leipzig, 7030, G.D.R.

Sixth **IFAC/IFIP/IFORS/IMACS** Symposium on **Information Control Problems in Manufacturing Technology**
29 Sep-1 Oct 89, Madrid
draft papers due: 15 Dec 88
contact: INCOM'89
E.T.S. Ingenieros Industriales
Po. Castellana, 80
28006 Madrid, Spain
tel. (1)-261.69.89
telex: 46854 LCOE
fax: (1)-261.86.18

TC5/WG5.3 Working Conf. on **Computer-Integrated Quality Systems in CIM Systems**
20-23 Jun 89, Beograd, Yugoslavia
abstracts due: 15 Dec 88
contact: Mr. Vidosav Majstorovic
Mechanical Eng. Faculty
Lab. for Production Metrology and Quality Assurance
27 mart 80
11000 Beograd, Yugoslavia
tel. (011) 322-125 or 328-651, ext. 210
telex: 1276 or 12090

Sixth World Cong. **on Medical Informatics-MEDINFO 89**
16-20 Oct 89, Beijing
papers due: 10 Jan 89
contact: Phil. R. Manning, M.D.
Chairman, Sci. Prog. Comm. MEDINFO 89
USC School of Medicine
1975 Zonal Ave., KAM 317
Los Angeles, CA 90033, U.S.A.
tel. (213) 342-9370
Bitnet: Manning at USCVM

TC10/WG10.5 International Conf. on **Very Large Scale Integration—VLSI 89**
16-18 Aug 89, Munich
papers due: 15 Jan 89
contact: (for Europe and Africa)
Prof. G. Musgrave
Brunel University
Uxbridge, Middx UB8 **3PH, U.K.**
or (for The Americas)
Prof. Carlo **H.** Sequin
Dept. of Elec. Eng. and Computer Sciences
Univ. of Calif., Berkeley, CA 94720, U.S.A.

TC9 Working Conf. **on Opportunities and Risks in Artificial Intelligence Systems-ORAIS 89**
17-20 Jul 89, Hamburg
position papers due: 31 Jan 89
contact: K. Brunnstein
Fachbereich Informatik
Hamburg Univ.
Schluterstrasse 70
2000 Hamburg, F.R.G.
tel. +49.40.4123-4158/-4162
fax: +49.40.4123-2449

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FUTURE IFIP MEETINGS

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

Council	week of 27 Feb 89	Geneva
GA	beginning 2 Sep **89 (following** Congress '89)	San Francisco

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

TC2	**Jan 89**	Grenoble
WG2.1	**9-13 Jan 89**	Grenoble
	21-26 Aug 89	Palo Alto
WG2.2	1st quarter 89	San Francisco
WG2.7	Sep 88	Kyoto
	1st **quarter 89**	U.K.
	Sep 89	Napa Valley, CA, U.S.A.
WG3.5	**16-19 May 89**	Sofia
TC5	9 May 89	Barcelona
	1 Oct 89	Tokyo
TC6	7-8 Oct 88	Bali
	Mar 89	Belgium, Israel, or F.R.G.
	Sep 89	**U.S.A.**
	May 90	Budapest
	Sep 90	Spain
TC7	26 Sep 88	London
TC8	23-24 Sep 88	London
	end of Aug 89	San Francisco
TC 11	week prior to Congress '89	Vancouver or California
WG11.1	second half of 88	Europe

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

I**MIA**

General Meeting	17-18 Sep 88	Geneva

CHANGES IN IFIP

NEW APPOINTMENTS

GA MEMBER

Representative for Ireland: Mr. Dudley Dolan
Beecom (Ireland) Ltd.
Dundrun Castle
Dundrum
Dublin 16, Ireland
tel. 353 (1) 985934
fax: 353 (1) 987454
(succeeding Mr. Owen M. Dalton)

TC AND WG OFFICERS

The following two people have been announced to succeed the current TC5 and TC 11 chairmen following the New Delhi Council and GA meetings:

TC5 Chairman: Mr. Marco Tomljanovich
ITALCAD
Business Development
Via I verigo 6
1-20151 Milan, Italy
tel. 39 (2) 33400150
fax: 39 (2) 3013288
(succeeding Prof. A. Rolstadås after 1988 GA)

TC11 Chairman: Dr. W.J. Caelli
21 Castle Hill Drive
Nerang, Qld. 4211, Australia
tel. 61 (7) 5560911
fax: 61 (7) 5350599
telex: as 43943
(succeeding Mr. Per Hoving after 1988 GA)

TC11 Secretary: Mr. D.T. Lindsay
30 The Dole
Impington
Cambridge CB4 4PL, U.K.
tel. 44 (0734) 854441
telex: 848327/8

WG5.8 Chairman: Dr. V.A. Tipnis
Georgia Institute of Technology
Mechanical Eng. Dept.
Atlanta, GA 30332-0405, U.S.A.
(succeeding G. Musgrave)

WG7.4 Chairman: Prof. M. Padberg
Dept. of Statistics and Operations Research
Graduate School of Bus. Admin.
New York University
40 West 4th St.
Tish Hall, 5th Floor
New York, NY 10003, U.S.A.
tel. 1 (212) 598-3221

CALLS continued from page 13

WG8.1 Working Conf. on **Information** System Concepts—An In-depth Analysis
18-20 Oct 89, Namur, Belgium
papers due: 17 Feb 89
contact: Eckhard D. Falkenberg
Univ. of Nijmegen
Dept. of Information Systems
Toernooiveld
6525 ED Nijmegen, The Netherlands
Email (usenet):...mcvax!kunivv1!kunivv5!ef

■

WG7.4 Secretary: Ing. A. Sassano
I.A.S.I. CNR
viale Manzoni 30
1-00185 Rome, Italy
tel. 39 (6) 770031
fax: same number

TC AND WG MEMBERS

TC2: Dr. P. Shoval (IL)

TC3: Prof. Y. Give'on, (IL)
(succeeding B.Z.Barta)

WG5.7: Dr. L.F.Escudero (E)

WG5.10: Silvia Ansaldi (I)
Carlos Asteasu (E)
Miklos Báthor (H)
Peter Bono (USA)
Pere Brunet (E)
Niels Jorgen Christensen (DK)
Rae A. Earnshaw (GB)
Giorgio Faconti **(I)**
Bianca Falcidiano (I)
Juan Flaquor (E)
Georges G. Grinstein (USA)
F.R.A. Hopgood (GB)
Lars Kjalldahl (S)
Gergely Krammer **(H)**
Gerardo Leon Lastra (MEX)
Leo Pini Magalhaes (BR)
Martti Mäntylä (SF)
Laura Moltedo (I)
S.P. Mudur (IND)
Piero Musaio (I)
Franco Pallavicini (I)
Jüris Reinfelds (AUS)
Yogesh N. Schinde (IND)
Zesheng Tang (PRC)
Peter Willkirchen (D)

TC6: Dr. C. Sattler (DDR)
(succeeding H.W. Meier)
Mr. G. Sharon (IL)
(succeeding D. Biran)

WG7.4: Prof. E. Balas (USA)
Prof. M. Balinski
Prof. M. Conforti (USA)
Prof. G. Cornuejols (USA)
Prof. H. Crowder (USA)
Prof. B. Fleischman (D)
Prof. G. Gallo (I)
Prof. B.L. Golden (USA)
Prof. M. Grotschel (D)
Prof. P. Hammer (USA)
Prof. E. Johnson (USA)
Prof. B. Korte
Prof. M. Lucertini (I)
Prof. G.L. Nemhauser (USA)
Prof. S. Pallottino (I)
Prof. U. Pape (D)
Prof. W. Pulleyblank (CDN)
Prof. M.R. Rao (USA)
Ing. G. Rinaldi (I)
Prof. L. Schrage (USA)
Prof. B. Simeone (I)
Prof. A. Tamir (USA)
Prof. P. Toth (I)
Prof. L. Trotter
Prof. C. Vercellis (I)
Prof. S. Walukiewicz (PL)
Prof. L.A. Wolsey (B)

TC10: Prof. R.N. Ibbett (GB)
(succeeding D. Aspinall)

WG11.5: Mr. D. Batchelor (CDN)
Mr. I. Bentzien (DK)
Dr. H.J. Highland (USA)
Mr. K.E. Kristiansen (DK)
Mr. K. Krueger (USA)

ADDRESS AND OTHER CHANGES

President and Representative for Australia:
Mr. Ashley Goldsworthy
direct **fax: 61 (3) 561 6513**
general fax (unchanged): 61 (3) 566 8360

Vice-president and Representative for Denmark: Mr. Aage Melbye
fax: 45 (2) 425845

Vice-president and Representative for United Kingdom: Mr. Graham Morris
fax: 44 (1) 7313632

Treasurer and Representative for Hungary:
Dr. Peter Kovács
telex: 226975 AKNAM H
fax: 36 (1) 312763

Trustee and Representative for Canada:
Mr. James Finch
fax: 1 (416) 251-5862

GA **Representative for Norway:**
Prof. Asbjørn Rolstadås
(temporary address through June 1989)
c/o Prof. Jens E. Jorgensen
Dept. of Mechanical Engineering, FU-10
Univ. of Washington
Seattle, WA 98195, U.S.A.
tel. 1 (206) 545-3792
telex: 4740096 UN UI
fax: 1 (206) 543-9285

Member Society for The Netherlands:
Nederlands Genootschap voor Informatica
Van Diemenstraat 184
1013 CP Amsterdam, The Netherlands
tel. 31 (20) 203676
fax: 31 (20) 203669

CORRECTION

Individuals mentioned as new members of WG2.3 in the June *IFIP Newsletter* are new members of WG2.4 ■

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)

CALENDAR OF EVENTS

(continued from page 16)

Event	Date	Location	Organized by
Work. Conf. on *Computer-Integrated Quality Systems in CIM System*	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/IEEE
Sixteenth Workshop on *Reliable Computing and Fault Tolerance*	Jun 89	Urbana, IL, U.S.A.	TC10/WG10.4
Fourteenth General Conf. on *System Modelling and Optimization*	3-7 Jul 89	Leipzig, G.D.R.	TC7/LUT/ASG/MSG
Work. Conf. on *Information Systems, Work and Organization 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
Third Intl. Congress *Pan Pacific Computer Conference-PPCC'89*	15-19 Aug 89	Beijing	CCF/IFIP/NSF/CIE-CEAS
Work. Conf. *VLSI 89*	16-18 Aug 89	Munich	TC10/WG10.5
Work. Conf. on *Engineering for Human-Computer Interaction*	21-25 Aug 89	Napa Valley,CA, U.S.A.	TC2/WG2.7
IFIP Congress '89-11th World Computer Congress	28 Aug-1 Sep 89	San Francisco	IFIP
Work. Conf. on *Concepts and Characteristics of Fifth Generation Computers*	Aug 89	?	TC10/WG10.1
Work. Conf. on *Stochastic Programming*	Aug 89	Ann Arbor, MI, U.S.A.	TC7/WG7.1
Fourth Intl. Conf. on *Man-Machine Systems (MMS'89) Analysis, Design and Eval.*	12-14 Sep 89	Xian, P.R.C.	IFAC/IFIP/IEA/IFORS
Workshop on *Decisional Structures in Automated Manufacturing*	18-21 Sep 89	Genoa	IFAC/IFIP
Symp. on *Control, Computers and Communication in Transportation*	19-21 Sep 89	Paris	IFAC/IFIP/AFCET
Sixth Symp. on *Information Control Problems in Manufacturing Technology*	29 Sep-1 Oct 89	Madrid	IFAC/IFIP/IFORS/IMACS
Work. Conf. on *Human Factors in CAD*	Sep 89 ?	Laxenburg, Austria	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
Sixth World Congress on *Medical Informatics-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
Intl. Workshop on *Industrial Computer Systems*	30 Oct-2 Nov 89	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Work. Conf. on *The Next Decade in Information Systems Development Environments*	Oct 89 ?	Israel	TC8/WG8.1
Open Conf. on *Information Systems*	Oct 89	Ljubljana	TC8/A.E.S.
Work. Conf. on *Modeling and Simulation for Optimization of Manufacturing Systems Design and Application*	8-10 Nov 89	Tempe, AZ, U.S.A.	TC5/WG5.3
Intl. Symp. on *Skill-Based Automated Manufacturing*	15-17 Nov 89	Vienna	IFAC/IFIP/IMACS
Work. Conf. on *Strategic Information Management*	89 ?	?	WG8.3
Seventeenth Workshop on *Reliable Computing and Fault Tolerance*	Feb 90		TC10/WG10.4
Workshop on *Knowledge-Based System Design Tools*	Mar 90	Amsterdam	TC10/WG10.2
Work. Conf. on *Programming Concepts and Methodology*	Mar 90	Israel	TC2/WG2.2 & 2.3
Intl. Workshop on *Industrial Computer Systems*	23-26 Apr 90	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Seventh Intl. Conf. on *Computer Security-IFIP/Sec'90*	23-25 May 90	Helsinki	TC 11
Conf. *COMNET'90*	May 90	Budapest	TC6/J.v.Neumann
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
Fifth World Conf. on *Computers and Education-WCCE 90*	Jul 90	Sydney, Australia	TC3
Fourth Intl. Conf. on *Advances in Production Management Systems-APMS'90*	20-22 Aug 90	Helsinki	TC5/WG5.7
Conf. *IBERICOM-90*	Sep 90	Spain	TC6/FESI
Intl. Workshop on *Industrial Computer Systems*	8-11 Oct 90	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Symp. on *International Computer Message Systems*	Oct 90	Spain	TC6/WG6.5
Work. Conf. on *Formal Product Information*	Oct 90	Amsterdam	TC5 WG5.2/.3/.4/.7/.8
Work. Conf. on *design Methodology in Manufac. Systems and the Human Role*	90 ?	C.S.S.R.	TC5/WG5.3
Fourth Conf. on *Human Choice and Computers*	90 ?	Dublin	TC9
Work. Conf. on *Women, Work and Computerization*	90	Scandinavia	TC9/WG9.1
Workshop on *CAD/CAM Interfaces in Mechanical Engineering*	90	Darmstadt, F.R.G.	TC5/WG5.2
Intl. Workshop on *Industrial Computer Systems*	15-18 Apr 91	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Tenth Intl. Symp. on *Computer Hardware Description Languages and Their Applications-CHDL 91*	Apr 91	Europe	TC10/WG10.2.
Tenth Work. Conf. on *Protocol Specification, Testing and Verification*	May 91	Stockholm	TC6/WG6.1/SICS
Work. Conf. on *Collaborative Work, Social Communication and Information Systems Theories, Methods, Tools and Impacts*	Jun 91	Finland	TC8/FIPA
Work. Conf. *VLSI 91*	Aug 91	Edinburgh	TC10/WG10.5
Intl. Workshop on *Industrial Computer Systems*	Oct 91 ?	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Intl. Conf. on *Computing in the 21st Century*	91	London	IEEE/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, IN, U.S.A.	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		TC10/WG10.5

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
Fourteenth Intl. Conf. on *Very Large Data Bases*	29 Aug-1 Sep 88	Los Angeles	VLDB/IFIP
Seminar on *Managing Complexity in Software Engineering*	7-9 Sep 88	Freiburg, F.R.G.	TC5/WG5.4
Work. Conf. on *Stochastic Systems: Filtering and Optimization*	12 Sep 88	Warsaw	TC7/WG7.1
Work. Conf. on *Computerized Natural Medical Language Processing for Knowledge Representation*	12-15 Sep 88	Geneva	IMIA/WG6
Sixth Intl. Cong. on *Computer Applications in the Automation of Shipyard Operation and Ship Design—ICCAS'88*	13-16 Sep 88	Shanghai	TC5/WG5.6/ CSNAME/IFAC
Conf. on *Modelling Techniques and Tools for Computer Performance Evaluation*	15-17 Sep 88	Mallorca	IFIP/ACM/IEEE/AFCET
Work. Conf. on *Geometric Modelling*	18-22 Sep 88	New York	TC5/WG5.2
Work. Conf. on *Design Methodologies for VLSI and Computer Architectures*	19-21 Sep 88	Pisa	TC10
Work. Conf. on *Computerized Assistance during the Information Systems Life Cycle—CRIS'88*	19-22 Sep 88	Egham, Surrey	TC8/WG8.1
Second Workshop on *Intelligent CAD*	19-22 Sep 88	Cambridge, U.K.	TC5/WG5.2
Work. Conf. on *Reliability and Optimization of Structural Systems*	26-28 Sep 88	London	TC7/WG7.5
Work. Conf. on *Knowledge-Based Systems on Test and Diagnosis*	27-29 Sep 88	Grenoble	TC10/WG10.5
Workshop on *Experience with the Management of Software Projects*	27-29 Sep 88	Sarajevo, Yugoslavia	IFAC/TC5
Work. Conf. on *Medical Informatics in Primary Care*	Sep 88	Oxford, England	IMIA
Seminar on *Formal Description of Programming Concepts*	Sep 88	Buenos Aires	TC2/WG2.2/DCSC
Work. Conf. on *Issues of Design, Development, Distribution and Evaluation of Courseware: Planning and Design of Computer-Aided Teaching*	Sep 88	Jerusalem	TC3
Intl. Workshop on *Industrial Computer Systems*	3-9 Oct 88	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Symp. on *Robot Control—SYR000'88*	5-7 Oct 88	Karlsruhe, F.R.G.	IFAC/IMACS/IFIP
Work. Conf. on *Database Security*	5-7 Oct 88	Kingston, Ontario	TC11/WG11.3
Work. Conf. on *Message Handling and Distributed Application Systems*	10-12 Oct 88	Costa Mesa, CA, U.S.A.	TC6/WG6.5
Fourth Symp. on *System Analysis Applied to Management of Water Resources*	11-13 Oct 88	Rabat	IFAC/IFIP/IFORS/IAHR
Conf. on *VME Bus in Research*	11-13 Oct 88	Zurich	TC5/CERN/WG5.4
Intl. Conf. *Jubilee of Innovation Choice*	12-14 Oct 88	Venice	RSO/CIRP/ILO/IFIP/IFAC
Work. Conf. on *Recent Advances in Communication and Control Systems*	19-22 Oct 88	Louisiana, U.S.A.	TC7
Work. Conf. on *Impact of Information Systems in Developing Countries*	24-26 Oct 88	New Delhi	TC9/TC8/CSI
Workshop on *Techniques and Algorithmic Complexity of Simulation*	Oct 88	Udine, Italy	TC10/WG10.2
Work. Conf. on *Safety-Related Comps. in an Expanding Market—SAFECOMP '88*	9-11 Nov 88	Fulda, F.R.G.	IFAC/IFIP/TC5/WG5.4
Workshop on *Concepts and Characteristics of Declarative-Based Environments*	Nov 88	Budapest	TC10/WG10.1
State-of-the-Art Seminar on *Database Principles and Practice*	Dec 88	Bombay	TC2/WG2.6
Work. Conf. on *Data Semantics—DS-3*	88 ?	Beijing	WG2.6
Work. Conf. *SEACOMM'88*	88 ?	Singapore	TC6/SEARCC
Second Intl. Workshop on *Artificial Intelligence in Economics and Management*	11-13 Jan 89	Singapore	ISS/IFIP/IFAC/SEARCC
Fifteenth Workshop on *Reliable Computing and Fault Tolerance*	Feb 89	??	TC10/WG10.4
Conf. on *Data Communication*	Mar 89	Israel	TC6
Work. Conf. on *Visual Database Systems*	3-7 Apr 89	Tokyo	TC2/WG2.6
Intl. Workshop on *Industrial Computer Systems*	17-20 Apr 89	W. Lafayette, IN, U.S.A.	Purdue/TC5/WG5.4
Intl. Conf. on *Integrated Services Digital Networks—ISDN'89*	25-27 Apr 89	The Hague	TC6/ICCC
Work. Conf. on *Distributed Computing*	Apr 89		TC10/WG10.3
Work. Conf. on *Medical Informatics: Educational Issues and Trends*	Apr 89	Victoria, Canada	IMIA
Work. Conf. on *Shaping Organisations, Shaping Technology—SOST'89*	3-5 May 89	Sydney	TC9/ACS
Work. Conf. on *Design, Implementation and Opn. of Databases for Production A gt.*	10-12 May 89	Barcelona	TC5/WG5.7
Sixteenth Workshop on *Real-Time Programming*	16-19 May 89	Berlin, G.D.R.	IFAC/IFIP
Intl. Symp. on *Integrated Network Management*	22-24 May 89	Boston	TC6/WG6.6
Ninth Work. Conf. on *Protocol Specification, Testing and Verification*	May 89	Belgium or Netherlands	TC6/WG6.1
Intl. Symp. on *Urban Data Management*	May 89	Lisbon	UDMS/TC8
Tenth *Tunisian-French Computer Science Seminar*	May 89	Ariana, Tunisia	ENSI/TC2
Workshop on *Advances in Geometric Modelling*	May 89	Berlin, F.R.G.	TC5/WG5.2
Work. Conf. on *Desktop Information Technology*	2-4 Jun 89	Ithaca, NY, U.S.A.	TC8/WG8.2
Work. Conf. on *CAD Systems Using A.I. Techniques*	6-7 Jun 89	Tokyo	TC10/WG10.2
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

(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.