IFIP newsletter
International Federation for Information Processing

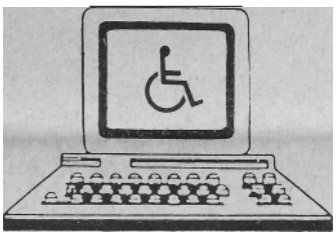
Editor:
Dr. Jack L. Rosenfeld

Distributed by
IFIP Secretariat

Vol. 3, no. 1, March 1986

FIRST PAN PACIFIC COMPUTER CONFERENCE

Highlight: Computers Assisting Disabled People



The first Pan Pacific Computer Conference (PPCC-1) was held in Melbourne 10-13 September 1985, sponsored by **IFIP** and the Australian Computer Society. Over 1000 attended. Mr. Ashley Goldsworthy (AUS), **IFIP** president-elect, and Mr. Alan Coulter, president of the Australian Computer Society, opened the Conference. Two features of the Conference were especially noteworthy: a "Schools' Congress", and a full day program on *Computers Assisting Disabled People.*

The Schools' Congress was addressed to school children ages 15 to 17 and their teachers. Its aim was to give a broad view of how computers are used in business and industry. It was attended by 600. Prior to the Congress, an essay competition was held for school children, on the subject *Computer Technology, Society and the Future.* The winner was awarded a microcomputer, and her school received a computer system.

The program on Computers for Disabled People was the first event of PPCC-1.

continued on page 2

CHDL CONFERENCE HELD IN TOKYO

Hardware Description Languages Studied

The 7th *International Conference on Computer Hardware Description Languages and Their Applications* was held 29-31 August 1985 in Tokyo. Over 200 participants attended.

Program Committee chairman Dr. Cees-Jan Koomen (NL) and the late Prof. Tohru Moto-Oka (J), general chairman, described the conference as follows in the proceedings (entitled *Computer Hardware Description Languages and Their Applications,* edited by Dr. Koomen and Prof. Moto-Oka, and published by North-Holland):

> Although computer hardware description languages (CHDLs) have always been at the heart of the conference, a gradual shift has taken place during recent years, reflecting the evolution of research in this area. In the area of languages, the emphasis has shifted from hardware description languages (and design issues for such languages) towards high-level specification techniques. In the area of design correctness, simulation plays a steady role, and formal verification techniques have gained in importance. In the area of design environments, the increase in the number of papers shows the interest in this topic and reflects the tool integration aspect of this conference.

The keynote speaker, Dr John Darringer (USA), urged the participants to direct their efforts toward the application of CHDLs to the design of large mainframe computers. He pointed out successes already achieved in automatically synthesizing high-performance logic from register transfer specifications, and he called for further achievements in other phases of the design process. Dr. Darringer's talk, entitled *Design Automation for Large Systems,* also summarized the state of the art of the design of large mainframe computers. Parts of it are contained here. *

Logic Design of Large Mainframes

Large system design includes three parallel activities: microcode development, power and mechanical development, and logic development. We will focus on logic development. We can identify four distinct stages of logic

* © IFIP *continued on page 3*

CONTENTS

First Pan Pacific Computer Conf .....
CHDL Conference Held in Tokyo 1
Yau Is O.C. Chairman for Cong. '89 3
Cooperation with Unesco 4
TC6 Elects New Chairman 4
National Abbreviations 4
Computer Message Systems 5
CAD/CAM/CAE Conf. in India 5
News from TC9 6
Medical Decision-Making by Comp. 7
IMIA Meets in Lisbon 7
Congress Regulars Sought 7
Office Systems Conference 8
CRIS Conference Imminent 8
Competitions for Statisticians 8
Future of Command Languages 9
Penedo at Spanish Comp. Congress 9
Iceland Corresponding Member 9
TC5's Working Group Chairmen Meet 10
In Memory of Sverre Sem-Sandberg 10
Article Published about TC11 10
Address Change 10
Calls for Papers 10
New IFIP Publications 11
Future IFIP Meetings 11
Calendar of Events 12

PAN PACIFIC continued from page 1

Some 150 people attended this program, which was directed to the general public. Ms. Jan Kornweibel (AUS) organized the event and presented one of the 6 papers. She indicated the ways in which disabled people are clients of the computer industry, in the following: *

> As the disabled population is becoming more independent and demanding access to the general environment, access to computer systems is also being sought. With adaptation or by special controls, any controlled action—whether it be blowing, touching, movement, or making a noise, to list but a few—can be exploited to give even the most handicapped person access to the wide range of computer systems available. Like the rest of the community, disabled people can use computers for education, recreation, vocation activities, and communication, and to control their day-to-day environments.

Another speaker, Mr. John Earls (AUS), pointed out the benefits to be gained by society at large when more computer facilities are provided for the disabled: *

> The community tends to consider access for disabled people as wider doors in public lavatories. The computer can mean "access to the world"—if some supportive, assisting, benevolent discrimination and encouragement are provided. The position is best summed up by Kiesler, who says, "Computer interaction causes the formation of groups of people who would otherwise never meet. Computer networks can overcome geographical organization and social barriers to communication."

Economic Benefits

> It is not simply a question of creating employment for the direct income benefit of a single individual. That individual has a larger purchasing power, increased consumption capacity and thus creates employment for others—including the able bodied.
>
> The skills of medical, educational, therapy, engineering and computer professionals must be utilized to develop special solutions from standard components—not special solutions from specialized components. No service is done to a disabled person if he is provided with an esoteric, leading edge piece of equipment from a company just about to go out of business.

Much needs to be done, including

• the recognition that adult disabled people are a growing percentage of the total disabled population with a longer lifespan, requiring significant short term expenditure for long term social and economic gain.

• the acquisition of much more information about current and potential computing use and equipment distribution within the disabled population, together with the reasons inhibiting or accelerating use expansion.

• making computer professionals more aware of the immense social contribution they can make by offering their talents (not their money) to less fortunate people who would gain every bit as much satisfaction and benefit from computing as computer professionals have themselves.

A caution was raised by speaker Mr. Patrick Poon (GB), who noted: *

> In the United Kingdom, the increasing use of microcomputers in special education has been accompanied by a profusion of specialized software. Unfortunately, the standard of many of these programs does not match the high quality of the hardware. Few well designed programs with good documentation are available.

He went on to describe the successful development of software for a special school for pupils aged 2 to 16 with multiple physical handicaps.

Speech Technology

The final speaker was Dr. Tim Hendtlass (AUS), who spoke on computer-based speech technology and the disabled. He concluded his talk as follows: *

> Speech input and output based devices to enable the 'differently abled' to more fully realize their potential are already available, and many more are going to become available in the near future. Although they may at times have quite severe shortcomings, there is a need for them now, and we cannot wait for the perfect system to become available (if ever). How successful they will eventually become depends on how both therapists and technologists respond to the task of `humanizing' them and thus making them more suitable for bringing the users into normal life.
>
> For the technologists, the problems are most easily defined. In speech output devices, three major tasks lie ahead: to improve the quality of the phonemic synthesisors, to vastly improve the quality of the text-to-speech algorithms available and, above all, to find an acceptable way of permitting the users to input the extra information that reflects their personalities. In speech input devices, a whole array of techniques, from extracting signals from noise to artificial intelligence and expert systems, will be needed.
>
> For the therapists the problems are less concrete to state, but of fundamental importance. How are the users to participate in setting the basic functional and performance goals that they want? In many cases they must rely on guidance from their therapeutic advisors, as they lack many of the personal experiences to base their decisions on. These advisors must give thought to what these new techniques could achieve for the particular user and how and at what rate the user is to be introduced to them. Just providing an aid is no guarantee that the user will make use of it.
>
> The solution to at least part of the problems faced by some of the differently abled is taking shape and should be pursued. However, without the participation of all three groups, [users, therapists, and technologists] the best promises of this new technology are likely to be still-born. ■

* All quotations are from *Proceedings of the First Pan Pacific Computer Conference* (Computers Assisting Disabled People volume), Melbourne, Australia, September 1985, © Australian Computer Society 1985. Reprinting privileges have been granted by the Australian Computer Society.

IFIP NEWSLETTER

Editor:
Dr. Jack L. Rosenfeld
IBM Corporation
Hawthorne Research Laboratory
P.O. Box 218
Yorktown Heights, NY 10598, USA
tel. 1 (914) 789-7633
telex (023)137456 ibmresrch ykhg

Published quarterly by-
IFIP Secretariat
3, rue du Marche
CH-1204 Geneva, Switzerland
tel. 41 (22) 28 26 49
telex 428 472 ifip ch

CORRESPONDENTS
TC5 L.H. Fransson
TC6 D. Khakhar

Printed for IFIP by the courtesy of North-Holland Publishing Co.

Please apply to the IFIP Secretariat, at the address given above, for copies of the *IFIP Newsletter* and to be added to (or removed from) the mailing list.
The Secretariat can also answer inquiries about IFIP.
The *IFIP Newsletter* may be reprinted, translated, and reproduced, in whole or in part, except for material specifically denoted as copyright protected. Reprinting in national and local information processing periodicals is encouraged. Acknowledgement to IFIP would be appreciated. In order to reprint material protected by copyright, apply for permission to the IFIP Secretariat, giving all pertinent details.
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; changes of address; and new publications. The Secretariat is the clearinghouse for all such information; it will forward it to the *Newsletter.*

CHDL continued from page 1

development: (1) system design, (2) flowchart design, (3) detailed logic design, and (4) physical design. Of course, a design does not go through these stages in a simple sequence; there is a great deal of iteration. But four distinct levels of description are used.

System Design: The process of making the early design decisions for a large system is not well understood. It usually involves a small number of highly experienced designers, who are able to consider many design variations with very little computer assistance. They produce high-level block diagrams identifying the top-level system structure, along with a written specification. They also assign functions to modules. During this stage, computer models are developed to verify the performance. Statistical models are used to determine buffer sizes and traffic rates, while trace-driven simulation models are used to study pipeline interlock penalties and memory hierarchy efficiency. While these models are detailed in some areas, they do not specify the total system behavior.

Flowchart Design: The entire machine logic is described in terms of flowcharts entered via a graphical editor. The use of a graphic notation gives a clearer indication of the concurrency within a machine. Flowcharts are largely written without regard for underlying technology. The emphasis is on determining correct behavior. The flowcharts are translated directly into a register-transfer-level description, which provides the basis for simulation. The entire machine is simulated at this level to verify correct behavior. Software simulators are used, as well as high-speed, high-capacity hardware simulation engines. Another result of this step is the further partitioning of functions to logic and memory chips.

Detailed Logic Design: Logic designers, using the flowcharts as specifications, produce detailed logic diagrams that document how the primitives of the chip are to be interconnected to provide the specified function. These logic diagrams are entered graphically, and extensive checks are performed to insure that the many technology rules and design rules are satisfied.

Physical Design: The last stage in the process is the generation of manufacturing data from the logic diagrams. This is a highly automated process. Normally, the logic designer is not involved. Programs place the gates on a gate array and route the wires automatically. This produces accurate wire lengths and loading data for a precise timing verification. Other programs produce an initial placement for chips on modules and modules on boards. These can be refined by the logic designer via a graphic editor. The result of this stage is all data necessary for manufacturing chips, modules, boards, and cables.

Future Requirements

In the future, we would like to have an automated process from initial system design to manufacture. To accomplish this will require much innovation in design automation methods.

Physical design tools will have to deal with more gates per chip and on-chip arrays. This will involve taking into account detailed timing specifications for a chip and developing approaches to satisfy them. Another factor in dealing with large chips is the need for incremental processing. One cannot afford to completely re-process a large chip after minor changes in the logic specification.

IFIP COUNCIL

Executive Body			
K. Ando	President	J	83-86
A.W. Goldsworthy	Pres.-Elect	AUS	85-86
G. Glaser	Vice-Pres.	USA	85-88
BI.H. Sendov	Vice-Pres.	BG	84-87
G.J. Morris	Vice-Pres.	GB	85-86
J. Fourot	Secretary	F	84-87
O.M. Dalton	Treasurer	IRL	84-87
Trustees			
J.H. Finch		CDN	83-86
G. Sacerdoti			83-86
A.A. Dorodnicyn		SU	84-87
H.W. Leroux		ZA	84-87
L. Penedo		P	84-86
P.-X. Guo		PRC	85-88
A. Melbye		DK	85-88
A.A. Verrijn-Stuart		NL	85-88

A major concern is to establish that the logic designed is equivalent to the function specified by the flowcharts. A timing analysis program verifies that the specified cycle time will be met for all paths in the logic. Finally, a test generation program tries to generate test patterns that will expose all possible "stuck" faults in the chip.

I believe languages for system specifications will have to include provisions for specifying the physical hierarchy of the machine (frames, boards, modules, etc.) and permit specification of interface constraints such as required placements, timings, and signal levels.

Dr. Darringer concluded his address with the following words:

Significant progress is required to permit large systems development to continue, but I am optimistic that new methods will be developed to meet these needs. The development of new CHDLs must be driven by these important and challenging applications.■

YAU APPOINTED O.C. CHAIRMAN FOR CONGRESS '89

Dr. Stephen Yau, president of the American Federation of Information Processing Societies (AFIPS), has been appointed Organizing Committee chairman for **IFIP** Congress '89 by Dr. Kaoru Ando (J), president of IFIP. The triennial event will be held in San Francisco in late August 1989, sponsored by **IFIP,** with AFIPS as host.

"I have enjoyed working with IFIP in the past to support World Computer Congresses, and I look forward to the opportunity for AFIPS to host IFIP Congress '89 to the mutual benefit of the United States and the international information processing profession," said Dr. Yau. He is chairman of the Department of Electrical Engineering and Computer Science at Northwestern University, in Illinois. Dr. Yau has published 115 technical papers on computer systems reliability and maintainability, software engineering, distributed computing systems, logical design and switching networks, pattern recognition, and applied graph theory.

AFIPS is a federation of 11 scientific and educational professional societies in the information processing field. Established in 1961 to be the United States' representative to **IFIP,** AFIPS conducts programs important to the information processing community and disseminates general and technical information on computing and information processing to the public. It sponsors major educational and technical conferences, such as the annual National Computer Conference (NCC), NCC-Telecommunications Conference (to be launched in September of this year), and the Office Automation Conference (OAC), and publishes books, periodicals, and reports. ■

COOPERATION WITH UNESCO

At the **IFIP** General Assembly (GA) meeting in Tokyo in September, IFIP secretary Mr. Jacques Fourot (F) reported on the current activity of the IFIP-Unesco Liaison Committee. An opportunity exists for IFIP to participate in Unesco's interim Intergovernmental Informatics Programme (IIP), beyond the existing activities of IFIP within Unesco. (See the articles *IFIP-Unesco Cooperation* and *IFIP Council Meets in 'South Africa* in the *IFIP Newsletter* issues of June 1985 and May 1984, respectively.)

The Unesco budget for years 1986 and 1987 was being prepared at the time of the GA meeting, and TC chairmen and other interested parties were studying **the IIP** plan and proposed areas in which IFIP might participate. Mr. Fourot assembled these proposals, and communicated them to Unesco.

The areas of specific interest in the **IIP** program are

• training of specialists and senior personnel in informatics

• strengthening national capacities in the field of informatics training and the use of informatics in higher education

• pilot projects on the application of informatics in the various sectors of scientific and technological development

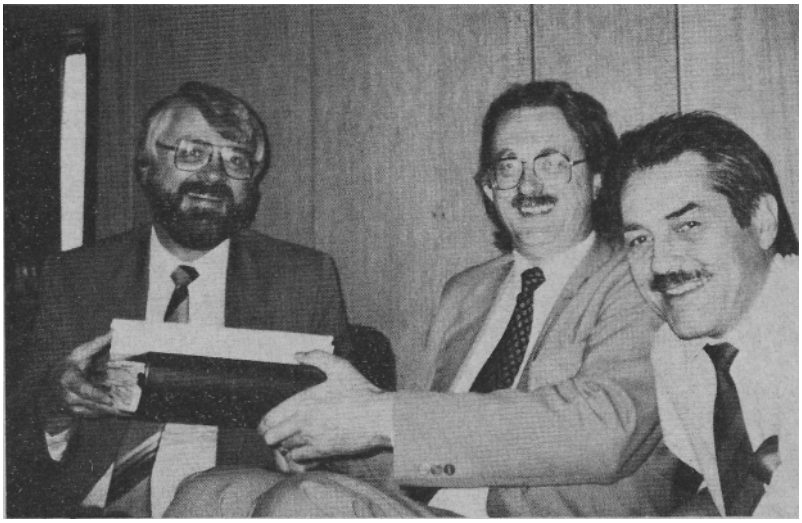
• study of the economic, social, and cultural consequences of informatics: sensitization of decision-makers and public information

• international co-operation for the development of informatics under the **IIP**

The preliminary thought of those concerned with IFIP-Unesco cooperation was that IFIP could best participate by conducting seminars and workshops. Organizing pilot programs did not seem feasible within IFIP's current charter.

IFIP vice-president Acad. Blagovest Sendov (BG) represented IFIP at the Unesco general conference from Oct. to Nov. 1985 in Sofia. ■

TC6 ELECTS NEW CHAIRMAN



New TC6 chairman Dr. Ronald Uhlig (USA). left, receives TC6 documents from past chairman Prof. Andre Danthine (B). center, while Dr. Louis Pouzin (F) observes the transfer. Dr. Pouzin is the only individual who has attended all 25 meetings of TC6.

*by Dr. Dipak Khakhar (S) **

IFIP's Technical Committee on Data Communication (TC6) elected Dr. Ronald Uhlig (USA) as its new chairman at its 25th meeting, held in Budapest, 4-5 October 1985.

Dr. Uhlig chaired TC6's Working Group on International Computer Message Systems (WG6.5) from 1979 to 1985. Under his chairmanship, this WG developed the electronic mail/messaging model on which is based the Message Handling System Recommendations X.400-X.430 of the International Telegraph and Telephone Consultative Committee (CCITT).

TC6 is one of IFIP's most active TCs. It has 30 member countries, the largest number of all of **IFIP's** TCs. The presence of developing countries in TC6 is particularly notable, and the committee is one of the most active TCs in organizing events outside of Western Europe, the U.S.A., and Japan. Some of the events held by TC6 in the past two years are *AFRICOM84* in Tunis, *Networks India 84* in Madras, *Office Automation-84* in Sofia, *Telematica-85* in Porto Alegre, Brazil, and *COMNET'85* in Budapest.

Apart from general symposia, TC6 organizes "in-depth symposia." The latest were the *First International Conference on Data Communications in the ISDN Era* held in Tel-Aviv, March 1985 (see the article on page 4 of the September 1985 *IFIP Newsletter)* and the *Second International Symposium on Computer Message Systems* held in Washington, D.C., September 1985.

The activities of TC6 are performed in three WGs, which cover the main areas of interest:

WG6.1—Architecture and Protocols for Computer Networks This group is organized in two subgroups:

a) Protocol Specification, Testing and Verification
b) Satellite Computer Communication

WG6.4—Local Area Networks

WG6.5—International Computer Message Systems The operation of the group is organized in subgroups in a very flexible way. The subgroups presently active are:

a) Systems Environment
b) User Environment
c) Policy Environment
d) Messaging for Developing Nations
e) Messaging for the Communications Impaired ■

* TC6 correspondent to the IFIP Newsletter

National Abbreviations Used in Newsletter

A	Austria	F	France	NL	The Netherlands
AUS	Australia	GB	United Kingdom	NZ	New Zealand
B	Belgium	GR	Greece	P	Portugal
BG	Bulgaria		Italy	PRC	China
CDN	Canada	IL	Israel	S	Sweden
CS	Czechoslovakia	IND	India	SU	U.S.S.R.
D	Fed. Rep. of Germany	IRL	Ireland	USA	U.S.A.
DDR	German Demo. Rep.		Japan	ZA	South Africa
DK	Denmark				

COMPUTER MESSAGE SYSTEMS

TC6 Symposium Held in Washington

*by Dr. Ronald P. Uhlig (USA) **

Approximately 260 persons from 19 countries (coming from every inhabited continent) participated in the *Second International Symposium on Computer Message Systems,* which was held 5-7 September 1985 in Washington. The Symposium was organized by **IFIP's** Working Group on International Computer Message Systems (WG6.5). Dr. Ronald Uhlig (USA) was Program Committee chairman, and Mr. M. Cavanagh (USA) chaired the Organizing Committee.

Twenty-seven papers were presented by authors from 11 countries, in the following sessions: The X.400 Era (2 sessions), Directories, Group Communications, Planning for Interconnection, Document and Message Architecture, User Environment, Implementation Experience, Multimedia, and Security and Control.

There was a great deal of emphasis, in papers, discussions and special sessions, on the X.400 series of recommendations on Message Handling Systems which were adopted by the Plenary of the International Telegraph and Telephone Consultative Committee (CCITT) in October 1984. These recommendations are based on the IFIP Mail/Messaging Model developed in WG6.5. The entire set of CCITT recommendations X.400 through X.430 was heavily influenced by work done in WG6.5. Much of the discussion at the symposium was concerned with the potential for continued interaction between WG6.5 and standards bodies such as CCITT, the International Standards Organization (ISO), and the European Computer Manufacturers Association (ECMA), on all aspects of electronic mail and messaging.

There were two special sessions: a very successful panel session on Voice Messaging was well attended and sparked considerable interest, and a special-interest session entitled "ARPA-Internet Gateway Standards Workshop" attracted over 20 persons to work on developing an action plan for an X.400 gateway for ARPANET.

X.400 Comes of Age

"X.400 Comes of Age" could have been used as a subtitle for the symposium. In the opening session, papers were presented on two X.400-compatible implementations of messaging systems. These systems were developed completely independently in Canada and Japan, were interconnected with a minimum of effort, and are now exchanging messages.

Work on Directory Services has moved very rapidly. There is now a model which includes a Directory Services agent, as an extension to the basic IFIP Mail/Messaging Model of X.400. The work done in WG6.5 has been completely adopted by both CCITT and ISO as a basis for their work on Directory Systems and Services.

There was considerable discussion on the potential for extending the X.400 protocols in several areas. One of these was the area of Group Communications (automated conference systems). Symposium participants were split on whether the protocols should be extended or whether additional capabilities should be built on top of the existing standards. The issue was whether there is a need for more standards.

There was a great deal of interest in two papers presented by IBM representatives. IBM Heidelberg (FRG) is implementing an X.400-compatible gateway between EARN/BITNET and the Deutsches Forschungsnetz (DFN).

Message Management emerged as a new major issue. In a paper by Prof. Sandy Shaw (GB), serious concerns with protecting message systems against congestion were identified. This is likely to become a new topic for investigation within WG6.5.

Voice Messaging

In the panel session on Voice Messaging, a serious need for standard interfaces to voice messaging systems was presented. The panel also discussed the many different encoding schemes for storage and handling of digitized voice which are being used in existing systems. There was some discussion on the utility of X.400 as a base for voice messaging as well as text messaging, but no conclusions.

Presentations on experiences in implementing message systems showed that the IFIP Messaging Model and X.400 have provided a valuable framework to implementers of message systems.

A number of papers throughout the Symposium discussed various aspects of multimedia messaging, culminating in one paper's discussing an actual product allowing mixed text and voice content in messages, following X.400 standards. There was also an interesting discussion on taking what has been done with multimedia messaging, and using that work as a base for real-time multimedia conferencing. The possibility of developing a real-time conferencing model, analogous to the IFIP Mail/Messaging model, was discussed. A first cut at such a model was presented by Dr. Harry Forsdick (USA).

The session on Security and Control emphasized safeguarding of sensitive messages in a business context, rather than a military context. Despite the fact that it was the last session, a sizeable audience remained through the end. In addition to protection of sensitive messages, a number of complementary aspects were discussed, including message routing, and filtering, as well as a number of potential cost and billing issues.•

* TC6 chairman

CAD/CAM/CAE

CONFERENCE IN INDIA

An International Conference on *CAD/CAM/CAE for Industrial Progress* was sponsored by **IFIP's** Working Groups on Computer-Aided Design (WG5.2) and Discrete Manufacturing (WG5.3), and the Computer Society of India. It took place in Bangalore, India 29-30 June 1985 and attracted 500 participants. The Conference was preceded by two tutorials, one related to Computer-Assisted Design (CAD) in mechanical engineering and the other related to Computer-Assisted Manufacturing (CAM). Some 250 people attended the tutorials.

The Program Committee was headed by Prof. V. Rajaraman (IND), and the Organizing Committee's chairman was Prof. D.K. Subramanian (IND). Following the Conference, IFIP Working Group members gave technical talks at professional society meetings in India. ■

NEWS FROM TC9

*by Dr. Harold Sackman (USA) **

*[This article is a condensation of Dr. Sackman's minutes of the September 1985 meeting of **IFIP**'s Technical Committee on the Relationship between Computers and Society (TC9) in Stockholm.]*

The third Conference on *Human Choice and Computers* (HCC3), which just ended, attracted 90 participants, representing approximately 25 countries. (See the article *HCC3 to be Held in September* in the June 1985 *IFIP Newsletter.)* Participant response to HCC3 was very positive on all counts. The high quality of the three keynote speakers and the presentations of the culturally diverse national reports were universally appreciated. Conference working groups were ably led by TC9 national representatives, and these groups successfully accomplished their objective of focussing on cross-national policy issues. From every consideration, except for the modest attendance and small deficit, HCC3 was eminently successful. The proceedings, planned to be published by North-Holland in May, contain the first attempt to compare national policies on the social use of computers.

Dr. Ulrich Briefs (D), chairperson of the Working Group on Computers and Work (WG9.1), circulated two recent WG9.1 publications, *A Reader on Social Aspects of Computerization* (ed. by Briefs, Kjaer, and Rigal), and *Education for System Designer/User Cooperation* (ed. by Briefs and Tagg).

Prof. Klaus Kittowski (DDR) reported on plans for the WG9.1 conference on *System Design for Human Development and Productivity: Participation and Beyond* to be held in East Berlin 12-15 May. It has been a long-term policy to encourage greater participation of Eastern European countries in TC9 affairs. Since this meeting is the first TC9 conference in an Eastern European country, it has especially strong TC9 support.

Al and Robotics

The Task Force on Social Implications of Artificial Intelligence and Robotics was co-chaired by Prof Klaus Brunnstein (D) and Dr. Dan Millin (IL). Prof. Brunnstein indicated that substantial planning had already taken place for a 3Y2 day conference on *Opportunities and Risks of Artificial Intelligence (AI) Systems* to be held in Hamburg, either in Sept. 1986 or March 1987.

Dr. Millin described advance planning for a second AI conference on *Social Implications of Robotics,* to be held at Eilat, Israel in December 1987. Social issues will include robots vs. man, union agreements on robotics, kibbutz manpower training, and adaptations of workers to the implementation of AI in factories and the industrial environment.

Mr. Paul Kolm (A) presented the findings of the Task Force on Computers, Detente and Peace. TC9 and the Working Group on Social Accountability (WG9.2) will explore the possibility of further work in this area, stressing professional papers covering the full range of scholarly research and opinion.

Home Information Systems

The report of the Task Force on Home Information Systems (HIS) was jointly presented by Messrs. John Kjaer (DK) and Felix van Rijn (NL). Mr. Kjaer reviewed the position paper he prepared as chairperson, highlighting the rapid growth and development of HIS projected through the next century in diversified application areas, with a strong recommendation that TC9 initiate a new WG in HIS. Mr. van Rijn followed up with a proposal for the initial conference in HIS to be held in June 1987 in Holland.

Ms. Ingela Larsson (S) reported for the Task Group on Women and Computerization, indicating progress and plans for a possible new WG. She and Ms. Boel Carlsson (S) will organize a second conference on *Women, Work, and Computerization* to be held in Dublin 26-28 August 1986, again under the sponsorship of WG9.1. The conference will emphasize the case history approach stressing successful examples of the application of information systems to women in the work environment. The format is planned to be a small, intimate working conference, with a maximum of 50 participants.

Dr. Sackman reported progress of the Task Force on Computers and the Law, based on his work in the U.S.A. with Mr. Jay BloomBecker (USA). A position paper for a new WG in this area was circulated. Key legal areas include: individual rights, antitrust legislation, occupational safety and health, computer crime, international law and transborder data flow, legal computer education, and computer applications in legal systems. Mr. BloomBecker is preparing to organize an initial TC9 conference on *Computers and the Law* late in 1986, in the Los Angeles area.

Prof. S. Bhatnagar (IND) raised the issue of initiating a new TC9 Task Group on Computers and Developing Nations. It was unanimously agreed to set up a Task Group to investigate the feasibility and desirability of a new WG. Prof. Bhatnagar and Mr. N. Diomidis (GR) agreed to co-chair this Task Group. ■

*chairman of TC9

MEDICAL DECISION-MAKING BY COMPUTER

IMIA Conference Held in Prague

*by Prof. Jan van Bemmel (NL) **

A Working Conference on *Medical Decision Making: Diagnostic Strategies and Expert Systems* was held in Prague 30 September-4 October 1985, sponsored by the International Medical Informatics Association of **IFIP** (IMIA) and the Czechoslovak Medical Society.

The title of the Conference reflects the fact that computer-assisted medical decision-making is arousing great interest, developments in medical expert systems are rapid, and several research groups are placing major efforts in this area. Several reasons account for this growing interest: (1) the availability of special artificial intelligence (AI) languages and shells to build expert systems, (2) the fact that such systems are operational on rather small systems—even microcomputers, (3) the interest on the part of physicians and medical administrators in developing medical protocols and increasing the efficiency of medical care, and (4) the appearance of a new generation of researchers who are acquainted with computers and quantitative methods in medicine.

This was the second *International Working Conference on Medical Decision-Making* under the sponsorship of IMIA. The first conference comprised mainly statistical approaches to medical decision-making; whereas this conference clearly demonstrated the developments within Al in medicine.

It became clear from the results of this Conference that the developments in the application of computerized decision methods and systems to medical problems has not yet come to an end. On the contrary; we have just begun to understand some of the basic principles of this very challenging new field, which concerns the core of medicine: diagnosis and therapy. And only with the assistance of different disciplines—medicine, computer science, mathematics and statistics, pattern recognition, and Al—can research projects be accomplished successfully.

The Conference proceedings, edited by Prof. Jan van Bemmel (NL), Prof. Francois Grémy (F), and Dr. Jana Zvárová (CS), have been published by North-Holland. They offer the reader theoretical foundations and practical applications in this field. Because they are the results of the very first international working conference in the field of medical informatics held in Eastern Europe, they present the state of the art both in Western and Eastern European countries. Of the authors who contributed to the book, about 40% came from Western countries, and the remainder from Socialist countries.

The chairpersons of the Program Committee and the Organizing Committee were, respectively, Prof. van Bemmel and Dr. Zvárová. Some 250 participants attended the Conference. ■

* Program Committee chairman of the Working Conference, chairman of IMIA Working Group on Biomedical Pattern Recognition, and Program Committee chairman of MEDINFO 86

IMIA MEETS IN LISBON

*by Mr. Luis Penedo **

The Council and General Assembly of the International Medical Informatics Association of **IFIP** (IMIA) met in Lisbon, 21-23 October 1985. Following the meetings, an International Conference on Medical Informatics was held, sponsored by IMIA and organized by the Portuguese Computer Society, with participation by 15 of the IMIA delegates. This Conference was very successful in presenting the state of art in the field and was attended by 125 registrants from government, hospitals, add health departments, together with a goodly number of data processing professionals. Organizations for doctors were invited and represented. The conference proved to be a significant event in the field and greatly contributed to an increasing knowledge of IMIA and IFIP and their relationships to the Portuguese Computer Society, which is represented in both. ■

* IFIP trustee and GA representative of Portugal

CONGRESS REGULARS SOUGHT

The Irish Computer Society, which is the host for **IFIP** Congress '86, would like to extend a special welcome to Ireland to those stalwart members of IFIP who have attended the preceding nine World Computer Congresses, and to mark their presence at the tenth.

The first International Congress on Information Processing was held in Paris in 1959, under the sponsorship of the United Nations Economic, Scientific and Cultural Organization (Unesco). The 10th World Computer Congress, IFIP Congress '86, marks a significant milestone.

If you are one of these devoted Congress participants or know someone who is, please contact

Ms. Jacqui Stokes
Secretary, IFIP Congress '86
Organizing Committee
c/o Beecom (I) Limited
Dundrum Castle, Dundrum
Dublin 16, Ireland
tel. +353-1-985934 ■

OFFICE SYSTEMS CONFERENCE

WG8.4 Holds Its First Event

*by Prof. Alex Verrijn-Stuart (NL) **

The first activity of IFIP's new Working Group on Office Systems (WG8.4) was a Working Conference, under the same title, held in Helsinki 29 September-1 October 1985. The Finnish Information Processing Association hosted the event, providing splendid hospitality. The Conference was attended by 81 persons from 17 countries, ranging from Australia and Austria to the U.S.A. and Sweden. The purpose of the Conference was to offer a wide spectrum of subjects, within which WG8.4 hopes to find its specific niche.

Twelve speakers from seven different countries addressed general topics (such as *The Field of Office Systems* and *The Nature of the Office)* as well as more specific ones *(Semantics, Human Factors, Security).* Each presentation was followed by discussions of such enthusiasm that the session chairmen had great difficulty controlling the timetable. If only in that sense, the Conference may be considered to have been a success.

Whilst a theoretical model of an "office" does not differ very much from that of the traditional information system, the nature of the work and the involvement of the office workers creates a totally different problem area. This was borne out in the debate during the conference proper and even more clearly in the founding meeting of WG8.4, which immediately followed it. There, the Scope and Aims were discussed by 31 prospective members (plus more persons who will be "friends of WG8.4"). The author was proposed for the chair, and this was later approved by the parent Technical Committee on Information Systems (TC8).

WG8.4's activities will take the form of a newsletter (to be started this year) and the exchange of information and experience via workshops, working conferences (the next one, *Methods and Tools for Office Systems,* will be held in Pisa 22-24 October 1986), and, naturally, electronic mail. (The author can be reached via the EARN network under VERRYNST @ HLERUL5.)

WG8.4 has been established under TC8; hence, it will concentrate on the information systems aspects of office automation. As usual, a sharp boundary line between its own domain and that of others is hard to draw. If there is overlap, we hope to be invited to the activities of others, as all others are welcome in our midst!

The proceedings of the Working Conference, edited by Prof. Verrijn-Stuart and Mr. Rudy Hirschheim (USA), will be published by North-Holland. ■

* IFIP trustee, GA representative of The Netherlands, and chairman of WG8.4

CRIS CONFERENCE IMMINENT

IFIP's Working Group on Design and Evaluation of Information Systems (WG8.1) announces the third conference in the CRIS series, which will be held 5-7 May in Noordwijkerhout, The Netherlands. CRIS stands for *Comparative Review of Information System Design Methodologies.* CRIS 86 has as its theme *Improving the Practice* and is aimed at practitioners experienced in the use of methodologies for designing information systems. It should also be of interest to those involved in training designers.

The technical program will include 2 invited speakers, 2 survey papers, and 7 papers on specific methodological approaches. In addition, a panel of experienced consultants from different countries will address the theme *The Problems with Today's Systems Design Methodologies and How to Overcome Them.*

A complete program and registration form can be obtained from

Prof. Dr. Henc Sol
Information Systems Group
University of Delft
Julianalaan 132
2600 AJ Delft, The Netherlands ■

COMPETITIONS FOR STATISTICIANS

The International Statistical Institute (ISI) announces the Third and Fourth Competitions for young statisticians from developing countries. They are invited to submit papers on any topics within the broad field of statistics, for possible presentation at the 46th and 47th Sessions of ISI, to be held in Tokyo and Paris in 1987 and 1989, respectively. (The International Association for Statistical Computing, an Affiliate Member of IFIP, is a section of ISI.)

Participation in the competitions is open to nationals of developing countries who are living in developing countries and who will not be older than 32 years of age in the year during which the Session is to be held.

Papers submitted must be unpublished, original works, which may include university theses. The papers submitted will be examined by an international jury of distinguished statisticians that is to select the three best papers in each of the competitions.

The authors of the winning papers will be invited to present their papers personally at the Sessions of ISI, with all expenses paid (i.e., round trip airline ticket from his/her place of residence to Tokyo or Paris, plus a lump sum to cover living expenses).

Manuscripts for the 1987 Competition should be submitted in time to reach the ISI not later than November 1, 1986. The deadline for the 1989 Competition is November 1, 1988.

The rules governing the preparation of papers, application forms, and full details are available on request. Interested individuals should write for further information to the following address:

The Director
Permanent Office
International Statistical Institute
428 Prinses Beatrixlaan
2270 AZ Voorburg
The Netherlands

FUTURE OF COMMAND LANGUAGES

Foundations of Human-Computer Communication

A Working Conference, *The Future of Command Languages—Foundations for Human-Computer Communication* was held in Rome 23-27 September 1985, sponsored by **IFIP's** Technical Committee on Programming (TC2) and organized by its Working Group on Operating System Interfaces (WG2.7). Forty-five scientists attended this meeting, the third in a series. WG2.7 chairman Mr. David Beech (USA) was general chairman, and Prof. Christian Gram (DK) and Dr. Giorgio Sommi (I) were Program and Organizing Committee chairmen, respectively.

The 25 papers and three panels covered the human and functional requirements for future command languages and the design and implementation issues involved in satisfying the requirements. (Command languages provide the outermost level of dialogue between users and general-purpose computing systems. Thus, they include both commands and responses. Future command languages may differ substantially from today's, in taking advantage of a wider variety of media for their most effective expression.)

Reference Model Presented

At the Conference, WG2.7 presented a reference model, based on abstract data types, for the design of command languages. The model was discussed and generally accepted as a good basis for further work on command and response language structures.

Conference topics of particular interest were:

- the possibility, properties, and specification of a command language spanning a wide range of systems and users
- practical aspects of introduction of a new command language, including implementability on widely used, existing systems
- human factors considerations, especially for non-specialists, who will constitute the vast majority of users
- conceptual models that the user and system have of each other
- experience with existing command languages
- relationship of command languages to other user interfaces and languages, and desiderata for common conventions in providing "integrated systems"

Special attention was paid to the problems of customization: How does one make systems with interfaces that adapt in an "intelligent" way to different users' universes of discourse?

A number of suggestions for further work were presented, and WG2.7 will take these up at its future meetings. People interested in participating in work on models for human-computer interfaces are invited to contact WG2.7 chairman Beech or vice-chairman Gram (addresses can be found in the *IFIP B ullet in)* .

The Conference proceedings, which will include excerpts of the discussions, were edited by Prof. Keith Hopper (NZ) and will be published by North-Holland in March. ■

PENEDO GUEST OF SPANISH COMPUTER CONGRESS

Mr. Luis Penedo, IFIP trustee and representative of Portugal, was the guest of honor of the Congress of the Association Espanola de Informatica e Automatica in Madrid in October 1985. The invitation was arranged by the Federación Espanola de Sociedades de Informática (FESI), the Spanish member of IFIP. Mr. Penedo delivered an address that focused on the role of **IFIP** in improving relations between countries, which is sometimes easier at the level of IFIP than where both countries are involved officially.

An improved level of collaboration between Spain and Portugal was expected as a result of this visit, and of the planned IBERICOM conference on telecommunications in 1987. ■

ICELAND BECOMES CORRESPONDING MEMBER

The IFIP General Assembly, at its meeting in Tokyo in September 1985, approved the admission of the Icelandic Society for Information Processing (ISIP) as a Corresponding Member. (Corresponding Members of IFIP are not represented on the GA and pay reduced dues.)

ISIP was founded in 1968 for persons working with computers or interested in computers. The membership is increasing and now totals about 600. (The total population of Iceland is approximately 250 000.) The object of the Society is to promote efficient information processing and to support technical and scientific work in this field. The main activities consist of holding meetings, conventions, and exhibitions related to innovations in information processing and computer technology. Since 1976, the Society has published 7 or 8 issues annually of a newsletter entitled *TOLVUMA L.*

In 1982 the Society joined NDU, the federation of data processing associations in the Nordic countries, which holds large annual conferences in Denmark, Finland, Norway, and Sweden. ■

TC5'S WORKING GROUP CHAIRMEN MEET

*by Mr. Lars Fransson (S) **

The Working Group (WG) chairmen of IFIP's Technical Committee on Computer Applications in Technology (TC5) met on 10 January in London. This meeting was the first in a planned series of annual events designed to relieve the main TC5 meetings of the details of WG coordination and to permit time for more interdisciplinary topics.

Hosted by Prof. Gerald Musgrave (GB), the meeting had the following major agenda items:

• Preparations for CAPE 86 (see the article on page 1 of the September 1985 *IFIP Newsletter)* are proceeding well, under the leadership of Dr. Peter Falster (DK), with expectations for a rewarding conference in Copenhagen 20-23 May.

• A TC5 review has been started under the guidance of cognizant officer Mr. Graham Morris (GB), **IFIP** vice-president. The present structure has been found healthy, but it needs a few amendments. Offshore Petroleum Operations will be added to WG5.6, and a new WG on Food and Agriculture is being proposed.

The next TC5 meeting will be held 20 May in Copenhagen. An invitation to hold the 1987 meeting in Beijing has been received from Mr. Q.N. Sun. ■

* TC5 secretary and correspondent to the *IFIP Newsletter*

IN MEMORY OF SVERRE SEM-SANDBERG

We deeply regret announcing the death of Mr. Sverre Sem-Sandberg, a major participant in IFIP activities. From 1968-78 he was Sweden's representative to the IFIP General Assembly and vice-president from 1970-74. He had his heart in the Technical Committee on Data Communication and its working groups but was also active on several committees, as member or chairman: e.g., Finance, Activity Planning, Nominations, Congress 74 Organizing, and the Review Committee for the Technical Committee on Education. In 1984, he was awarded the Silver Core for services rendered to **IFIP.**

After completing his studies in the United States, Sverre joined Ericsson in 1959. He was always dedicated to some aspect of communications, and subsequently to terminals, office automation, consulting, and analysis. He was active both as an Ericsson and Swedish representative to international organizations for communication and standardization **(ISO,** CCITT, IEC, ICC). In Sweden, Sverre was a pioneer, pointing out fields that would assume importance in the future. As early as 1970 he established the first Special Interest Group for artificial intelligence within the Swedish Society for Information Processing (SSI). He was president of SSI from 1971-74, member of its board for several years, and an honorary member. His dedicated work resulted in IFIP Congress 74 being held in Stockholm, with 4400 participants.

International work and IFIP were very important to Sverre. His last major role was as member of the Program Committee for the CCITT conference held in Sydney, Australia in 1984.

Sverre and his wife Unni have many friends all over the world who miss Sverre, his visions, and his dedicated work.

*Knut Hernaes**

* Mr. Hernaes is Sweden's representative to IFIP's General Assembly.

ARTICLE PUBLISHED ABOUT TC11

IFIP has just published *Computer Security: IFIP Addresses the Practical Issues,* the eighth in a series describing the technical work of IFIP undertaken by its Technical Committees (TCs) and Special Interest Group. It describes the activities of TC11, Security and Protection in Information Processing Systems.

Earlier articles discussed education, data communication, digital systems design, information systems, medical informatics, programming, and industrial applications. The author of all eight, working **on behalf of IFIP,** is the respected British journalist Mr. Kenneth Owen.

Copies of the article are available from the IFIP Secretariat. ■

ADDRESS CHANGE

Newsletter Editor:

New address and telephone number can be found in the masthead, on page 2.

Other changes will appear in the *IFIP Information Bulletin,* No. 19, to be published soon. ■

CALLS FOR PAPERS

3rd International Conference on **Advances in Production Management Systems**
11-14 Aug 1987, Winnipeg, Canada
sponsor: WG5.7
extended abstracts due: 31 Mar 1986
contact: APMS 87 Conf. Chairman
Dr. Andrew Kusiak
Dept. of Mechanical and Industrial Eng.
University of Manitoba
Winnipeg, Manitoba, R3T 2N2 Canada
tel. (204) 474-9839
telex: 07-587721

Working Conference on **Methods and Tools for Office Systems**
22-24 Oct 1986, Pisa
sponsor: TC8
papers due: 30 Apr 1986
contact: Program Committee Chairman
Prof. Dennis Tsichritzis
Centre Universitaire d'Informatique
24, Rue du General - Dufour
CH 1211 Geneva, Switzerland ■

NEW IFIP PUBLICATIONS*

CONFERENCE PROCEEDINGS

Decentralized Production Management Systems '85
Proceedings of the **IFIP** WG5.7 Working Conference
Munich, Mar. 1985
(S. Augustin, R. Guendling, J. Ohanian, Eds.)

Software for Discrete Manufacturing
Proceedings of the Sixth **IFIP** TC5 Working Conference
Paris, Jun. 1985
(J.P. Crestin, J.F. McWaters, Eds.)

Protocol Specification, Testing and Verification, V
Proceedings of the Fifth **IFIP** International Workshop
Toulouse-Moissas, France, Jun. 1985
(M. Diaz, Ed.)

Human Computer Communications **in** Health Care
Proceedings of the IMIA Working Conference
Stockholm, Jun. 1985
(H. Peterson, W. Schneider, Eds.)

Computer ECG Analysis: Towards Standardization
Proceedings of the IMIA Working Conference
Brussels, Jun. 1985
(J.L. Williams, J.H. van Bemmel, C. Zywietz, Eds.)

VLSI '85: VLSI Design of Digital Systems
Proceedings of the IFIP TC10/WG10.5 International Conference
Tokyo, Aug. 1985
(E. Hoerbst, Ed.)

Advances in Production Management Systems '85
Proceedings of the Second **IFIP** WG5.7 Working Conference
Budapest, Aug. 1985
(E. Szelke, J. Browne, Eds.)

IFIP ANTHOLOGY

Trends in Information **Systems**
IFIP TC8 Anthology
(B. Langefors, A. Verrijn-Stuart, G. Bracchi, Eds.)

** published by Elsevier/North-Holland in 1986, unless otherwise noted*

FUTURE IFIP MEETINGS

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

WG2.1	22-26 Sep 86	U.K.
	May 87	Montreal
WG2.3	16-20 Jun 86	Lake Balaton, Hungary
WG2.4	9-13 Jun 86	Trondheim, Norway
	1st quarter 87	Canada
WG2.6	31 Mar-2 Apr 86	Palo Alto
WG2.7	2-6 May 86	Princeton
	8-12 Sep 86	Dublin
WG3.1	8 Apr 86	Interlaken, Switzerland
WG3.5	Apr 86	Interlaken, Switzerland
TC5	20 May 86	Copenhagen
TC6	20-21 Mar 86	Cape Town
	4-5 Sep 86 (tentative)	Dublin
	22-23 May 87	Lisbon
WG6.4	Apr 86	London
	26-28 Nov 86	Toulouse
TC7	2 Jun 86	Rome
WG7.2	4 Feb 86	Gainesville, FL, U.S.A.
TC8	13-14 Jun 86	Vienna
WG8.1	4 May 86	Nordwijkerhout, NL
WG8.3	19 Jun 86	Nordwijkerhout, NL
WG8.4	21 Oct 86	Pisa
TC9	29-30 Aug 86	Dublin
TC11	Nov 86	Monte Carlo

* Please note that some of above are scheduled in conjunction with Working Conferences, for which the conference dates are listed

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

Council	10-14 Mar 86	Lisbon
GA	? Aug 86	Dublin
Council	? Mar 87	Singapore
GA	? Sep 87	Budapest
GA	? Aug 89	San Francisco

IMIA

Board Meeting	15-20 Apr 86	Beijing
GA	Oct 86, prior to MEDINFO 86	Washington, DC

JOURNALS

Computers in Industry, The International Journal of **IFIP** TC5
six issues per year

Information and Management, The International Journal of Information Systems Applications
ten issues per year

Microprocessing and Microprogramming, The EUROMICRO Journal
ten issues per year

Computer Networks and ISDN Systems, The official Journal of the International Council for Computer Communications
ten issues per year

Computers and Security, The International Journal of **IFIP** TC 11
four issues per year

Pattern Recognition Letters, The Journal of the International Association for Pattern Recognition
six issues per year ■

CALENDAR OF EVENTS

Event	Date	Location	Organized by
World Conf. on *Data Communication*	17-19 Mar 86	Johannesburg	TC6/CSSA
European Symposium on Programming	17-19 Mar 86	Saarbrucken, F.R.G.	AFCET/AICA/ BCS/GI
Work. Conf. on *Progress in Functional Analysis by Computer Technologies*	17-22 Mar 86	Berlin, G.D.R.	IMIA
Highly Parallel Computers	24-26 Mar 86	Nice	TC10/WG10.3
Second Baghdad Conf. on *Computer Technology and Applications*	24-26 Mar 86	Baghdad	NCC/ECRC/ ECWA/IBI
Work. Conf. on *Computational Issues in Combinatorial Optimization*	24-28 Mar 86	Capri	TC7/IASI/CNR
Intl. Symp. on *Modeling of Computer Communication Systems*	Mar 86	Clemson, SC, U.S.A.	IMACS
In-depth Conf. on *Local Area Network Services*	Mar 86 ?	Zurich	TC6
Work. Conf. on *Data Modelling for CAD Applications*	Mar 86 ?	U.S.A.	TC5/WG5.2
Work. Conf. on *The Computer in the Home: Its Challenge to Education*	7-1 I Apr 86	Interlaken	TC3/WG3.1/WG3.5
Work. Conf. on *Maintaining a Healthy State within the Individual*	8-10 Apr 86	Kobe	IMIA
Work. Conf. on *Program Specification and Transformation*	15-17 Apr 86	Munich	TC2/WG2.1
Work. Conf. on *Information Network and Data Communication*	21-22 Apr 86	Malmo	TC6/SSI/SDF
Symp. on *Information Control Problems in Manufacturing Technology*	22-25 Apr 86	Suzdal, U.S.S.R.	IFAC/IFIP/ IMACS/IFORS
Work. Conf. on *Expert Systems Applied in Marine Activities*	Apr 86	Glasgow	TC5/WG5.6
Sixth Work. Conf. on *Protocol Specification Testing and Verification*	Apr 86	Montreal	TC6/WG6.1
Intl. Workshop on *Architectural Synthesis of Digital Systems*	Apr 86	Torino, Italy	TC10/WG 10.2
Workshop on *South East Asia Focus*	Apr 86 ?	Singapore	TC10/WG10.5
Work. Conf. on *Health Informatics for Development*	Apr 86 ?	Havana	IMIA/WG9
Work. Conf. on *Logical Structure of Distributed Information Processing*	Apr 86 ?	Venice	TC2
Intl. Conf. on *IT Standards*	Apr 86	Athens	TC5/WG5.4/UNDP/ MRTGr
Work. Conf. *Comparative Review of Information System Design Methodologies: Improving the Practice—CRIS*	5-7 May 86	Noordwijkerhout, NL	TC8/WG8.1
Work. Conf. on *Participative Information System Design*	12-15 May 86	Berlin, G.D.R.	TC9/WG9.1
First Workshop on *Experience with the Management of Software Projects*	14-16 May 86	Heidelberg	IFAC/TC5
Second Intl. Conf. *CAPE 86—Computer Applications in Production and Engineering*	20-23 May 86	Copenhagen	TC5 et al.
Fourth Symp. on *Software for Computer Control—SOCOCO '86*	20-23 May 86	Graz, Austria	IFAC/IFIP
Intl. Conf. *EURIT86—European Conference on Information Technology—Development of Educational Software and Courseware*	20-23 May 86	Enschede, NL	COI/CEC/TC3/ATEE
Fourteenth Intl. Workshop on *Real Time Programming*	26-28 May 86	Siófok, Hungary	IFAC/IFIP
Workshop on *Analog Circuits in VLSI*	May 86	Princeton	TC10/WG 10.5
Work. Conf. on *Reliability and Optimization of Structural Systems*	May 86	Denmark	TC7
Work. Conf. on *Off-Line Programming of Industrial Robots*	2-3 Jun 86	Stuttgart	TC5/WG5.3/IFAC
Intl. Seminar on *Teletraffic Analysis and Computer Performance Evaluation*	2-5 Jun 86	Amsterdam	
Fifth Intl. Symp. on *Intelligent Measurement*	10-14 Jun 86	Jena, G.D.R.	IMEKO/WG5.3
Work. Conf. on *Decision Support Systems—The Decade in Perspective*	16-18 Jun 86	Noordwijkerhout, NL	TC8/WG8.3
Fifth Intl. Conf. on *Dynamic Modelling and Control of National Economies*	17-20 June 1986	Budapest	IFAC/IFIP/IFORS
Work. Conf. on *Mathematical Modelling in Immunology*	Jun 86 ?	Vienna	TC7/WG7.1
Fifth Symp. on *Control in Transportation Systems*	8-11 Jul 86	Vienna	IFAC/IFIP/IFORS
Second Intl. Cong. on *Computational and Applied Mathematics*	21-26 Jul 86	Leuven, Belgium	JCAM/U. Leuv.
Workshop on *Silicon Compilation*	Jul 86	Edinburgh	TC10/WG10.5
Work. Conf. on *Changing Requirements for Training in Informatics*	11-15 Aug 86	U.S.A.	TC3/WG3.4
Intl. Symp. on *Automation and Data Processing in Aquaculture-AQUACULTURE 86*	18-21 Aug 86	Trondheim	IFAC/NFA/NSAC
Regional Conf. on *Microcomputers in Secondary Education*	18-22 Aug 86	Tokyo	TC3/IPSJ
Twelfth Intl. Conf. on *Very Large Data Bases—VLDB-86*	25-28 Aug 86	Kyoto	VLDB/IFIP
Third Work. Conf. on *Formal Description of Programming Concepts*	25-29 Aug 86	Ebberup, Denmark	TC2/WG2.2
Fourth Symp. on *Large Scale Systems: Theory and Applications*	26-29 Aug 86	Zurich	SFAC/IFAC/IFORS
Work. Conf. on *Information Systems Assessment (ISA)*	26-29 Aug 86	Noordwijkerhout, NL	TC8/WG8.2
Intl. Workshop on *Performance-Driven Digital System Design*	Aug 86	Los Angeles	TC10/WG10.2
Intl. Workshop on *Software Engineering for CAD Tools*	Aug 86	Bonn	TC10/WG10.2
First Intl. Conf. on *Economics and Artificial Intelligence*	2-4 Sep 86	Aix-en-Provence, France	IFAC/IFIP/IFORS
Twelfth Symp. on *Microprocessing and Microprogramming—EUROMICRO*	15-18 Sep 86	Venice	EUROMICRO
Intl. Conf. *ICCC 86—New Communication Services: a Challenge to Computer Technology*	15-19 Sep 86	Munich	ICCC/TC6
Eighth European Conf. on *Operational Research*	16-19 Sep 86	Lisbon	EURO/IFORS
Intl. Symp. on *Simulation of Control Systems*	22-26 Sep 86	Vienna	IFAC/ACPE/IMACS
Work. Conf. on *Women. Work and Computerization*	26-28 Sep 86	Dublin	TC9/WG9.1
Work. Conf. on *Hanging Things on a Micro*	Sep 86	Australia	TC3/WG3.3
Workshop on *Concepts and Characteristics of High-Performance Workstations*	Sep 86		TC10/WG10.1
Conf. on *The Future of Information Systems—Lessons from the 80'•*	Sep 86	Linz, Austria	AUSCS/IFIP
Work. Conf. on *Correctness by Construction in Design from HDL Sources*	Sep 86	Grenoble	TC10/WG10.2
Work. Conf. on *Stochastic Differential Systems*	Sep 86 ?	Visegrad, Hungary	TC7/WG7. I /AC.SC
Work. Conf. on *New Technologies in Computerbased Production Management Systs.*	1-3 Oct 1986	Tokyo	TC5/WG5.7

IFIP 86 – 10th World Computer Congress	1-5 Sep 86	Dublin	IFIP
IFIP- 89 – I Ith World Computer Congress	28 Aug-1 Sep 89	San Francisco	IFIP

Please see page 11 for schedule of IFIP administrative meetings.