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International Federation for Information Processing

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IFIP ISSUES WORLDWIDE WARNING ON COMPUTER VIRUSES

In view of the potentially serious and even fatal consequences of the introduction of "virus" programs into computer systems, **IFIP** urges

- all computer professionals, worldwide, to recognize the disastrous potential of computer viruses
- all computer educators to impress upon their students the dangers of virus programs
- all publishers to refrain from publication of the details of actual virus programs
- all computer professionals not to knowingly distribute virus code, except for the purpose of legitimate research in a controlled environment

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CONGRESS '89 HELD IN SAN FRANCISCO

1600 Attend Successful IFIP Event

AI opening ceremony (left to right): Mr. Howard Funk, Mr. John Young, Prof. Steven You, Mr. Ashley Goldsworthy, Prof. Donald Knuth, and Dr. Nerve Gallaire

IFIP Congress '89, the 11th World Computer Congress, took place in San Francisco 28 August-1 September and was successful in all respects. Sixteen hundred information processing professionals from 48 countries attended. The nations with the largest representation were

U.S.A.-635 U.K.-42
Japan-274 Hungary-36
F.R.G.-80 Canada-32
France-59 Italy-32
The Netherlands-46 Finland-30

The Congress was preceded by four days of tutorials, an especially successful program. Technical visits to ten laboratories, universities, and manufacturers were held before and during the Congress. In addition, a number of social events and tours heightened the participants' enjoyment.

The Congress exhibition, consisting of 30 displays, was open from 29 to 31 August. Approximately a quarter of the thirty exhibitors were publishers of technical literature. The rest ranged from large mainframe manufacturers to small software producers.

The Congress's opening ceremony was attended by nearly 1000. First, Organizing Committee chairman Prof. *Steven Yau* (USA) read greetings from *President* George *Bush* of the U.S.A., which included the following:

> As computer technology becomes more and more important to our global economy and to our daily activities, it will play an ever-greater role in promoting the free flow of information. In this area, the potential for good is virtually unlimited. The open exchange of ideas and information is a hallmark of freedom — and it is vital to international understanding and world peace. I wish you much success as you chart the future of information processing.

Following welcoming remarks from Prof. Yau, **IFIP** president *Mr. Ashley Goldsworthy* (AUS) delivered a message in which he noted the need for increased **IFIP** activity in the U.S.A., described how **IFIP** builds bridges between people, technologies, nations, and intellectual disciplines, and thanked the volunteers who had made the Congress possible.

Mr. Howard Funk, president of the American Federation of Information Processing Societies (AFIPS), the host

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GENERAL ASSEMBLY TAKES MAJOR STEPS IN SAN FRANCISCO

IFIP's General Assembly (GA) met in San Francisco 3-5 September for an extremely productive session. New Technical Committees (TCs) on Artificial Intelligence and Human-Computer Interaction were formed. A Provisional Specialist Group on Fundamentals of Computer Science and several new Working Groups (WGs) were created. The GA selected Hamburg for the site of IFIP Congress '94, fixed 21-25 September as the dates for Congress '92, and suggested changes in the organization of IFIP Congresses. It issued a strong resolution condemning computer viruses and received a preliminary version of a proposed code of ethics. Officers were elected. The GA increased dues of Members. It created the positions of Contracts Officer and Activity Secretary to provide better assistance to organizers of IFIP events. It approved a major revision of the Statutes and Bylaws to accommodate prior GA actions. Many other steps were also taken.

New IFIP Activities

Probably the most significant actions taken were the formation of two new TCs. The creation of TC 12 on Artificial Intelligence culminated a process that began in 1987 with the organization of an IFIP Specialist Group (SG) on AI. In August 1989, that SG held a Workshop on Future Directions for AI Research, in conjunction with the biennial International Joint Conference on Artificial Intelligence. The conference sponsor, IJCAII, an Affiliate Member of IFIP, cooperated closely to convene this workshop. *Prof. Robert Meersman (NL),* chairman of the SG, was appointed chairman of TC12.

The evolution of TC13 on Human-Computer Interaction was somewhat different. The activity began in 1981 as WG6.3, which then became a Task Group (TG), which has held two very successful conferences (INTERACT '84 and '87). *Prof. Brian* Shackel (GB), chairman of the TG, was appointed chairman of TC13..

The GA also created a Provisional SG on Foundations of Computer Science. The day before the GA, the TA convened a meeting of prominent computer scientists from around the world. This group recommended the formation of an IFIP SG and drafted Scopes and Aims for it. Prof. *Josef Gruska* (CS) was appointed chairman of the SG.

New WGs were formed in the areas of Optimization-Based Computer-Aided Modelling and Design (WG7.6), Stochastic Optimization (WG7.7), Social Implications of Computers in Developing Countries (WG9.4), and Social Implications of Artificial Intelligence Systems (WG9.5).

Scopes and Aims (S&As) of the new TCs, WGs, and SG and of WGs that have revised their S&As will be printed in a future issue of the *Newsletter.* (S&As of WG7.6 and WG7.7 appear in the IFIP *Bulletin.)*

The TA has proved to be a very effective body for planning IFIP's technical activities and bringing together the TC chairmen to discuss mutual concerns. The TA makes recommendations to the GA for the formation of new technical bodies (TCs, WGs, SGs, etc.) but approves S&As for all such bodies. A related body, the Activity Management Board, is more concerned with approval of technical events and the finances of technical bodies and the events they organize.

IFIP Congresses — past, present and future — were the source of much discussion at the GA and TA. This was the first time that a GA had been scheduled to *follow* a Congress, and the arrangement proved to be very beneficial, enabling the GA to consider the results of the Congress. Congress '89 is described in an article on page 1, Congresses '92 and '94 on page 7.

Elections

The GA elected Prof. *Alex Verrijn-Stuart (NL)* as an Individual Member, for a 3-year term. It re-elected *Mr. Aage Melbye (DK)* and *Mr. Graham Morris* (GB) as vice-presidents to serve 3-year terms. Mr. *Luis* Penedo (P) and *Mr. Robert Iau (SEARCC)* were re-elected as trustees for 3-year terms; Prof. *Martti Tienari* (SF) was elected to a 3-year term as trustee and Mr. *Dudley* Dolan *(IRL)* to a 2-year term.

A forceful statement against computer viruses, printed on page 1, was adopted by the GA. In addition, the GA proceeded with plans to create a code of ethics for informatics professionals. That activity is described on page 10. Some preliminary discussions were held with regard to the the certification of informatics professionals. A *Newsletter* article on this subject is planned when more information is available.

IFIP trustee *Prof. Angel Alvarez-Rodriguez (E),* who monitors the annual Member society reports, told of a common concern in several of them — that **IFIP** should do more to bring information processing experts to developing countries. He proposed the following resolution, which was adopted by the GA:

> TCs are urged to encourage WG members and other **IFIP** technical experts to give talks when on trips (business or vacation) to foreign countries — especially, less developed countries. They should contact the GA representatives of those countries in advance, expressing their intentions and furnishing brief resumes and abstracts of the proposed talks.

The Developing Countries Support Committee announced its intention to concentrate its efforts in South America and Africa.

Two initiatives begun in prior years were discontinued by the GA. One was an **IFIP** award for outstanding contributions in information processing (see the March 1988 ***IFIP*** *Newsletter,* page 1). The plan called for two prizes (of approximately $100 000 U.S. each) to be awarded, beginning at **IFIP** Congress '92. It proved impossible, despite a major effort by Council, to raise the large endowment necessary to sustain these awards. Instead, **IFIP** will take action to indicate its support for the institution of a Nobel Prize in information processing. Another proposal that was abandoned was the categories of personal and corporate memberships in **IFIP.** This was described on page 7 of the March 1988 *Newsletter.* The GA concluded that worthwhile personal membership in **IFIP** consists of active participation in WGs or TCs. People who might have been interested in a personal membership should be encouraged to help with WG or TC activities.

IFIP Publications

Means of improving the distribution of **IFIP's** publications, *a* perennial topic of **IFIP** meetings, was discussed by the GA and several committees. It was observed that income from royalties on **IFIP** books has been gradually declining, despite the increasing number of books we publish each year. Part of the reason is that libraries are buying fewer books. Mrs. *Stephanie Smit,* representative of **IFIP's** primary publisher, Elsevier/ North-Holland, said that in order to sell well, conference proceedings must be of high quality and timely: published at the time of or shortly after the conference

on which they report. Anthologies taken from previously published **IFIP** works do not seem to sell well. She urged **IFIP** Member societies to publicize the fact that large discounts are available to their members.

Publications Officer *Dr. Karen* Duncan (USA) pointed out that it is difficult to keep track of all the publications in progress, and that some working conferences do not produce proceedings, despite **IFIP's** policy that all conferences must disseminate their results in the form of publications. One step taken by the GA to improve this situation was to assign Cognizant Officers (COs) the responsibility for ensuring timely publication of TC proceedings according to **IFIP** policies. Procedures to assist the COs to do this will be developed. It was noted that **IFIP** has signed a master contract with Springer-Verlag, similar to the one with Elsevier Science Publishers, for publications not handled by Elsevier.

Improved Finances

IFIP's finances are better than they were a year ago. While the operating loss for 1987 was 283 000 Sfr. (due, in a large part, to losses in foreign exchange transactions), for 1988 it was only 300 Sfr (reflecting gains in foreign exchange transactions). The projected result for 1989 is a gain of 86 000 Sfr. The GA approved a 1990 budget calling for an operating loss of 20 000 Sfr. Included in the budget are proceeds from **IFIP** Congress '89, conservatively estimated at 35 000 Sfr. The TCn Fund — monies set aside for use by the TCs, at their discretion, as described on page 9 of the June 1989 *Newsletter* — was also incorporated into the 1990 budget. The 1990 allocation for the TCn Fund (38 000 Sfr.), when added to the expected loss for that year, brings the total budgeted loss for 1990 to 58 000 Sfr. There was no discussion by the GA of the TCn Fund concept.

The GA approved a 5% dues increase in each of the next three years. The Finance Committee is also negotiating with some members to change their categories in the dues structure. The treasurer requested all Full Members who had not yet paid their dues for 1989 to do so as soon as possible.

The GA approved a major revision of IFIP's Statutes and Bylaws, which incorporated various structural changes that have taken place in recent years: creation of the TA and Activity Management Board, discontinuation of the Activity Planning Committee, creation of the Specialist Group mechanism, discontinuation of the Special Interest Group type of body, and other organizational changes. Another significant change is that GA approval of major items now requires a 3/4 majority of all Full Members present or represented by proxy (previously, 2/3 of all Full Members).

A statement of IFIP's Mission was approved by the GA. This final version is only slightly different from the preliminary version that appeared on page 5 of the June 1989 *Newsletter.* The final version will be printed in a future issue of the *Newsletter.*

Support for Event Organizers

Vice President *Prof. Asbjørn Rolstadås (N)* presented the conclusions of a task force he had led that was concerned with providing centralized support to organizers of **IFIP** events. The key provisions are

- Two approvals will be required for each **IFIP** event: a technical approval and a financial approval.
- Technical approvals will be given by TC chairmen.
- Financial approvals will be issued when all financial planning has been completed and all necessary documents have been signed.
- A position of Activity Secretary will be created to perform the following, primarily clerical, tasks:
  - send necessary guidelines, documents and contracts to event organizers
  - monitor completion of planning steps
  - maintain the calendar of **IFIP** events
  - update the database of event information
  - issue letters of approval, when appropriate

The position of Activity Secretary will replace that of Conference Officer, who performed some of these tasks.

- A publication contract with an IFIP publisher and a memorandum of understanding, specifying finances and all other requirements, will be signed for each event.
- A position of Contracts Officer will be created to ensure that the contracts are satisfactory and to assist event organizers and the Activity Secretary. The position of Contracts Officer will replace that of Publications Officer, who performed some of the same tasks.

The proposal was accepted, in principle, by the GA. A new task force was appointed, headed *by Prof. Rolstadås, to* apportion the necessary tasks among the responsible individuals and committees, and the Activity Management Board will specify the necessary procedures. A Contracts Officer (P. Nedkov (BG))

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The Secretariat can also answer inquiries about **IFIP.**

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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.*

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THE PRODUCT REALIZATION PROCESS

The Product Realization Process (PRP) is characterized by a number of essential subprocesses: market investigations, specification, functional design, product design, product documentation, production and test preparation, manufacturing, installation, and service. Many of these processes (if not all) utilize information technology as an important ingredient to achieve better and consistent quality, shorter throughput times, and cheaper exploitation of resources and materials.

However, many of these processes lack a rigorous and well defined description about the product to be realized and the processes that have to be used. Such a description could consist of a "Common Design Language" that becomes richer in its content as more subprocesses are activated, put into operation, and concluded. In some cases and in certain engineering disciplines, specific solutions have been created. Information between design processes can be captured in "standard interfaces" like IGES (for drawing information), EDIF (for electronic design information), and APT (for the description of geometrical and machining information).

There are almost no such descriptions in the market investigation and specification part of the PRP. In order to help improve this situation, IFIP's Technical Committee on Computer Applications in Technology (TC5) and several of its Working Groups are organizing a Working Conference (WC) on Formal Product Information, to be held 23-25 October 1990 in Amsterdam. *Mr. Jakob* Vlietstra (NL) is chairman of the International Program Committee.

The objective of the WC is to bring together experts from several engineering fields and discuss the available solutions in each of the subprocesses, with a special focus on specification techniques and methods for preserving the integrity of the information created, its lifetime over long periods of time, and the way this information is passed between subprocesses, departments, companies, and engineering disciplines.

Specific contributions are sought from those who are actively working in the specification and development of "product description techniques," configuration managements and "PRP interfaces."

Further details about the WC can be found in the Calls for Papers column on page 14.

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and an Activity Secretary *(P. Falster (DK))* were appointed, and the positions of Conference Officer and Publications Officer were discontinued.

IFIP president *Mr. Ashley Goldsworthy (A* US), before passing the gavel to incoming president *Acad. Blagovest Sendov (BG),* noted IFIP's accomplishments during the last three years: nearly 300 technical events have been held, two new TCs and many WGs have been created, IFIP has been restructured, with the formation of the TA, IFIP's Mission has been reformulated, new Members were admitted, and the International Medical Informatics Association (IMIA) has made the transition from a Special Interest Group to an Affiliate Member. *Mr. Goldsworthy* gave special thanks to *Mme. Gwyneth* Roberts, Administrative Manager of the IFIP Secretariat, for her help and devotion to IFIP over the years.

Acad. Sendov (left) receives gavel from Mr. Goldsworthy

Acad. Sendov told of his intention to gain increased recognition of IFIP throughout the world, to involve more Eastern Europeans in IFIP, and to make IFIP Congresses more attractive to the academic community.

The GA was closed with many thanks to the host, the American Federation of Information Processing Societies, for providing excellent facilities and generous hospitality during the week in San Francisco.

An Apology

Due to a very productive General Assembly and an interesting Congress, both in September, articles in this *Newsletter* on these events and related activities have caused us to defer some articles on other topics to subsequent issues. — Ed.

VIRUSES continued from page 1

and all developers of virus detection and prevention systems to stop distribution of virus code for test purposes

- governments, universities and computer systems manufacturers to devote more resources to research into and development of new technologies for protection of computer systems
- governments to take action to make distribution of viruses a criminal offense

The IFIP General Assembly (GA) passed the preceding forceful resolution at its meeting in September in San Francisco. With the identification of hundreds of computer virus programs and even more variations on these, the disastrous implications for computer systems must be recognized by all countries. The consequences of "viral attack" on computer systems include serious economic and personal loss and could potentially become a threat to human life; for example, in computer-controlled health care systems and industrial installations. The social and economic losses due to virus infiltration into computer systems are large. Those losses and their effects are becoming, moreover, of international significance as computer networks take on global information roles in many enterprises.

Prof. William Caelli (A US), chairman of IFIP's Technical Committee on Security and Protection in Information Processing Systems (TC11), supported by the chairman (effective in September) of the TC on Relationship between Computers and Society (TC9), Prof. *Klaus Brunnstein (D),* proposed the resolution to the IFIP Technical Assembly (TA). The TA supported it and brought it to the GA, which adopted it.

Caelli and *Brunnstein* drew the attention of the GA to the growing number of virus programs (and similar programs, such as "worms" and "Trojan horses") being published in inexpensive, widely available books. Such code may easily be used and adapted for illicit purposes. They also noted that in some cases, actual virus programs are distributed with virus detection and protection software packages, in order to test and demonstrate those packages. This practice must stop, IFIP urged, simply because it is too easy for such test viruses to be further copied and disseminated, even inadvertently, or for them to be modified further, with unpredictable results.

All IFIP Member societies are urged to publicize this resolution to their memberships and governments.

Computer use without the assistance of systems professionals has changed the way organizations work. From top management to factory workers, people interact directly with computers and related technology such as telephones and reprographic equipment. To explore how this technology changes organizations and how organizations can manage this change in the future, IFIP's Working Group on Organizations and Information Systems (WG8.2) held a Working Conference on Desktop Information Technology 2-4 June 1989 in Ithaca, New York. Seventy-two participants from the U.S.A., Singapore, Australia, Europe, and Canada attended. Prof. *Hans Oppelland* (NL), chairman of WG8.2, was conference chairman, and *Prof. Kate Kaiser* (USA) was chairman of the International Program Committee. The Organizing Committee was headed by Professors *Roy Alvarez* (USA) and *Heinz Klein* (USA).

A keynote speech, "Creating Effective Symbioses of Computers and People," by *Prof. William Starbuck (USA),* set the tone by calling attention to the relative strengths of computers and mankind and arguing for appropriate designs for human-computer systems. The following quotations are taken from his speech.

Computers vis-a-vis People

> The differences between people and computers have been persistent and profound. Computers are not potential imitators of human beings. Computers should be regarded as a different species — like porpoises or little green creatures from outer space. The computer species finds comfort in different habitats, prefers different languages, reasons with somewhat different logic. Those who ignore the differences between computers and people risk embarrassment, at the least.
>
> Computers have not developed the ability to reason much like people. Disappointments have followed the forecasts that computers would be able to imitate human beings. When computers look most effective, they are using techniques that are quite different from the techniques people use.
>
> Some computer characteristics are unlikely to change. Compared to people, computers are: tireless; better symbol manipulators; stricter logicians; excellent arithmeticians; both much quicker and much slower. Computers also accept the premises of their programs as constraints. Computers can easily simulate what-if conditions and extrapolate theories to farfetched extremes. Computers make almost no errors — errors being defined as deviations from instructions. Current computers are inhumanly obedient. If so instructed, computers will carry out utterly absurd instructions, or they will remain completely calm in the face of impending disaster.
>
> Computers can react to deviations, but they have not shown any meaningful ability to devise goals for themselves, to reprogram themselves, or to question their basic premises. Efforts to enable computers to learn have, so far, been restricted to very narrow demonstrations. Because computers are good at not making mistakes in the first place, they have less need to learn from mistakes.
>
> Other characteristics of computers could change if designers so chose: decisive, literal, precise, reliable, consistent, simple, transparent.

People Are Different

> People are different. People's brains are parallel processors that carry on numerous simultaneous and interacting processes. They have extensive memories with meaningful structures. People usually know whether they possess certain information, even when they cannot find this information immediately. People can process visual and auditory data of great complexity; shift levels of abstraction between detail and generality; separate foreground from background, figure from frame, signal from noise; distinguish patterns without ignoring contexts; focus on important or unusual stimuli; operate with incomplete, imprecise plans; and extrapolate past experiences without forgetting that they are operating outside this experience.
>
> Perhaps, most importantly, people are more playful than computers and better at making mistakes. Whereas computers obey literally, people ignore or forget instructions or interpret them loosely; deviate from plans; get bored; experiment; test the limits of assumptions. Many human perceptual skills and response modes depend upon observing deviations from targets, and these targets may themselves be evolving. Sometimes, people begin to doubt even their most fundamental beliefs, especially after a couple of glasses of wine. Consequently, people expect to make mistakes and to learn from these errors. Creative people may be very good at learning from mistakes. People can reprogram themselves.
>
> The differences between people and computers imply that combinations of the two can achieve results that are beyond the capabilities of each alone. But cooperation is not so easy.

Expert Systems Shouldn't Imitate People

Prof. *Starbuck* then touched upon aspects of expert systems:

> Expert Systems began as efforts to duplicate human capabilities, but it is extremely unlikely that they will do so. Certainly, the systems built to date do not imitate people very closely or very robustly. Why must expert systems closely resemble human experts? Anthropomorphism is an extraneous criterion: it does not fit the characteristics of computers and it may have nothing to do with the effectiveness of human-computer systems. Engineers and scientists have created computer programs that far exceed human capabilities and that make no pretense of imitating people.

He concluded with a number of observations:

> A science of human-computer interaction has to focus on human capabilities because these are fairly stable, not the fast changing capabilities of computers. But people are so complex and flexible that rigorous scientific knowledge is likely to remain rudimentary and insecure.
>
> The key issues for designing human-computer systems concern the right balances. The best balances will continue to shift as computers evolve. The balances may be very sensitive to contexts, so designers should expect the right answers to be different in different contexts, and they should study fairly realistic mock-ups of real-life problems. Findings from highly abstract experiments do not extrapolate well.

The focus of the conference, of course, was on desktop information technology. *Prof. Kaiser* noted that one of the general conclusions was that much work needs to be done in the field of end-user computing. She reported that a very healthy debate took place, at a panel session, on measures for research on end-user computing.

CONGRESS '89 continued from page 1

organization of the Congress, observed that the major goals of professional societies should be education, recognition of leaders in the profession, and providing opportunities for leadership. In carrying out the second goal, he presented three awards, including one to Mr. George Glaser for 27 years of dedicated service to the computing profession. He noted that Mr. *Glaser* had started his involvement with professional societies by painting signs for a national computer conference held in San Francisco in 1962, was AFIPS president from 1973 to 1975, became AFIPS representative to the **IFIP** General Assembly in 1980, and served as **IFIP** vice-president from 1982 to 1988.

International Program Committee chairman Dr. Nerve Gallaire *(D)* urged the delegates to actively participate in the Congress and challenge the speakers. He said that a goal of the program Committee had been "to make your lives difficult this week" by providing such a rich program that everyone would be faced with difficult choices of what sessions to attend.

Knuth on Theory and Practice

The technical keynote speaker was *Prof. Donald Knuth* (USA). (See page 1 of the June 1988 ***IFIP*** *Newsletter* for biographical information.) His speech, *Theory and Practice,* taught of the importance of both theory and practice and the need for scientists to participate in both. He said,

> Theory and practice are not mutually exclusive; they are intimately connected. They live together and support each other. This has always been the main credo of my professional life. I have always tried to develop theories that shed light on the practical things so that I have a better chance of discovering rich and interesting theories. It seems to me that my chosen field, computer science — information processing — is a field where theory and practice come together more than in any other discipline.

Commenting on his experiences in designing programs, he said "software is hard." He ended with a challenge for the audience:

> *Make a thorough analysis of everything your computer does during one second of computation.* The computer will execute several hundred thousand instructions during that second; I'd like you to study them all. The time when you conduct this experiment should be chosen randomly. I am sure the results will be extremely interesting; they will tell us a lot about how we can improve our present use of computers.

During a press conference following the opening ceremony, *Prof. Knuth* was asked why people attend **IFIP** Congresses. He replied, "You get to see world figures in computer science and learn from them. The sociology of this event is very important. It's a thrill for me to see these professionals, whose names I know but whom I've never met." [We can assure you, *Prof Knuth,* that it was even more of a thrill for us to see and hear you. — Ed.]

Young Speaks on Standards

The second keynote speaker was Mr. *John Young* (USA), chairman and chief executive officer of Hewlett-Packard Company. His address, *Standards and the Computer Industry: History in the Making,* raised the question: "How can computer vendors respond to the growing clamor for industry standards while — at the same time — competitively differentiate themselves from their competitors? How can computer scientists reconcile the seemingly divergent goals of standardization and innovation?" He explained that, "...standards leave a wide range of freedom for vendors to differentiate themselves."

After the opening session, the Congress began its regular pattern of eleven parallel tracks. There were 37 invited speakers and 26 responders, 113 panelists, 113 presenters of submitted papers, and 26 speakers on Major Information Technology Programs. Of the 36 countries represented on the program, the U.S.A. provided the largest number of speakers, by far, followed by the Federal Republic of Germany, Japan, France and the United Kingdom.

Nobel Prize Winner's Talk

One of the highlights of the Congress was the talk by *Prof. Kenneth Wilson (USA),* winner of the 1982 Nobel Prize in Physics. In his talk, entitled *Supercomputing in Physics,* he predicted that the "computer revolution" will last many years more. He expressed the belief that improvements in computing for larger scientific problems will come more from improved algorithms than from large computers. He said that in the programs to solve these problems, the designers should be able to express the ideas that go into them just as authors of good scientific publications express their ideas. Present-day programming languages don't permit this, he complained. He felt that parallel processing has not paid off yet because of the lack of adequate system software. He expressed his belief that to solve large problems, increases in memory size are as important as computer speed.

Closing Ceremony

At the very well attended closing ceremony, Prof. Yau thanked all the volunteers who had helped put on the Congress. IFIP's president-elect, *Acad. Blagovest* Sendov (BG), and the chairman of the Organizing Committee for **IFIP** Congress '92, Mrs. *Rosa Alonso,* invited the participants to Congress '92 in Madrid.

The closing speech was given by *Mr. William* Joy (USA), vice-president of research and development of Sun Microsystems. He, too, expressed the belief that large scale computing will be changed by large memories rather than parallel processing. He urged the industry to "empower people with good ideas — give smart people good tools" and promised his audience that "the best software is yet to come."

Following the Congress, *Prof. Yau* reported to the **IFIP** General Assembly that the loans from **IFIP** and AFIPS to the Organizing Committee had been repaid, with interest.

Since the names of the Organizing Committee members have not been printed previously in the ***IFIP*** *Newsletter,* we print them now and add our thanks.

Stephen S. Yau
Adrian Basili
Sylvia Charp
Karen Duncan
George R. Eggert
Joseph Fernandez
Sidney Fernbach
George Glaser
Albert K. Hawkes
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Robert Spieker
Robert Van Tuyl
Hervé Gallaire

In a future issue of the *Newsletter,* we plan to print highlights from other papers presented at the Congress. A discussion of plans for Congresses '92 and '94 is on page 7.

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)

PLANS FOR FUTURE IFIP CONGRESSES

The IFIP General Assembly (GA), meeting in September in San Francisco, instructed the International Program Committee (IPC) of **IFIP** Congress '92 to make significant changes in the structure of the Congress, in order to satisfy two goals: to maintain the Congress as **IFIP's** premier event and to uphold the role of the Congress as an important international event. To this end, the GA also instructed the IPC to reduce the number of different, parallel streams **(IFIP** Congress '89 had 11 tracks) and to involve IFIP's Technical Committees (TCs) heavily in planning the program. The Congress Organizing Committee was asked by the GA to improve the "marketing" of the Congress.

The GA has recognized for years that large, general, technical conferences have had decreasing attendance; whereas, interest still exists in specialist conferences. For example, while 1600 participants attended **IFIP** Congress '89, some 4500 registered for the International Joint Conference on Artificial Intelligence, sponsored by an Affiliate Member of **IFIP.** That conference was held in Detroit the week before Congress '89. Furthermore, another **IFIP** Affiliate, the International Association for Pattern Recognition, is finding that its, general conferences are attracting less interest as time passes.

The **IFIP** Technical Assembly, which met in San Francisco after Congress '89 and before the GA, deliberated this issue and concluded that the previous format of Congresses should be replaced by one in which a small number of **IFIP's** TCs would organize individual conferences at the same venue, which would be merged to form an **IFIP** Congress. Attention would be paid to creating sessions of mutual interest to two or more TCs. Plenary sessions of general interest to all participants would also be planned. Under this format, the responsibilities of the overall International Program Committee would be reduced to arranging the plenary sessions and scheduling the meetings of the various TC conferences. The nature of the Congress proceedings is not clear. Would a single large volume be produced or several, smaller ones?

This approach was supported by most TC chairmen but troubled a few. Some believe that holding a large TC conference covering all the TC activity would be inappropriate for their TCs. Some would find it difficult to adjust their schedules to the Congress schedule. There was some concern that people who have attended previous Congresses to gain an overall sense of the state of the art in information processing might not be satisfied by the proposed format. Nevertheless, the consensus favored the aforesaid approach.

An indication of the direction in which Congress '92 will go may be read from the fact that incoming **IFIP** president *Acad. Blagovest Sendov* (BG) designated as IPC chairman for Congress '92 Prof. *Wilfried Brauer (D),* a TC chairman (TC3 on Education), who — contrary to precedent — has not previously served on a Congress IPC. The remaining members of the IPC have not been designated yet. A future issue of the ***IFIP*** *Newsletter* will print biographies of both Prof. *Brauer* and Mrs. *Rosa Alonso (E),* chairman of the Organizing Committee (OC).

The GA settled the dates for the Congress: 21-25 September 1992. An attempt to hold the Congress at the same time and place as the annual major Spanish computer trade show had to be abandoned. However, the GA asked the OC to organize a computer exhibition to accompany the Congress, if this could be done at no financial loss.

Looking ahead, the GA selected Hamburg as the host city for Congress '94 (beginning in 1992, Congresses will be held biennially). Helsinki was the only other contender.

Who's Who in **IFIP: PROF. GIAMPIO BRACCHI**

Prof. Giampio *Bracchi,* outgoing chairman of **IFIP's** Technical Committee on Information Systems (TC8), was born in Piacenza, Italy. He received the Dr. ing. degree in electronic engineering in 1967 from Politecnico di Milano. Since then, he has been with the Computer Science Laboratory of Politecnico di Milano, where he is professor and head of the Information Systems research group.

His professional interests are in the fields of database management, information systems and office automation. He has lectured on these topics in Italy and most other European countries, published books and articles widely, conducted research projects in the university environment, and been engaged in management consultancy for large companies and governmental organizations.

Prof. Bracchi has served as president of AICA, the Italian National Computing Society, of which he is presently a Council member. He is also a trustee of the Very Large Data Bases Endowment, and a member of the editorial boards of the journals *Information Systems, Information and Management,* and *Decision Support Systems.*

His connections with **IFIP** go back to 1972. He was one of the founders of the **IFIP** Working Group on Data Bases (WG2.6), of TC8 (where he has served continuously as the Italian representative), of WG8.1, and of WG8.4. In 1984, he was elected chairman of TC8.

He was also chairman of the TC2 Conference on Data Base Architecture and of the TC8 Conference on Methods and Tools for Office Systems, as well as a program committee member or speaker for many other **IFIP** events.

Prof. Bracchi lives in Milan with his wife, Maria Grazia, and his two sons, Roberto and Daniele. He is very interested in antiques and enjoys skiing in the Alps.

Having reached the 6-year limit for serving as a TC chairman, he is stepping down from that post. He will be, however, the new representative to **IFIP** of the Very Large Data Bases Endowment, an Affiliate Member.

SILVER CORE AND OUTSTANDING SERVICE AWARDS GRANTED

On 1 September, the Silver Core Award for service to **IFIP** was presented to 40 recipients by *Mr. Ashley Goldsworthy* (AUS), then president of **IFIP.** The Award may be conferred on those who have served **IFIP** as General Assembly members, committee officers, members of Congress Program Committees, and editors of proceedings of major **IFIP** conferences. Required length of service varies with the role. The president of **IFIP** may also propose others who have given exceptional service to **IFIP.**

The recipients are-

General Assembly:

A. Balasubrahmanian (IND)	GA 84-89
P. Kovacs (H)	GA 84-89
L. Penedo (P)	GA 83-89 PC Cong 89

Technical Committees/Working Groups

M.S. Feather (USA)	WG2.1 Secr 82-89
J.J. Horning (USA)	WG2.3 Chmn 82-88
W.M. Waite (USA)	WG2.4 Chmn
L.D. Fosdick (USA)	WG2.5 V-Chmn 79-82 Chmn 89 Ed 87
J.R. Rice (USA)	WG2.5 V-Chmn 82-88
R. Meersman (NL)	WG2.6 Chmn 83-89 Ed 86 88
C. Gram (DK)	WG2.7 V-Chmn 82-89
P. Bollerslev (DK)	TC3 V-Chmn 86-89 WG3.1 Chmn 83-89
K. BO (N)	WG5.2 Chmn 83-88
L.H. Fransson (S)	TC5 Secr 83-89
L. Nemes (AUS)	WG5.3 V-Chmn 83-89
J.F. McWaters (GB)	WG5.3 Secr 83-89 Ed 86 87 88
G. Doumeingts (F)	WG5.7 V-Chmn 83-89
S. Augustin (D)	WG5.7 Secr 83-89
G. Musgrave (GB)	WG5.8 Chmn 83-88
C. Sunshine (USA)	WG6.1 Chmn 82-88
H. Rudin (CH)	WG6.1 Chmn 88-89 Ed 82 83 84 87
M. Lucertini (I)	TC7 V-Chmn 83-86 Chmn 86-88
I. Lasieka (USA)	WG7.2 Chmn 84-89
K.C. Sevcik (CDN)	WG7.3 Secr 82-83 Chmn 84-88
M. Reiser (CH)	WG7.3 V-Chmn 84-88 Chmn 88-89
G.B. Davis (USA)	TC8 V-Chmn 84-89
J. Bubenko (S)	WG8.1 Secr 82-89
H.G. Sol (NL)	WG8.3 Chmn 88-89 Ed 82 82 83 86 86
G.L. Reijns (NL)	TC10 Chmn 86-89 WG10.3 Chmn 82-86
M.H. Barton (GB)	WG10.3 Secr 83-89 Ed 87 88 88
E. Hoerbst (D)	WG10.5 Chmn 85-89 Ed 86
M.J. Newman (B)	WG10.5 Secr 83-89
V. Fak (S)	WG11.4 Chmn 85-89 Ed 83 88
J. Flint (CDN)	IMIA Treas 83-89

World Conference PC Members and Editors

H. Gallaire (D)	PC Cong 86 89
S.S. Yau (USA)	OC Cong 89
G. Ritter (USA)	Ed Cong 89
S. Mandil (Sudan)	MEDINFO 83 89
J.L. Willems (B)	MEDINFO 83 86
M. Diaz (F)	Ed 85 86
P. Thoft-Christensen (DK)	Ed 83 87

In addition to the Silver Core Awards, the General Assembly conferred the **IFIP** Outstanding Service Award on 5 people for services rendered to **IFIP** by Technical Committee and Working Group members.

The recipients are-

TC6:
- K. Boyanov (BG)
- B. Boutmy (NL)
- B. Spratt (GB)

TC9:
- S.C. Bhatnagar (USA)
- J. Cameron (AUS) ■

INTERNATIONAL OLYMPIAD IN INFORMATICS

*by Mr. Peter Bollerslev (DK) **

As one of the many pre-events to the third International Conference on "Children in the Information Age" in Sofia, Bulgaria, an International Olympiad in Informatics for children under the age of 19 was held 16-20 May, organized by the Bulgarian Ministry for Science, Culture and Education. Thirteen nations participated in the Olympiad: 7 Eastern European countries, 3 Western European, 2 Asian and 1 African.

The participants formed teams of three, but the competition was primarily individual. The competitors could use their own native languages, since the team leaders had to be able to speak and understand at least one of the official languages of the competition: English and Russian. Many programming languages were available for the programming part of the problem. Participating countries proposed, in advance, a problem for the Olympiad. The one chosen for this year's competition was proposed by China:

> Given 2 x N boxes in line, side by side; two adjacent boxes are empty, and the other boxes contain N-1 symbols "A" and N-1 symbols

Example for N = 5:

Exchanging rule: The contents of any two adjacent non-empty boxes can be moved into the two empty ones, preserving their order.

Aim: Obtain a configuration where all A's are placed to the left of all B's, no matter where the empty boxes are.

Problem: Write a program that:

1. inputs from the keyboard the initial state as a sequence of A's and B's and zeros (for empty boxes), and models the exchanging.
2. for a given initial state, finds at least one exchanging plan which reaches the aim or reports that such a plan does not exist. The output should contain the initial state, the intermediate states after each step, and the final state.
3. finds a plan reaching the aim with a minimal number of steps.

Results: Present at least one solution for the example mentioned above.

One participant, a Bulgarian boy, delivered a perfect solution and obtained a score of 100. There were five runners-up, who received scores of 95. They came from the Federal Republic of Germany, U.S.S.R., Bulgaria, Czechoslovakia and Hungary. One of the five was a girl.

This year's event was sponsored by Unesco and was declared to be the first Olympiad in Informatics. An organizing committee for further Olympiads was formed, with *Prof. Petar Kenderov* (8G) as chairman. The next Olympiad will take place in Greece in 1991, and in 1992 the Olympiad will be organized in the F.R.G. by the International Bureau of Gesellschaft fur Mathematik and Datenverarbeitung. In **IFIP's** Technical Committee on Education (TC3), we have discussed whether we should try to engage in these events. No decision has yet been made, but I am very interested in receiving ideas, proposals and opinions concerning the matter from the **IFIP** community. Please write your thoughts to

Peter Bollerslev
Ministry of Education
Frederiksholms Kanal 26
DK-1220 Copenhagen K, Denmark ■

* vice-chairman of TC3

EDUCATIONAL SOFTWARE AT THE SECONDARY LEVEL

WG3.1 Working Conference and TC3 Meeting

*by Ute Brauer (D) **

Since this was the first time that an IFIP event took place in Iceland, the site as well as the subject motivated more than 80 participants from 20 different countries to accept the invitation of WG3.1 to attend a Working Conference on Educational Software at the Secondary Level, held 18-22 June.

The programme committee, chaired by *Peter Bollerslev (DK),* had selected a wide range of lectures and organized discussion groups and the presentation, evaluation, and exchange of software. Everybody got as a present a collection of seven diskettes with educational software from different European countries.

In her keynote speech, *Mary-Alice White* (USA) presented twelve "Current Trends in Education and Technology as Signs of the Future." In each of the eight discussion groups, her opinions and her statements initiated very lively discussions.

Colourful Conference

From the very first day, the conference was *colourful* because of Deryn *Watson's* (GB) classification of people working in curriculum and courseware development as the "reds," the innovative, new-ideas-producing teachers, "blues," the most conservative software people, "greens," the "wishy-washy people" who have to bridge the gap and "blacks," the students. It soon turned out that every colour except "black" was present; there were even some striped people.

The different viewpoints according to colours were superimposed on the different viewpoints according to nationalities of the participants. We therefore had a wide range of opinions with respect to software and its development, from "software is acceptable only if it fits into the traditional curriculum and if there are needs for it" to "software is acceptable only if the problems dealt with cannot be handled adequately with traditional means," and from "each country has to develop its own software according to its culture and its traditions in education" to "countries with similar backgrounds in culture and education should cooperate from the beginning." Also, "a country should start by translating and adapting software from a more advanced country, which gives a twofold benefit: to get software relatively soon and cheap and to train the national software development team by the work of the translation project and by a close collaboration with those from the country that has produced the software."

Consensus

But there was quite a consensus

• that software should also stimulate students to do collaborative learning (exercise social behaviour) and that the use of software should be combined with sensual experiences, manual activities, and practical work (to keep contact with real life)

• that it is not sufficient to train some teachers to be able to design educational software, but that there is an enormous need for the training of all teachers to use software in a sensible and adequate way.

Stimulated by open discussions, lots of fun and new ideas, the delegates did very intensive, hard and fruitful work. The excellent atmosphere was due not only to the participants but also greatly to the organizing committee chaired by *Anna Kristjasdottir (IS).*

The proceedings of the Conference were edited by *Frank* Lovis (GB) and *David Tinsley (GB)* and will be published as a special issue of *Education & Computing* and as a soft cover book by Elsevier/North- Holland.

Post-Conference Activities

Following the Conference was a one-day workshop at which Icelandic educators were invited to presentations by and discussions with several of the participants of the Conference.

After this, IFIP's Technical Committee on Education (TC3) held its programme committee meeting for the fifth World Conference on Computers in Education (WCCE'90) and its annual business meeting.

TC3, chaired by *Wilfried Brauer (D),* made up a new six-year plan for its conferences and decided in particular

• to contribute substantially to the IFIP Congresses in 1992 and 1994 and therefore to organize no other conferences in these years [N.B., *Prof. Brauer* has been appointed International Program Committee chairman of Congress '92. See the article on page 7. — Ed.]

• to organize a World Conference on Computers in Education in 1995 in Birmingham, U.K. (WCCE'95).

TC3 also decided to redefine the scope and aims of WG3.2, so that this working group, under the new chairmanship of *Bernard Levrat (CH),* will follow up new developments in teaching informatics at universities and try to interest more university informaticians in the work of WG3.2.

The top event of the TC3 meeting was a reception by the president of Iceland at her personal residence, given for TC3 members and officers of the Icelandic Society for Information Processing.

There is now a good chance that Iceland will apply for full membership in IFIP. ■

* ***IFIP*** *Newsletter* correspondent for TC3

NEW ADDRESS
FOR IFIP NEWSLETTER

Dear Reader:

My professional activities and work location have changed. Please see the masthead on page 2 for new addresses for mail and other forms of communication.

Jack L. Rosenfeld
Editor

DEPARTURES FROM IFIP

We note the recent departure of four IFIP contributors who have served IFIP long and well:

Dr. Karen Duncan (USA), who was Publications Officer from 1985 to 1989

Mr. George Glaser, who served as representative of the U.S.A. from 1980 to 1989, as vice-president from 1982 to 1988, and as member and chairman of several committees

Prof. Ping-Xin Guo, who was representative of China from 1980 to 1989, a trustee from 1985 to 1988, and member and chairman of committees

Mr. Chris Potter, representative of New Zealand from 1980 to 1989 and member and chairman of committees

[I have had the satisfaction of knowing all of them for several years and shall miss them sorely, both for their contributions to **IFIP** and for the pleasure of their company — Ed.]

PROGRESS TOWARD AN IFIP CODE OF ETHICS

At the meeting of **IFIP's** Technical Assembly (TA) that preceded the General Assembly meeting in San Francisco in September, *Prof. Harold Sackman (USA),* then chairman of TC9, the Technical Committee on Relationship between Computers and Society, presented a preliminary version of an **IFIP** code of ethics. The history of the ethics project dates back to May 1988, when *Prof. Sackman* was asked to prepare a proposal for a project to develop an **IFIP** code of ethics. Following approval of the project, he prepared a questionnaire asking what types of items should appear in an **IFIP** code and submitted it to a limited sample of the **IFIP** community. (See the article on page 10 of the March 1989 ***IFIP*** *Newsletter.)*

At the September TA, *Prof. Sackman* presented a comprehensive analysis of the questionnaire results and a preliminary code of ethics he had formulated to incorporate the topics favored by the responders to the questionnaire. The TA decided that the next step of the project should be for Prof. *Sackman* to shorten the preliminary version, present that to a larger and more diversified part of the **IFIP** community, and prepare a revised version for subsequent TA review.

In accordance with that request, he prepared a revised preliminary version, which is printed on an enclosure to this *Newsletter.* All readers are invited to respond to the questionnaire printed with the code and forward it to *Prof. Sackman.*

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

AUDIO TAPES OF CONGRESS '89 ARE AVAILABLE

Many of the sessions of **IFIP** Congress '89 were professionally recorded on audio tape, and copies of these tapes are now available. A flyer describing the tapes and indicating how they may be purchased is enclosed in this *Newsletter.* Further information is available from

Conference Recording Service
1308 Gilman St.
Berkeley, CA 94706, U.S.A.
tel. 1 (415) 527-3600
fax. 1 (415) 526-6218 ■

REPORT ON FIACC MEETING

The Five International Associations Coordinating Committee (FIACC) met in Paris 10 June 1989. FIACC is an association of five international scientific federations, including **IFIP,** who have joined forces to coordinate a variety of activities of mutual interest. The other members are the International Association for Mathematics and Computers in Simulation (IMACS), the International Federation of Automatic Control (IFAC), the International Federation of Operational Research Societies (IFORS), and the International Measurement Confederation (IMEKO). All five were represented at the Paris meeting. IFIP's secretary, Mr. Jacques Fourot ***(F),*** represented **IFIP.**

Concerns about publications occupied much of the discussion. Several of the Federations are in the process of changing publishers or investigating the advisability of doing that. The members agreed to exchange all relevant information on this matter.

The four other Federations expressed concern that **IFIP** has changed its Congresses from triennial to biennial events, beginning with **IFIP** Congress '92 in Madrid. Since all the others hold triennial congresses, **IFIP's** action could create conflicts with the other events.

Among the additional items discussed were the database of IFAC events that is now accessible by all member Federations; the organizational change of IFORS related to the introduction of four regional groups; and the fact that the United Nations Economic, Scientific and Cultural Organization (Unesco) no longer subsidizes FIACC meetings.

The next FIACC meeting will probably be held in Tallin, U.S.S.R., in conjunction with the August 1990 IFAC Congress.

DR. JAN V. GARWICK 1917-1989

We regret to announce that Dr. Jan Garwick passed away on 18 June 1989 in Hemet, California. He was the first president of the original Norwegian Computer Society, the predecessor of the present Society, and its first representative to **IFIP.** He served on **IFIP's** Technical Committee on Programming and was active for several years in the Working Group on ALGOL, contributing to the specifications of ALGOL 68.

MEDINFO CONFERENCE SPLIT

[The following information was taken from the *Medical Informatics Newsletter,* a publication of the International Medical Informatics Association, an Affiliate Member of **IFIP.]**

In view of the tragic events earlier this year in China, the IMIA Board members and Steering Committee members decided that MEDINFO '89 should be split into two parts: Part 1 was held in Beijing from October 16-20, as originally planned; Part 2 will be held in Singapore from December 11-15,1989.

Authors and participants were allowed to choose the part of MEDINFO in which they would participate.

The proceedings will be published in two North-Holland volumes as usual and as already prepared.

More detailed information regarding the Singapore MEDINFO and the new registration form can be obtained from:

Dr. LUN Kwok Chan
Organizing Committee Chairman
MEDINFO 89' (Singapore)
National University Hospital
Department of Community, Occupational and Family Medicine
Lower Kent Ridge Road, Singapore 0511
tel. 65-7724296 or 65-7795555, ext 2252
65-4673909 home
Fax: 65-772-4252
Telex: UNISPO RS 33943 ■

NEW IFIP PUBLICATIONS

The following **IFIP** books have been published recently by Springer-Verlag. See page 11 for **IFIP** books published by Elsevier/North-Holland.

Stochastic Systems and Optimization
Proceedings of the 6th **IFIP** WG 7.1 Conference
Warsaw, 12-16 Sep 88
J. Zabczyk, Ed.
(Lecture Notes in Control and Information Sciences, Vol. 136) 1989

Control of Boundaries and Stabilization
Proceedings of the **IFIP** WG 7.2 Conference
Clermont Ferrand, France, 20-23 Jun 88
J. Simon, Ed.
(Lecture Notes in Control and Information Sciences, Vol. 125) 1989

Control of Partial Differential Equations
Proceedings of the **IFIP** WG 7.2 Working Conference
Santiago de Compostela, Spain, 6-9 Jul 87
A. Bermudez, Ed.
(Lecture Notes in Control and Information Sciences, Vol. 114) 1989

Reliability and Optimization of Structural Systems '88
Proceedings of the 2nd **IFIP** WG 7.5 Conference
London, 26-28 Sep 88
P. Thoft-Christensen, Ed.
(Lecture Notes in Engineering, Vol. 48) 1989 ■

NEW IFIP PUBLICATIONS FROM NORTH-HOLLAND

ISDN: Innovative Services or I nnovative Technology?

(Proceedings of the IFIP TC6 / ICCC Joint Conference on ISDN in Europe, The Hague, The Netherlands, April 1989)

edited by **J. Arnbak**

1989 xx + 472 pages
Price: US $123.75/Dfl. 235.00
ISBN 0-444-87388-0

MEDINFO 89

(Proceedings of the Sixth Conference on Medical Informatics, Beijing, China, October 1989, and Singapore, December 1989)

edited by **B. Barber, D. Cao, D. Qin** *and* **G. Wagner**

(IFIP World Conference Series on Medical Informatics, 6)
1989 lxxiv + 1262 pages (in 2 parts)
Price: US $195.00/Dfl. 400.00
ISBN 0-444-88138-7

Performance of Distributed and Parallel Systems

(Proceedings of the IFIP TC7 WG7.3 International Seminar, Kyoto, Japan, December 1988)

edited by **T. Hasegawa, H. Takagi** *and* **Y. Takahashi**

1989 xiv + 516 pages
Price: US $121.00/Dfl. 230.00
ISBN 0-444-87497-6

Computer Security in the Age of Information

(Proceedings of the Fifth IFIP TC11 International Conference, (IFIP/Sec '88), Gold Coast, Queensland, Australia, May 1988)

edited by **W.J. Caen'**

1989 xvi + 490 pages
Price: US $97.50/Dfl. 200.00
ISBN 0-444-88324-X

Security and Protection in Information Systems

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

edited by **A. Grissonnanche**

1989 xvi + 478 pages
Price: US $118.50/Dfl. 225.00
ISBN 0-444-87345-7

SET PRICE FOR THESE TWO TC11 BOOKS:
US $122.00/Dfl. 250.00

Information System Concepts

An In-Depth Analysis

(Proceedings of the IFIP TC8 / WG8.1 Working Conference, Namur, Belgium, October 1989)

edited by **E.D. Falkenberg** *and* **P. Lindgreen**

1989 370 pages
Price: US $80.50/Dfl. 165.00
ISBN 0-444-88323-1

Computer Applications in Production and Engineering

(Proceedings of the Third International IFIP Conference (CAPE '89), Tokyo, Japan, October 1989)

edited by **F. Kimura** *and* **A. Rolstadås**

1989 xvi + 826 pages
Price: US $126.75/Dfl. 260.00
ISBN 0-444-88089-5

CAD Systems Using AI Techiques

(Proceedings of the IFIP TC10 / WG10.2 Working Conference, Tokyo, Japan, June 1989)

edited by **G. Odawara**

1989 viii + 230 pages
Price: US $61.00/Dfl. 125.00
ISBN 0-444-88319-3

Software for Factory Automation

(Proceedings of the IFIP TC5 / WG5.3 / IFORS Working Conference, Tokyo, Japan, October 1987)

edited by **T. Sata** *and* **G. Oiling**

1989 xii + 364 pages
Price: US $85.25/Dfl. 175.00
ISBN 0-444-88046-1

Knowledge Based Systems for Test and Diagnosis

(Proceedings of the IFIP TC10 WG10.5 Workshop, Grenoble, France, September 1988)

edited by **G. Saucier, A. Ambler** *and* **M.A. Breuer**

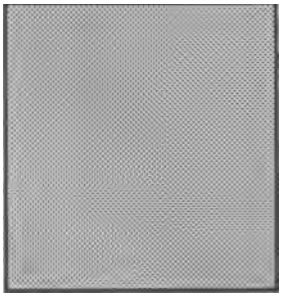
1989 viii + 258 pages
Price: US $65.75/D8. 135.00
ISBN 0-444-88113-1

Geometric Modeling for Product Engineering

(Selected and Expanded Papers from the IFIP WG5.2 / NSF Working Conference on Geometric Modeling, Rensselaerville, NY, USA, September 1988)

edited by **M.J. Wozny, J.U. Turner** *and* **K. Preiss**

1990 x + 498 pages
Price: US $105.00/Dfl. 215.00
ISBN 0-444-88448-3



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CHANGES IN IFIP

NEW APPOINTMENTS

GA REPRESENTATIVES

Mr. Ye Li
Dept. of Computers
Ministry of Machinery and Electronics Industries
Xi Cheng Qu, San Lihe Road
Beijing, CHINA
(succeeding Prof. P.X Guo)

Dr. Jung-Wan Cho
c/o Secretariat of KISS — Korea Information Science Society
Room 401, Murijae Bldg.
984-1, Bangbae-3dong, Seocho-ku
Seoul 137-063, KOREA
tel. 82 (2) 588 9246, fax: 82 (2) 588 9247
(succeeding Dr. B.C. Lee)

Prof. ir. D.H. Wolbers
G. Mahlerlaan 32
NL-2253 EB Voorschoten
THE NETHERLANDS
(succeeding Prof. A. A. Verrijn-Stuart, who became an Individual Member)

Mr. I. Mitchell (also TC3 rep.)
Private Bag 7, New Market
Auckland, NEW ZEALAND
tel. 64 (9) 302 1621, fax: 64 (9) 302 1617
(succeeding Prof. C. Potter)

Mr. H.L. Funk
IBM Coporation
Old Orchard Rd.
Armonk, NY 10504, U.S.A.
tel. 1 (914) 765 6409, fax: 1 (914) 765 7384
e-mail: FUNK@IBM.COM
(succeeding: Mr. G. Glaser)

TC AND WG OFFICERS

TC8 chairman: Prof. G.B. Davis
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(former vice-ch., succeeding Prof. G. Bracchi)

TC 9 chairman: Prof. Dr. K. Brunnstein
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(succeeding Dr. H. Sackman)

TC12 (Artificial Intelligence) chairman:
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TC13 (Human-Computer Interaction) chairman:
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WG2.7 chairman: Prof. Dr. C. Unger
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WG8.4 vice-chairman: Dr. C. Ellis
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WG10.2 **chairman:** Dr. J.A. Darringer
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(succeeding Dr. Ing. R.W. Hartenstein)

WG10.3 chairman: Dr. M.H. Barton
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(succeeding Prof. E.L. Dagless)

WG10.5 **vice-chairmen:**
Prof. T. Ohtsuki
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and
Prof. G. Saucier
LCS-IMAG, Lab. Circuits / Systems
46 Ave. F. Viallet
F-38031 Grenoble Cedex, France

TC AND WG MEMBERS

TC2: Mr. K. McGregor (ZA)
(succeeding J. Bishop)

TC3: Dr.I.I. Khalil (IQ)
(succeeding M.A. Mahmoud)

TC6: Mr. A.J.D. Casaca (P)
(succeeding A. Cerveira)

TC8: Mr. E. Rudolph (NZ)
(succeeding A.G. Miles)

TC9: Mr. J.A. Hernandez (F)
(succeeding J.-L. Rigal)
Mr. P. Maggnolini (I)
(succeeding C. Ciborra)

TC1 1 : S.H. von Solms (ZA)
(succeeding A.P. Couvaras)

WG5.7: A. White (B)
C.L. Moodie (USA)
J.I. Giotia (E)

WG10.5: W. Fichtner (CH)

AFFILIATE MEMBER REPRESENTATIVE

Very Large Data Bases (VLDB)
Dr. G. Bracchi
Dipt. di Elettronica, Politecnico di Milano
Via Ponzio 34/5
1-20133 Milan, Italy
(succeeding Dr. Bubenko)

IFIP BODIES AND COMMITTEES

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A. Rolstadås, chairman
Ex-officio:
Technical Committee Chairmen
Affiliate Member Representatives
Programme Committee Ch. **IFIP** Congress '92
Executive Board

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Dr. H. Woessner (Springer-Verlag)
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IFIP Commission for the History of IFIP and Information Processing
H. Zemanek, chairman
A. Balasubrahmanian G. Kovács
C. Bonfanti A.L. Norberg

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CHANGES continued from page 13

W. Carlson
A.S. Douglas
S.B. Jaiyesimi
B.I. Penkov
W.R. Williams

IFIP-Unesco Liaison Officer
J. Fourot

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FUTURE IFIP MEETINGS

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

Council	4-9 Mar 90 (Sun.-Fri.)	Jerusalem
GA	2-7 Sep 90	Buenos Aires
Council	early Mar 91	Barcelona
GA	**Ist** week of Sep 91	Harrare, Zimbabwe

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

TC2	2nd or 4th quarter 90	Sofia, Bulgaria
	Jun 91	Australia
WG2.1	30 Apr-4 May 90	Chester, U.K.
	Dec 90	Brussels, Munich, or Amsterdam
	Jan 91	Europe ?
WG2.2	2-10 Apr 90	Sea of Galilee, Israel
WG2.3	28-31 Mar 90	Munich
	Jan 91	Catalina Island, California
WG2.4	May 90	Canada
WG2.5	29-30 May 90	Jerusalem
	mid Sep 91	Karlsruhe, F.R.G.
WG2.7	Apr 90	Portland, Oregon
WG2.8	Apr 90	Rome
TC3	12-13 Jan 90	Western Europe
	8, 13, 14 Jul 90 (before and after WCCE '90)	Sydney, Australia
TC5	mid Jan 90	Munich (with WG chairmen's meeting and WG5.4 Conference)
WG5.4	mid Jan 90	Munich (with WG chairmen's meeting and WG5.4 Conference)
WG5.7	20-22 Aug 90 (during APMS Conf.)	Espoo, Finland
TC6	11-12 May 90 (with Comnet 90)	Budapest
The following TC6 meetings are under study.		
	Oct 90	Brazil or New Delhi
	24-25 May 91 (with Africom 91)	Tunis
	Nov 91 (with Comtap 91)	Australia
	Apr 92 (with SEACOM 92)	India
	Sep 92	Madrid
	Mar 93 (with Datacom '93)	Johannesburg
WG6.4	first week of May 90	Budapest
TC7	Jun or Jul 90 (with WG7.2 event)	F.R.G.
TC8	11-12 Jun 90	Lisbon
TC9	Jul 90 ? (probably with 4th HCC Conf.)	Dublin
WG10.3	10-21 Apr 90 (with NATUG)	Santa Clara, California
WG10.4	3rd quarter 90	U.K.
	Ist quarter 91	
	3rd quarter 91	Quebec
	Ist quarter 92	
WG10.5	Jan 90	Perlach, F.R.G. (near Munich)
TC11	21-22 May 90	Helsinki

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

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

CALLS FOR PAPERS

WG5.4 and 2.3 Working Conf. on **Approving Software Products — ASP-90**
17-19 Sep 90, Garmish (near Munich)
abstracts due: 11 Dec 89
contact: Dr. W. Ehrenberger
Gesellschaft fur Reaktorsicherheit
P.O. Box
D-8046 Garching, F.R.G.
tel. +49 89 32004 239, fax: +49 89 32004 300

2nd AFCET, IFORS, **IFIP, IFAC** Intl. Conf. on Economics **and Artificial Intelligence**
2-6 Jul 90, Paris
papers due: 15 Dec 89
contact: AFCET-CECOIA
156, boulevard Péreire
75017 Paris, France
tel. (33) 1 47.66.24.19
fax: (33) 1 42.67.93.12
telex: 283 155 F ELITA Code 235 E

10th WG6.1 Intl. Symp. on Protocol Specification, **Testing, and Verification**
13-15 Jun 90, Ottawa
papers due: 15 Jan 90
contact: PRG - Tenth International Symposium
Computer Science Dept.
University of Ottawa
34 George Glinski
Ottawa (Ontario), Canada, KIN 6N5
tel. 1-(613)-564-9544
fax: 1-(613)-564-9486

TC6 and WG6.4a Intl. Symp. on Local Communications **Systems Management**
18-19 Sep 90, Canterbury, Kent, U.K.
papers due: 31 Jan 90
contact: Mr. Ian N. Dallas
Computing Laboratory
University of Kent
Canterbury, Kent, CT2 7NF, U.K.
tel. +44 227 764000, ext. 3633
fax: +44 227 762811
telex: 965449 UKCLIB G
e-mail: ind@ukc.ac.uk
or 74: SKK008 (Telecom Gold/Dialcom)

Information Processing Society of Japan Intl. Conf. on **Information Technology — INFO JAPAN '90**
1-**5** Oct 90, Tokyo
papers due: 1 Feb 90
contact: Haruhisa Ishida
Computer Centre
University of Tokyo
2-11-16 Yayoi
Bunkyo-ku, Tokyo 113, Japan
tel. +81-3-818-0287
e-mail: infojapan90@u-tokyo.ac.jp

TC5 and WGs 2, 3, 6, 7, and 8 Working Conf. on **Formal Product Information**
23-25 Oct 90, Amsterdam
papers **due: 1 Feb 90**
contact: Trudy van Soest
APT Nederland BV
PO Box 1168
1200 BD Hilversum, The Netherlands ■

CALENDAR OF EVENTS

(continued from page 16)

Event	Date	Location	Organized by
Work. Conf. on *Change-Point Detection*	Jun 91	Telsknys, Vilnius, U.S.S.R.	TC7 WG7.1
Fifth Symp. on *Computer-Aided Design in Control and Engineering Systems*	15-17 Jul 91	Swansea, U.K.	IFAC **IFIP**
Thirteenth World Cong. on *Computation and Applied Mathematics*	22-26 Jul 91	Dublin	IMACS
Twelfth Intl. Joint Conf. on *Artificial Intelligence — IJCAII '91*	18-23 Aug 91	Sydney	IJCAII
Work. Conf. on *Collaborative Work, Social Communication and Information Systems Theories, Methods, Tools and Impacts*	27-29 Aug 91	Helsinki	TC8 FIPA
VLSI '91	Aug 91	Edinburgh	TC10 WG10.5
Work. Conf. on *Impacts of Informatics on the Organization of Education*	Aug 91	Santa Barbara, California	TC3 WG3.1
Fifteenth Intl. Conf. on *System Modelling and Optimization*	2-6 Sep 91	Zurich	TC7 IFAC IFORS
Seventeenth Intl. Conf. *VLDB '91*	3-6 Sep 91	Barcelona	VLDB
Workshop on *Supporting Functionality in the Office Environment*	10-12 Sep 91	Canturbury, U.K.	TC8 WG8.3 WG8.4
Twelfth *IMEKO World Cong.*	10-15 Sep 91	Beijing	IMEKO
Symp. on *Robot Control — SYROCO '91*	16-18 Sep 91	Vienna	IFAC **IFIP**
Work. Conf. on *Programming Environments for High-Level Sci. Prob.-Solving*	23-27 Sep 91	Karlsruhe, F.R.G.	TC2 WG2.5
SEARCC '91	Sep 91	Jakarta	SEARCC
Computers and Society — a Summer Teach-In	Sep 91	U. of Exeter, U.K.	TC9 WG9.2
Work. Conf. on *Process Planning for Complex Machining with Al Methods*	Sep 91 or Sep 92	Dresden, G.D.R.	TC5 WG5.3
Purdue Intl. Workshop on *Industrial Computer Systems*	21-24 Oct 91	West Lafayette, Indiana	PURDUE TC5 WG5.4
Workshop on *CAD/CAM Interfaces in Mechanical Engineering*	91	Darmstadt, F.R.G.	TC5 WG5.2 WG5.3 WG5.10
CAPE '91 — Computer Application in Production and Engineering	91	Bordeaux	TC5
Work. Conf. on *Production Management of Complex One-of-a-Kind Production*	91	Bremen, F.R.G.	TC5 WG5.7
Workshop on *Intelligent CAD*	91	Israel	TC5 WG5.2
Intl. Conf. on *Computers in the Automation of Shipyard Operations and Ship Design — ICCAS '91*	91	Rio de Janiero	TC5 WG5.6
Work. Conf. on *Programming Environments for Concurrent Systems*	91		TC10 WG10.3
Intl. Conf. on *Computing in the 21st Century*	91	London	IEEE **IFIP**
INDC '92	Mar 92	Finland	TC6 SDF SSE DANFIP/DND
Work. Conf. on *Stochastic Programming: Stability and Numerical Methods*	Mar 92	Wendisch-Rietz, G.D.R.	TC7 WG7.7 Humboldt U.
Purdue Intl. Workshop on *Industrial Computer Systems*	6-9 Apr 92	West Lafayette, Indiana	PURDUE TC5 WG5.4
Work. Conf. on *Stochastic Optimization: The State of the Art*	Apr 92	Havana	TC7 WG7.7 U. of Habana
Eighth Intl. Conf. on *Computer Security* — IFIP/SEC *'92*	May 92	Singapore	TC11
Seventh Symp. on *Dynamic Modelling of National Economies*	18-20 Aug 92	Beijing	IFAC IFORS **IFIP** IIASA
Seventh World Cong. on *Medical Informatics — MEDINFO '92*	6-11 Sep 92	Geneva	IMIA
IFIP Congress '92 — 12th World Computer Congress	**21-25 Sep 92**	**Madrid**	**IFIP**
ICCC '91	27 Sep-2 Oct 92	Genoa	ICCC
SEARCC '92	Sep 92	Kuala Lumpur	SEARCC
Work. Conf. on *Computational Techniques of Stochastic Programming*	Sep 92	Seregelyes, Hungary	TC7 WG7.7 MTA SZTAKE
Eighth Conf. on *Software for Discrete Manufacturing — PROLAMAT*	92	Japan	TC5 WG5.3 IFAC
Workshop on *Geometric Modelling*	**92**	Budapest	TC5
Eleventh **Intl. Conf. on** *Pattern Recognition*	**92**	The Netherlands	IAPR
Ninth Intl. Conf. on *Computer Security* — **IFIP/SEC** *'93*	**May** 93	Tokyo	TC11
Thirteenth Intl. Joint Conf. on *Artificial Intelligence — IJCAII '93*	29 Aug-3 Sep 93	Chambery, France	IJCAII
VLSI '93	Aug 93	Grenoble	TC10 WG10.5
Work. Conf. on *Statistical Aspects of Stochastic Programming*	Aug 93	Prague	TC7 WG7.7
SEARCC '93	Dec 93	Hong Kong	SEARCC
Twelfth *IFAC World Cong.*	93	Sydney	IFAC
SEARCC '94	Oct 94	Karachi	SEARCC
IFIP Congress '94 — 13th World Computer Congress	**94**	**Hamburg**	**IFIP**
World Conf. on *Computers in Education — WCCE '95*	Jul 95	**U.K.**	**IFIP** TC3 BCS
SEARCC '95	Dec 95	Colombo, Sri Lanka	SEARCC
SEARCC '96	Nov 96	Bangkok	SEARCC
Thirteenth *IFAC World Cong.*	96	San Francisco	IFAC
SEARCC '97	Nov 97	New Delhi	SEARCC

Please see page 14 for schedule of **IFIP** administrative meetings.
The **IFIP** Secretariat can furnish details of most of the events listed.

National Abbreviations Used in Newsletter

AUS	Australia	F	France	NL	The Netherlands
B	Belgium	GB	United Kingdom	NZ	New Zealand
BG	Bulgaria	H	Hungary	P	Portugal
CDN	Canada	I	Italy	S	Sweden
CH	Switzerland	IND	India	SEARCC	South East Asia Regional Computer Confederation
CS	Czechoslovakia	IQ	Iraq	SF	Finland
D	Fed. Rep. of Germany	IRL	Ireland	USA	U.S.A.
DK	Denmark	IS	Iceland	ZA	South Africa
E	Spain	J	Japan		
ET	Egypt	N	Norway		

TECHNICAL COMMITTEE CHAIRMEN

TC2:	P.C. Poole	AUS 89-92
TC3:	W.A. Brauer	D 87-90
TC5:	M. Tomljanovich	I 88-91
TC6:	R.P. Uhlig	USA 88-91
TC7:	**P.** Thoft-Christensen	DK 89-92
TC8:	G.B. Davis	USA 89-92
TC9:	K. Brunnstein	**D** 89-92
TC10:	G.L. Reijns	**NL** 89-92
TC11:	W.J. Caelli	AUS 88-91
TC12:	R.A. Meersman	NL 89-92
TC13:	B. Shackel	GB 89-92

CALENDAR OF EVENTS

Event	Date	Location	Organized by
Work. Conf. on *Recent Advances in the Optimization of Engineering Systems*	4-8 Dec 89	Bangalore, India	TC7 WG7.I
SEARCC '89	4-8 Dec 89	Singapore	SEARCC
Workshop on *Safety of Control Computer Systems - SAFECOMP '89*	5-7 Dec 89	Vienna	IFAC **IFIP** WG5.4
Work. Conf. on *CAD/CAM and AMT in Israel*	5-7 Dec 89	Jerusalem	TC5 WG5.3 et al.
Second Intl. Conf. on *Formal Description Techniques for Distributed Systems and Communication Protocols*	5-8 Dec 89	Vancouver, BC, Canada	TC6 WG6.1
Sixth World Cong. on *Medical Informatics - MEDINFO '89*	9-14 Dec89	Singapore	IMIA
Work. Conf. on *Implementation and Evaluation of Decentralized Comp. Systs.*	11-13 Dec89	Lyon, France	TC10 WG10.3
Work. Conf. on *Distributed Computer Algorithms and Applications*	11-15 Dec89	Madras	TC7 WG7.1
Workshop on *Human Factors During Information Systems Design*	22-25 Jan 90	Bad Suderode, G.D.R.	WG8.1 U. Magdeburg
Workshop on *Partitioning*	29-30 Jan 90	Lenggries, F.R.G.	TC10 WG10.5 GI/ITG
Seventeenth Workshop on *Reliable Computing and Fault Tolerance*	29 Jan-2 Feb 90	La Martinique, France	TC10 WG10.4
INDOLAN '90	30-31 Jan 90	Madras	TC6 WG6.4
Work. Conf. on *Modelling the Innovation: Communications, Automation and Information Systems*	21-23 Mar 90	Rome	TC7 WG7.4 AEI IEEE IFAC
Third Work. Conf. on *Reliability and Optimization of Structural Systems*	26-28 Mar 90	Berkeley, California	TC7 WG7.5
Third Intl. Conf. on *Info. Networks and Data Communications - INDC '90*	26-29 Mar 90	Lillehammer, Norway	TC6 SDF SSE DANFIP/DND
Workshop on *Knowledge-Based System Design Tools*	Mar 90	Amsterdam	TC10 WG10.2
Work. Conf. on *Programming Concepts and Methods*	2-5 Apr 90	Sea of Gallilee, Israel	TC2 WG2.2 WG2.3
Purdue Intl. Workshop on *Industrial Computer Systems*	23-26 Apr 90	West Lafayette, Indiana	PURDUE TC5 WG5.4
Work. Conf. on *Artificial Intelligence in CIM*	Apr 90	Leningrad	TC5 WG5.3 Europ.Assn.Al
COMNET '90 - Forward into the 2nd Quarter-Century in Networking	8-10 May 90	Budapest	TC6 J.v.Neumann Soc.
Sixth Intl. Conf. on *Computer Security - IFIPSEC '90*	23-25 May 90	Helsinki	TC11 FIPA
Work. Conf. on *Stochastic Optimization: Numerical Methods and Technical Applications*	29-31 May 90	Neubiberg, F.R.G.	TC7 WG7.7
Work. Conf. on *Human Factors in Information Systems Analysis and Design - WHISAD '90*	5-7 Jun 90	Schaerding, Austria	TC8 WG8.1
First Work. Conf. on *Fractals in the Fundamental and Applied Sciences - FRACTAL '90*	6-8 Jun 90	Lisbon	Task Group on Fractals
Tenth Work. Conf. on *Protocol Specification, Testing and Verification*	13-15 Jun 90	Ottawa	TC6 WG6.1
First Workshop on *Design for Manufacturing*	14-15 Jun 90	Enschede, Netherlands	WG5.2
Tenth Intl. Conf. on *Pattern Recognition*	17-21 Jun 90	Atlantic City	IAPR
Work. Conf. on *Environments for Supporting Decision Processes*	18-21 Jun 90	Budapest	TC8 WG8.3
Work. Conf. on *Man in Flexible Automated Production*	19-21 Jun 90	Prague	TC5 WG5.3 VUSTE
Work. Conf. on *Formal Methods for VLSI Design,*	24-30 Jun 90	Lyngby, Denmark	TC10 WG10.5
Twelfth *IFORS Conference*	25-29 Jun 90	Athens	IFORS
Eighteenth Workshop on *Reliable Computing and Fault Tolerance*	Jun 90	Newcastle, U.K.	TC10 WG10.4
Workshop on *Computer-Intensive Methods in Simulation and Stochastic Optimization*	Jun 90	Vienna	TC7 WG7.1
Work. Conf. on *Object-Oriented Databases: Analysis, Design and Contruction*	2-6 Jul 90	Windermere, U.K.	TC2
Second Intl. Conf. on *Economics and Artificial Intelligence - CECOIA II*	2-6 Jul 90	Paris	AFCET IFORS **IFIP** IFAC
Open Conference on *Information Technology Assessment - HCC4*	9-12 Jul 90	Dublin	TC9 CEC (FAST pgm.)/ICS
Fifth World Conf. on *Computers in Education - WCCE '90*	9-13 Jul 90	Sydney	TC3 ACS et al
Eleventh IFAC World Cong. *Automatic Control in the Service of Mankind*	13-17 Aug 90	Tallinn, U.S.S.R.	IFAC
Intl. Conf. on *Advances in Production Management Systems - APMS '90*	20-22 Aug 90	Helsinki	'TC5 WG5.7
Intl. Conf. on *Human-Computer Interaction - INTERACT '90*	27-31 Aug 90	Cambridge, U.K.	TC13 et al.
Sixteenth Intl. Conf. *VLDB '90*	Aug 90	Gold Coast, Australia	VLDB
Work. Conf. on *Approving Software Products - ASP-90*	17-19 Sep 90	Garmish (near Munich)	TC5 WG5.4
Intl. Symp. on *Local Communications Systems Management*	18-19 Sep 90	Canterbury, Kent, U.K.	TC6 WG6.4a
Work. Conf. on *Multi-user Interfaces and Applications*	24-26 Sep 90	Heraklion, Greece	TC8 WG8.4
Seventh Work. Conf. on *Stochastic Systems and Optimization*	Sep 90	London	TC7 WG7.1
Intl. Conf. on *Harmonization of Technology with Society - INFO JAPAN '90*	1-5 Oct 90	Tokyo	IPSJ **IFIP** IPSC IEEE/ACM
Intl. Symp. on *Message Handling Systems and Application Layer Communication Protocols*	3-5 Oct 90	Zurich	TC6 WG6.5
Purdue Intl. Workshop on *Industrial Computer Systems*	8-11 Oct 90	West Lafayette, Indiana	PURDUE TC5 WG5.4
Intl. Conf. *Telematica '90*	12-14 Oct 90	Porto Alegre, RS, Brazil	TC6 SUCESU-RS/TC6
Fifth *Jerusalem Conf on Information Technology - JCIT*	22-25 Oct 90	Jerusalem	IPAI **IFIP**
Work. Conf. on *Formal Product Information*	23-25 Oct 90	Amsterdam	TC5 WG5.2/3/6/7/8
First Work. Conf. on *History of Computing in Europe*	Oct 90	Budapest	**IFIP** Hist. Comm./J vN. Soc.
ICCC '90	5-9 Nov 90	New Delhi	ICCC
Second Conf. on *CAD/CAM and Technology Transfer to Latin America*	19-24 Nov 90	Havana	TC5
Work. Conf. on *Information Systems Research Methodologies*	14-16 Dec 90	Copenhagen	TC8 WG8.2
Eleventh Intl. Conf. on *Information Systems - ICIS '90*	16-19 Dec 90	Copenhagen	TC8 ICIS
SEARCC '90	Dec 90	Manila	SEARCC
Workshop on *Geometric Modelling*	90	Albany, New York	TC5 WG5.2
Symp. on *Intelligent Tuning and Adaptive Control*	15-17 Jan 91	Singapore	IFAC IEEE **IFIP** IMEKO
Purdue Intl. Workshop on *Industrial Computer Systems*	15-18 Apr 91	West Lafayette, Indiana	PURDUE TC5 WG5.4
Intl. Symp. on *Computer Hardware Description Languages and Their Applications - CHDL '91*	Apr 91	Europe	TC10 WG10.2
Work. Conf. on *Constructing Programs from Specifications*	Apr 91	San Francisco	TC2 WG2.1
Seventh Intl. Conf. on *Computer Security* - IFIP/SEC *'91*	14-17 May 91	Brighton, U.K.	TC 11
AFRICOM '91 / CCDC '91	21-23 May 91	Tunis	TC6 ICCC
Workshop on *Computer Software Structures Integrating Al/K BS Systems*	29-30 May 91	Bergen	IFAC **IFIP**
Eleventh Work. Conf. on *Protocol Specification, Testing and Verification*	9-12 Jun 91	Stockholm	TC6 WG6.1 SICS
Work. Conf. on *Approximations and Applications in Stochastic Programming*	17-21 Jun 91	Tallin, Estonia	TC7 WG7.7 et al.

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IFIP Congress '92 - 12th World Computer Congress	21-25 Sep 92	Madrid	**IFIP**
IFIP Congress '94 - 13th World Computer Congress	94	Hamburg	**IFIP**

Please see page 14 for schedule of **IFIP** administrative meetings.
The **IFIP** Secretariat can furnish details of most of the events listed.