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CONFERENCE ON FORMAL DESCRIPTION TECHNIQUES

*by Prof Richard Tenney (USA)**

FORTE'93, the Sixth International Conference on Formal Description Techniques, took place October 26-29 in Cambridge, Massachusetts, U.S.A. The FORTE series of conferences concentrates on formal techniques applicable to complex distributed computer systems. These are mathematically based techniques that are oriented toward describing complex systems. They are frequently used to describe and analyze the methods by which computers communicate.

Ninety-four participants from 16 countries attended. The Conference began with five tutorials, followed by 29 refereed papers, ranging from theoretical to applied. There were two invited speakers: *Co/in West (CH)* and *Alfred Aho (USA),* both well known in the field. *West's* talk, "The Challenges Facing Formal Definition Techniques," is summarized as follows:

> For many years, we believed that applications of formal definition techniques would significantly improve the quality of communications protocols and hence the systems that incorporate them. Automated validation and many other protocol-analysis techniques require an executable representation of a protocol that may be derived from a formal specification. Recent experience has shown that it is difficult to develop executable models using current special-purpose formal definition languages in a timely and cost-effective manner. In some cases, specifications using formal definition languages have proved to be less effective than other methods of documenting the protocols.

Aho's talk, "Conformance and Interoperability Testing," reviewed research aimed at using formal methods to facilitate conformance and interoperability testing based on generic requirements.

The tutorials also provided much interesting material. We describe them here, to indicate the nature of the field of formal description techniques. The first tutorial, "On the Semantic Foundations of RSL: a Concurrent, Functional and Imperative Specification Language" by ***D.** Bolignano (F)* and *M. Debabi (F),* was described as follows:

> RSL is a formal, high level. modular, and widely applicable specification language. The original main novelty of RSL is the unified integration of concurrent and functional abstractions. In addition, the language is endowed with imperative constructions. It allows different levels of abstraction; thus, it covers all stages of a development process. The language is formal and rests on secure theoretical foundations.

The next tutorial, "Formal Methods in Managing Feature Interactions" by *E. Jane Cameron (USA) and Yow-Jian Lin (USA),* covered the following:

> The feature-interaction problem is a major roadblock to rapid introduction of new features for the public **tele-**

***conference** chair of FORTE'93

continued on page 6

NEW IFIP PUBLISHER

Negotiations have been concluded between **IFIP** and its new principal publisher, Chapman and Hall, Ltd., of London, U.K., which will print **IFIP** books, beginning in January 1995. Details will be furnished in the June issue of the ***IFIP** Newsletter.*

"ACTION AGENDAS" WILL BE A HIGHLIGHT OF IFIP CONGRESS '94

by Dr. Karen Duncan (USA)t

IFIP Congress '94, which will take place in Hamburg, Germany, 29 August-2 September 1994, offers a novel, three-part experience for participants. They will have the opportunity to

- acquire new information and insights
- participate in discussions of important issues
- from their discussions, develop an "Action Agenda" that will help shape a Message from the Congress to the Computer and Communications Community and beyond

The International Program Committee has developed a program of five tracks and

t member of Congress International Program Committee and coordinator of the "issues" process

continued on page 7

CONTENTS

Conf. on Formal Description Techniques ..1
"Action Agendas" at **IFIP** Congress '94...1
IFIP Secretary General 2
The Belgian **IFIP** Member 3
Aims and Scopes of New WGs 3
Conf. on Technology Transfer 4
Security and Control of IT 5
Thanks for **IFIP** Support 5
Obituary: Prof. A. Nico Habermann 5
Risk and Vulnerability in Info. Society 6
U.S. Travel Grants 7
IFIP Welcomes Three New Members 8
Symp. on Network Info. Processing 10
Informatics and Changes in Learning 10
IT and Socio-Economic Development 13
Autumn School on Systems Pgmg. 13

National Abbreviations 13
Calls for Papers 14
Future **IFIP** Meetings 14
Calendar of Events 16

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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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ESTABLISHING THE IFIP SECRETARY GENERAL

In December, IFIP's president, *Prof. Asbjørn Rolstadås (N),* sent a letter to all General Assembly (GA) representatives. Most of it is quoted below. The letter describes a revised charter for the position of Secretary General, created by the GA in September 1993, and it discusses the engagement of *Mr. Aage Melbye,* GA representative of Denmark and IFIP treasurer, as a paid consultant for six months, to carry out some of the responsibilities of Secretary General and perform other specified tasks. (See page 2 of the December 1993 ***IFIP*** *Newsletter* for further information.)

December 17th, 1993

Dear GA representative:

You will recall that the latest **IFIP** General Assembly (GA) approved appointment of a Secretary General for two years, with an option to review the situation after the first six months.

Based on the discussions at the GA, the Executive Board has revised the job charter to accommodate the need for a stronger focus on the management aspects and to emphasize that the Secretary General will represent an add-on value to our current operation. The charter we have agreed on is as follows:

1. Promote **IFIP** and its activities in appropriate external spheres of activity where **IFIP** can benefit from a wider understanding of its work or can contribute resources in line with its mission.

2. Take action to implement, in a timely manner, decisions taken by the General Assembly, Council, and Executive Board, and monitor and report progress.

3. Ensure that initiatives taken by the administrative committees of **IFIP** are properly coordinated and monitored.

4. Monitor activities managed by **IFIP's** technical bodies (Technical Assembly, Technical Committees, and Specialist Groups) to ensure that Standing Orders and other agreed procedures are followed.

5. Manage the commercial aspects of contracts and other formal arrangements between **IFIP** and its appointed publisher(s) and any other contractors.

6. Foster good communication and seek to improve relationships with IFIP's Member societies. Encourage potential new Members and assist them with their applications to the Admissions Committee.

7. Take responsibility for the staff and work of the Administrative Secretariat.

8. Take responsibility for the operation, maintenance and development of **IFIP's** accounting systems and for the preparation of management reports and information for financial monitoring and control.

[Fund-raising is also envisioned. — Ed.]

The position of Secretary General was announced to all GA representatives in a circular letter of September 21st. The deadline for applications was October 31st. Within the deadline, several applications were received. They were evaluated by a group of Executive Board members, which decided not to appoint a Secretary General at the current time. Instead, one of the applicants was offered a 6-month contract as a management consultant, to carry out some of the tasks of the Secretary General and to focus on two special tasks. This gives the Council more flexibility with respect to planning the future of the Secretary General position and the job charter for such a position, as well as the financial implications.

The consultancy contract was signed with *Aage Melbye,* to start January 1st, 1994....The two special tasks of the consultant are explained by the following two paragraphs quoted from the contract:

"A critical initial responsibility will be a review of **IFIP's** administrative procedures and costs, with a view to improving operational efficiency and a reduction in annual costs of not less than 15%. This review will address the operations currently carried out by the Secretariat, its staffing, and its location. The review and consequent recommendations are to be presented to the Council in March 1994. The President will appoint a reference group for this work.

"It is important that the Secretary General represents an added value for **IFIP;** i.e., focusing on new activities to improve the operation and increase the external understanding of **IFIP.** This means that we shall plan to maintain the elected positions of Treasurer and Secretary as today, with the exception that the Secretary General will be directly

continued on page 4

THE BELGIAN MEMBER OF IFIP: F.A.I.B.—F.B.V.I.

*by Paul E. Gennart (B)**

The Belgian member of **IFIP,** F.A.I.B.-F.B.V.I., was established in 1974 to promote meetings between member societies, to coordinate their activities, to represent them to national and international authorities, and to organize joint activities. F.A.I.B.–F.B.V.I. stands for "Federation des associations informatiques de Belgique" and "Federatie van de Belgische Informatica Verenigingen." This double denomination reflects the bilingual character of Belgium.

One of the main responsibilities of the F.A.I.B.–F.B.V.I. is the representation of Belgium in **IFIP.** In this respect, it succeeded the SOGESCI (Societe pour l'application des méthodes scientifiques de gestion), the OR Society of Belgium, which is one of the members of our Federation. *Prof. Marcel Linsman,* a former member of the SOGESCI, was one of the founders of **IFIP,** in 1960.

Besides the SOGESCI, the other members of the F.A.I.B.–F.B.V.I. are

- The S.I.F.–V.F.I (Societe d'Informatique fondamentale–Vereniging voor Fundamentele Informatica), which has mainly academic members
- The S.A.I.–C.E.T.A.I. (Studiecentrum voor Automatische Informatieverwerking–Centre d'Etudes pour le traitement automatique de l'information), which attracts primarily professional and business informaticians
- The M.I.M. (Medische Informatica-Informatique medicate), for medical informaticians
- School and Computer, which exists only in the Dutch-speaking community, focuses its activities on secondary schools
- B.A.A.I. (Belgian Association of Artificial Intelligence)

The total number of members of our affiliate societies, roughly 1500, is not very high. This may be partly because most of the computer professionals in our country are affiliated with foreign computer societies, where they find a higher level of activity and a greater ability to disseminate information broadly.

The F.A.I.B.–F.B.V.I. organized five national congresses between 1977 and 1988. They were discontinued because of the declining attendance. It also organized, in 1992, a national contest to prepare Belgian candidates for 101'92, the International Olympiade of Informatics.

Role in IFIP

In connection with its membership in **IFIP,** the Federation is responsible for the designation of the Belgian representatives to the **IFIP** Technical Committees (TCs). About 30 scientists from Belgium are also members of **IFIP** Working Groups.

The present efforts of the council of our Federation are aimed at a better acceptance of its role in the computer community. A first step in this direction has been publication, since the end of 1991, of a newsletter for our members and representatives in the **IFIP** TCs. A second one will be to have those representatives more involved in the dissemination of the information they gather from **IFIP.** A third step has been to solicit aid from the Belgian authorities. We had a satisfactory response for the annual **IFIP** dues and for partial support of the meeting of the **IFIP** Council February–March 1994. We would also like to get financial support for the representatives in the TCs, to help them participate in at least one meeting each year. Finally, there has recently been an agreement between the F.A.I.B.-F.B.V.I. and the Belgian weekly newspaper *Data News,* to give our members an opportunity to communicate with a broader spectrum of readers.

The February–March meeting of the **IFIP** Council in Brussels will certainly contribute further to establishing better confidence in our Federation in Belgium. ■

• secretary of the F.A.I.B.—F.B.V.L

AIMS AND SCOPES **OF NEW WORKING GROUPS**

Following are the Aims and Scopes of new Working Groups approved by the September 1993 **IFIP** General Assembly in Tokyo.

WG2.9: Software Requirements Engineering (preliminary)

AIM: To develop a better understanding of —

- the elicitation, specification, analysis, and management of the requirements for large and complex software-intensive systems
- the interpretation and documentation of those requirements so as to permit the developer to construct a system that will satisfy them

SCOPE: All aspects of requirements engineering. Some examples or areas of special interest are —

- formal representation schemes and requirements modeling
- descriptions of the requirements engineering process
- tools and environments to support requirements engineering
- requirements engineering methods
- requirements analysis and validation
- requirements elicitation, acquisition, and formalisation
- establishing traceability to requirements
- reuse and adaptation of requirements
- domain modeling and analysis
- requirements engineering for distributed, safety-critical, composite, real-time, and embedded systems

WG11.9: Information Technology and Crime

AIM: To facilitate the interchange of research and empirical information on IT-related crime, between the international scientific and investigative communities.

SCOPE:

- study and develop new methods and techniques for the detection and prevention of IT-related crime
- develop and promote a management standard for criminal investigative services
- perform research and identify new research topics in the field of IT-related-crime investigations
- provide a forum for the discussion and analysis of issues relating to IT-related-crime investigation and intelligence
- provide a reference point for investigative organisations on relevant issues

WG12.5: Knowledge-Oriented Development of Application Programs

continued on page 9

DIFFUSION, TRANSFER, AND IMPLEMENTATION OF INFORMATION TECHNOLOGY

*by Ms. Priscilla Fowler (USA)**

When a new IFIP Working Group (WG) on Information and Software Technology Transfer was proposed at the September 1992 IFIP Technical Assembly, the suggestion was made that a working conference be held to determine the level of interest and need. As a result, the International Working Conference on Diffusion, Transfer, and Implementation of Information Technology, sponsored by IFIP's Technical Committee on Information Systems (TC8), was held near Pittsburgh, Pennsylvania, October 10-13, 1993. It was organized in cooperation with the Software Engineering Institute and the TC on Software Engineering of the Computer Society of the U.S. Institute of Electrical and Electronics Engineers. A total of 89 people participated, and 63 indicated interest in membership if a new WG were to be formed.

Each participant submitted a paper or position statement. Participation was broad, both internationally and in terms of sectors represented (industry, universities, and government). Topics ranged from academia/industry collaboration, in general, to specific strategies for introducing formal methods for software development.

Keynote speeches were presented by *Lawrence Lien (USA),* who spoke on his experiences transferring technology from developed to developing countries, *Bernard Glasson (AUS),* who spoke on work in Australia to establish a national information system and technology research and development association, and *Rainer Zimmermann (D),* of the European Systems and Software Initiative (ESSI), who described ESSI goals and funding strategies.

Plenary session presentations of note included two case studies. The first, by *Ramiro Montealegre (USA)* and *Lynda Applegate (USA),* addressed a study of information technology and organization change in a large sugar corporation in South America. The other, a longitudinal study by *John Borton (USA)* and *James Brancheau (USA),* described strategies for implementing a distributed information system to support field personnel.

Parallel Sessions

Parallel sessions were held in six topic areas. The first session, "Models and Theories of Software and Information Technology Transfer," included a description of requirements for a predictable and practical technology-introduction process, from an industry representative, followed by academic approaches to understanding aspects of information technology implementation: how to better define aspects of user involvement, how to model the process in detail, and what characterizes, implementation of software process innovations. The second session, "Software Technology Implementation in Large Organizations," presented a variety of approaches to introducing software-engineering technologies such as measurement techniques. The third session, "Experiences with University/Industry Collaboration," presented the perspectives of university faculty, a small company, and a national research center. The fourth, "Experiences in the Transfer of Software Process Innovation," reflected the current strong interest in the area of software process improvement. The fifth parallel session, "Organizational Mechanisms for Facilitating Technology Transfer," presented several specific mechanisms for information or software technology transfer. These ranged from an engineering handbook and a prototype user-interface-management system to a company whose business is starting intrapreneurial technology-transfer functions in large firms. The last parallel session, "The Transfer of Formal/Engineering Methods for Software," looked at the transfer of formal methods for software development as seen by both industry and universities.

A total of six working sessions, three each evening, addressed essentially these same topics in smaller groups. Summaries of findings from each of these sessions were presented in a final plenary session, and reports from the sessions will be included with a subset of participants' papers and position statements and keynote papers in proceedings of the conference, published by Elsevier/North-Holland in March 1994.

Future of WG8.6

The conference concluded with discussions about the prospect of a Working Group in this area. Most participants agreed that ongoing interaction in a variety of areas would be fruitful.

The proposed scope of the WG, which emerged from both formal and informal discussions toward the end of the conference, is transfer and diffusion of information technology and software engineering technology within and between organizations. The proposed aims of the group derived from the agreement of Conference participants that there is a strong need to develop a reference model and terminology, so that there is some basis for comparison of and learning from the extensive body of existing work from both researchers and practitioners.

A steering committee, consisting of *Dr. Glasson, Burt Swanson (USA), Gonzalo Leon (E),* and *Karlheinz Kautz (D),* will support *Priscilla Fowler (USA),* program chair of the Conference, in preparing the formal proposal for the new WG, WG8.6. Those interested in membership should contact *Ms. Fowler* at

pif@sei.cmu.edu
tel: 1 (412) 268-7748
fax: 1 (412) 268-5758

or, in writing, at

Software Engineering Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213, U.S.A. ■

NEW E-MAIL ADDRESS FOR SECRETARIAT

The e-mail address for the IFIP Secretariat is now ifip@uni2a.unige.ch .

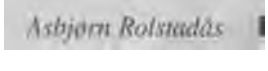
SECRETARY GENERAL cont. from p. 2

> responsible for the Secretariat (currently in Geneva). You are required to prepare a plan concerning how the Secretary General shall work to reach the goal of better internal operation and external understanding and particularly how IFIP finances shall be secured and improved on a long-term basis. This plan will be presented to the Council in March and must include necessary motivation and cost estimates for the Council to reach a final decision."

For the work concerning our future Secretariat, I have appointed a reference group for the Consultant. This group consists of *G.J. Morris (GB)* [IFIP secretary] and *M. Tienari (SF)* [an IFIP trustee].

Mr. Melbye is requested to report on these issues at the next Council meeting, where we will have a discussion of the job charter and financial justification of the position of Secretary General.

Sincerely yours,



program chair of the Conference

SECURITY AND CONTROL OF IT

*by Prof. Klaus Brunnstein (D)**

Under the sponsorship of the **IFIP** Working Group on Information Technology Misuse and the Law (WG9.6), an International Working Conference on Security and Control of Information Technology in Society was held 12-17 August 1993 aboard a ship plying between Stockholm and St. Petersburg. *Richard Sizer (GB)* was chairman of the International Program Committee, and *Ann Marie Bodor (S)* and *Louise Yngstrøm (S)* were chairpersons of the Organizing Committee. Attended by about 60 active participants, this event included one day at the Russian Academy of Science in St. Petersburg, full of information on the status of IT security and legislation in Russia. This day was prepared by *Eldar Musaev (RUS)* and *Simone Fischer-Huebner (D).*

With the professional interests of the participants almost equally divided between technical and legal aspects, the program aboard the ship was dominated by controversy over legal versus technical aspects. This contention was further stimulated by an introductory panel discussing the thesis "Law Cannot Help to Control IT Security." (The thesis was rejected by a majority of those attending.)

The program's first part was devoted to legal aspects, especially dealing with privacy. Here, a paper presented by anthropologist *Rolf Lunheim (N)* in cooperation with computer scientist *Gottorm Sindre (N)* gave several examples that privacy is rather inconsistently understood in different cultures. Such different views, even among Western participants, became evident in the presentations of some leading privacy and law experts. Here, *Bieke Spruyt (B)* and *Bart de Schutter (B)* discussed whether an international law on security of information systems is emerging; they saw needs for such standardisation.

In contrast with analyses concentrating on the legal situation, *Ruud Ketelaar (NL)* and *Simone Fischer-Huebner (D)* addressed both legal and technical aspects by arguing that some IT security mechanisms (e.g., collecting audit trails) further invade privacy and protection of personal data, thus even enlarging the legal problems. This contribution was the only one to bridge the evident gap between lawyers and technicians.

* chairman of the **IFIP** Technical Committee on Relationship between Computers and Society (TC9)

"Russian Day"

The "Russian Day," held 14 August on terra firma in St. Petersburg, revealed surprising insights into the implications of the recent dramatic political changes in Russian society, especially changes related to IT security. In his introduction, "IT versus Security in Russia," *Eldar Musaev (RUS)* presented examples of major incidents in Russia in recent years. Probably the most shocking one was the theft of a computer including a database of Tchernobyl victims and related statistics. Since no backup had been done, because of lack of magnetic media, this database was lost. So far, it is unclear whether the thieves were merely interested in the computer (which is the likely assumption) or were interested in the database.

Yuri Andreevich Timofeef (RUS) reported about the systematic approach being undertaken by several cooperating institutions to establishing a basic concept of IT security criteria for both IT products and systems, for government, commercial, and private applications. A Russian IT security industry is developing, accompanied by a national conference and a new Russian journal on IT security. *Andrey Petrovich Kurilo (RUS)* described the structure of emerging Russian IT-related legislation, associated with the present development of a new constitution, including principles of both the right for information and the right to individual privacy.

Whose Responsibility is Security?

Marshall Abrams (USA), in his distinguished way, described a "Symbiosis among IT Security Standards, Policies, and Criteria," in which he presented both progress and demands for research in miscellaneous fields. He especially mentioned "assurance" as ill-understood, and he suggested that multiple policy models be analysed to select the most adequate one for an economic or governmental organisation's demand. One of his conclusions about IT security policies was that "If security is everybody's obligation, it is nobody's obligation." This seemed to be in contradiction with a position that *Peter White (GB)* presented in his paper on "Preparing System Security Policies," that every person must behave according to her/his responsibility, rather than projecting security demands on "secure and safe" systems, including security managers.

Summarizing and assessing the value of this event, we note that two essential steps were taken that may produce future insights. First, the start of an information exchange between Russia and other countries was alone worth the trip to St. Petersburg. Second, the onboard Conference may be regarded as an initial step in bridging the evident gap between IT-security professionals, law experts and other fields (like sociology and anthropology). In this sense, the Conference proceedings (published by Elsevier/North-Holland) will surely form an interesting basis for future work. ■

THANKS FOR IFIP SUPPORT

The following is taken from a recent letter written to **IFIP:**

CLEI [Centro Latinoamericano de Estudios Informatica], the Latin American Center for Informatics, and SADIO [the Argentine Member of **IFIP],** the local organizer of the 19th Latin American Conference for Informatics, which was held in Buenos Aires August 2nd to 6th 1993, jointly with the 22nd Argentine Meeting of Informatics and Operations Research, are thankful for the support received. The conference was a success, with 948 attendees....The proceedings amounted to nearly 2000 pages from 118 contributed papers....The keynote speaker was *Adele Goldberg (USA),* whose travel was partially paid with the **IFIP** grant to CLEI....

Hector Monteverde
Cecilia T. de Berdichevsky ■

A. NICO HABERMANN

We regret to report that *Professor A. Nico Habermann (USA),* a world-renowned expert on programming, died of a heart attack in August at the age of 62. He was on leave from his professorship at Carnegie Mellon University (Pittsburgh, Pennsylvania) to serve as Assistant Director for Computer and Information Science and Engineering of the U.S. National Science Foundation. He was the founding dean of the CMU Computer Science school and was head of the Computer Science department from 1980 to 1988. *Prof. Habermann* served on the International Program Committee of **IFIP** Congress '89 as chairman of the Software Development and Maintenance stream.

RISK AND VULNERABILITY IN AN INFORMATION-BASED SOCIETY

*by Ms. Diane Whitehouse (CDN)**

"As information technologists, we need a greater awareness of the social consequences of contemporary technological developments," declared *Prof. Jacques Berleur (B),* chairing the opening session of the May 1993 Working Conference of the **IFIP** Working Group on Social Accountability (WG9.2). Over forty academics and consultants in the field of information technology (IT) met in Namur, Belgium, to debate the challenge of risk and vulnerability in an information-based society. The conference attendees came from many countries, some from as far afield as Australia, Canada, and the United States.

The 3-day conference consisted of daily plenary sessions and workshops. The vulnerability debate was not limited to information systems, security, or viruses and bugs; the majority of the papers were conceptual or methodological, covering a wide variety of topics.

The Greek agora, "the quintessence of public wisdom," was an important feature of the conference. Attendees were encouraged to write the ideas arising in workshops and plenary sessions that they found most stimulating and provocative. The conference culminated in an oratorical debate around these ideas. The prize-winning idea came from a team proposing "In My Back Yard (or IMBY) groups to participate in an interdisciplinary approach to information and communications technology projects." This is a proposal that WG9.2 would like to explore further in collaboration with other interested groups. A plaque was accepted by *Dr. Colin Beardon (GB)* on behalf of the winning team. *Dr. Jan Holvast (NL)* and *Prof. Rob Kling (USA)* were also advocates of "gold-plate" ideas.

Prof. Berleur was chair of the International Program Committee and the Organizing Committee. The conference proceedings, edited by *Berleur, Beardon,* and *Prof. Romain Laufer* (F), are available from Elsevier Science Publishers (North-Holland) under the title *Facing the Challenge of Risk and Vulnerability in an Information Society*.

* WG9.2 secretary

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CORRECTION

We apologize for printing an incorrect first name for *Mrs. Judy Hammond (AUS),* vice-chairman of TC13, in the December 1993 *IFIP Newsletter.*

FORTE'93 continued from page 1

communications network. Feature interactions are unanticipated side-effects among features that a new feature introduces, or the inability of a new feature to deliver its intended functionality because of unanticipated behaviors of other features. An important amelioration of, or management approach to, this problem is to use formal methods to model and analyze feature logics and feature requirements, and to generate test scenarios.

Another tutorial, "LOTOS Applications in the European Software Industry" by *Jeroen Schot (NL)* [presented by *Juan Quemada (E)J,* presented recent industrial experience on the use of the LOTOS language in the development of safety-critical and communication software. It discussed practical methods for specification construction, rapid prototyping, validation and verification, and code generation emerging from this and other projects.

The next tutorial, "Introduction to Erlang" by *Robert Virding (S),* described Erlang, a concurrent declarative programming language for efficient design of robust distributed systems. It gave several examples of how this language has been used most successfully in prototype and research projects. One application might represent the largest system in the world developed in a declarative language.

The final tutorial, "An Introduction to VDM" by *Lynn Marshall (CDN),* introduced VDM, a widely used formal description method based on set theory and first-order logic.

Throughout the Conference, there were demonstrations of software tools for manipulating formal descriptions of systems.

As in the past, the Conference was sponsored by the **IFIP** Working Group on Architecture and Protocols for Computer Networks (WG6.1). *Richard Tenney (USA)* was Conference chair. The Conference received support from U.S. corporations, universities, and federal agencies. This meeting marked the first time the U.S. National Science Foundation has supported the FORTE series.

The formal Conference proceedings, edited by *Tenney, Paul Amer (USA),* and *M. Omit Uyar (USA),* will soon be published by Elsevier/North-Holland as part of the *IFIP Transactions* series. Preliminary versions of the papers were printed and distributed at the Conference itself. In addition, the visual material for the tutorials and, in some cases, additional background information were also distributed at the Conference. These two volumes totaled over 950 pages.

Questions about FORTE'93 and requests for copies of the program, with titles and authors of the talks, may be sent by e-mail to forte@cs.umb.edu or by ordinary post to

FORTE'93
Mathematics and Computer Science Dept.
University of Massachusetts
Boston, MA 02125-3393, U.S.A.

In addition, an order form for the tutorial notes may be obtained by sending mail to either of the above addresses.

FORTE'94 will take place in Bern, Switzerland, October 4-7, 1994; FORTE'95 is scheduled for Montreal, Canada, October 17-20, 1995.

CONGRESS '94 continued from page 1

nine issues. The issues lie at the interfaces of selected pairs of tracks. The issues and their "Champions" are

What Should We Build? — G. Maguire (USA)

How Much Application Knowledge Should a Technologist Have?

When Virtual Reality Becomes Real — B. Neumann (D)

Utopia? or Chaos? How Should We Control Technology Development? — J. Berleur (B)

How Much Is Safety Worth?

Should We Invest in Intellectual Elegance or Computer Power? — 0. Herzog (D)

Who Is in Control — User or Application System? — R. Clarke (AUS)

Is Application Development Focused on Real Problems? — R. Traunmüller

Is Technology Transfer the Answer? — S. Bhatnagar (IND)

[Some Champions had not been designated when this ***IFIP*** *Newsletter* went to press. — Ed.]

The committee's intention is that every participant will

- select an issue when he or she registers
- learn as much as possible about the issue during the first 31/2 days of the Congress
- spend part of a day discussing the issue in a formal setting, and developing the Action Agenda

Action Agendas

The Action Agendas from the nine issues will be presented in plenary session on the final day of the Congress. Solutions will take the form of recommendations; they will include specification of *who* should take the recommended actions (e.g., vendors, academics, governments). Following the Congress, the Action Agendas will be combined to create the Congress Message, which will be disseminated appropriately.

The Congress schedule is as follows:

Monday morning – Congress keynote speeches

Monday afternoon through Wednesday morning — track-specific topics

Wednesday afternoon through Thursday morning — issue-specific topics

Thursday afternoon — issue discussions (in groups of at most 50) and creation of Action Agendas

Friday morning — presentation of Action Agendas

Friday afternoon — closing session, including Congress Message

The successful completion of the issues process will need the close guidance of knowledgeable and caring professionals, so Issue Champions (ICs) have been designated to coordinate the issue streams. The goal of each IC is to achieve an important and exciting Action Agenda that reflects significant insight into the nature of the issue and its resolution. To reach that goal, each IC is responsible for both the content and execution of the issue stream.

The ICs have developed Concept Guidance Documents, which describe the issues, describe the background information that participants need in order to discuss the questions, and suggest where the information will come from (issue sessions, track sessions, special sessions, reading material, etc.). The ICs are now recruiting both refereed and invited papers and speakers, arranging pre-Congress or evening tutorials, working with the track chairmen to be certain that all material that participants need in order to understand and discuss the issues will be available, providing reading material, and preparing Issue Stream Descriptions that include a list of the technical sessions and other materials participants should attend or be familiar with (these may be from any part of the Congress program, or even extra sessions).

During the Congress, the ICs will manage the issue streams. They will introduce, host, and manage the issue sessions and present the Action Agendas during the Friday morning plenary session.

The Process

The process of developing the Action Agendas is critical: time is short (around 4 hours), but the results will be significant. The participants will "learn" about the issues and discuss them at length in earlier Congress sessions. (It is important that participants understand that they must prepare themselves adequately for the discussions.) By the time of the Thursday afternoon sessions, the participants will be ready to draw conclusions. The tentative list of steps for the sessions, based on the process used for similar purposes at the ACM (U.S. Association for Computing Machinery) Critical Issues Conference in 1990, is as follows:

Introductions and instructions

Small-group sessions to list the problems, discuss them, and prioritize them

Large-group "voting" to define the *key problems* for each issue

Small-group sessions to list solutions, discuss them, and prioritize them

Large-group sessions to "vote" on the *key solutions,* which make up the Action Agendas

Discussion is primarily for explanation and clarification, since there is not time for lengthy defenses of positions. The small groups are used as a mechanism to get the group to focus quickly on its tasks and give everyone a chance to nominate problems and solutions.

More information about the Congress may be obtained from

Congress Secretariat
IFIP'94
Congress Centrum Hamburg
Congress Organisation
P.O. Box 30 24 80
D-20308 Hamburg, Germany
fax: +49.40.3569.2343
Telex: +212609

U.S. TRAVEL GRANTS

*by Mr. Howard Funk (USA)**

The Federation on Computing in the United States (FOCUS), the U.S. Member of **IFIP,** has requested a grant from the U.S. National Science Foundation to provide partial travel support to U.S. participants in **IFIP** Congress '94. If the grant is approved, FOCUS will be able to support travel for approximately 20 attendees. Funding will be limited to a maximum of $1000 per attendee. Applicants should provide the selection committee with a current resume and relevant details of their planned Congress activities (i.e., to present a paper, to chair a session, to serve as a panel member, etc.) and/or how participation will benefit their current activities and research. Junior and minority faculty members are especially encouraged to apply.

All award recipients must be residents of the U.S., and travel must be by U.S. carriers. In addition, recipients will be required to file a brief report following the Congress, on their activities and experience at the Congress.

Individuals wishing to submit applications should contact

FOCUS Secretariat
1730 Massachusetts Ave., NW
Washington, DC 20036-1992, U.S.A.
tel: 1 (202) 371-0101, fax: 1 (202) 728-9614
e-mail (internet): grant@computer.org ■

* U.S. representative to **IFIP,** and **IFIP** vice-president

IFIP WELCOMES THREE NEW MEMBERS

The 1993 **IFIP** General Assembly, meeting in Tokyo, approved the admission of three Full Members, representing the Czech Republic, the Slovak Republic, and Thailand, which brings the number of Full Members to 43. (The Czech and Slovak memberships replace that of Czechoslovakia.) Following are descriptions of the newly admitted societies, written by society officers.

CZECH SOCIETY FOR CYBERNETICS AND INFORMATICS

*by Dr. Jaroslav Dolezal (CZ)**

There is a rich history of information processing in the Czech Republic. From Prague, the capital, comes the famous legend of the Golem, an artificial man created by Rabbi Jehuda Low in the 16th century in order to defend oppressed people. He was said to be awoken to life when a magic formula (called a "scheme") was inserted into his head.

In the 1920s, the word "robot" was used for the first time in the science fiction drama *R.U.R.* by the Czech playwright Karel Capek, derived from the Czech word "robota," which means the regular forced labor of serfs. Thus "robot" denoted a human-like artificial creature. The title *R.U.R.* itself was shorthand for *Rosum's Universal Robots.* "Rosum" did not represent just the name of a person; in Czech, it denotes "reason" as well. *R.U.R.* points to the potential misuse of obedient robots, it treats ethical problems, and it searches for the delicate boundary between robots and human beings.

Founding of CSCI

In 1966, the Czechoslovak Society for Cybernetics was established. It offered a gathering-place for scientists and technologists interested in the problems of man-machine interaction, automation of decision-making tasks, as well as technical systems based on biological principles.

The Czech Society for Cybernetics and Informatics (CSCI), established in 1991, is a direct descendant of the Czechoslovak Society for Cybernetics. The split of Czechoslovakia on January 1, 1993, triggered the utilization of CSCI as a new national society. The former interest groups of the Czechoslovak Society for Cybernetics were completely incorporated into the CSCI structure. Today, the total number of CSCI members approaches 500; the Society thus encompasses most Czech professionals in the fields of science and technology covered by CSCI.

Since 1966, the Society has published an international scientific journal *Kybernetika.* In addition, all the activities of the CSCI are reported in the monthly *Society Bulletin,* distributed to all its members.

Interest Groups

The main activity of the society has been centered around its interest groups, (currently 16), which cover practically the entire area of cybernetics and informatics. Their sizes vary between 20 and 50 members. One such interest group is the Theoretical Robotics group, established in 1974 and continually organizing monthly lectures on problems of AI and robotics. Maybe because of the above historical background, this group is one of the most active within the Society. The opportunity of forming interest groups makes it possible to avoid unnecessarily founding other more specialized societies, which would encounter obvious difficulties because of their limited memberships.

Today CSCI is a member of several international bodies: the European Coordinating Committee for Artificial Intelligence (ECCAI), the International Association for Pattern Recognition (IAPR), the International Federation of Automatic Control (IFAC), and **IFIP.**

The Czech representative to the **IFIP** General Assembly is *Dr. Jaroslav Dolezal,* who has been a member of the **IFIP** Technical Committee on System Modelling and Optimization (TC7) since 1985. He is also the organizer of the next TC7 Conference on System Modelling and Optimization, taking place in Prague July 10-14, 1995. (Those interested in receiving additional information about this event can send e-mail to ifip@utia.cas.cz .).

SLOVAK SOCIETY FOR COMPUTER SCIENCE

by Prof Branislav Rovan (SK)f

The Slovak Society for Computer Science (SSCS) was formally established in April 1993. It is a continuation of the former Bratislava branch of the Czechoslovak Society for Computer Science. The move to establish a separate society for Slovakia was necessitated by the split of Czechoslovakia into two independent states: the Czech Republic and the Slovak Republic. The newly formed Society has, in a strict sense, no history yet; however, its members have been active in the computer science community of Slovakia for a number of years.

Before 1989, the two dominant areas of computer science were hardware and theory. No computer science society existed. Hardware professionals found a home within the Cybernetics Society, and the theorists within the Association of Mathematicians and Physicists. Both these Societies were organized under the umbrella of the Academy of Sciences. The hardware community was forced into reverse engineering by the Communist government and fell behind the rest of the world. The theoretical community, being "hardware independent," managed to gain international recognition. One of the top European conferences in theoretical computer science, Mathematical Foundations of Computer Science (MFCS), has been organized in Slovakia every four years since 1973. The theory community was also the first to recognize the importance of software over hardware and initiated a software seminar (SOFSEM) in 1974. This unique seminar brought together computer science professionals from universities and industry for the twentieth time in 1993. It has helped to spread new theoretical ideas through the community and to keep researchers aware of practical problems.

After 1989

Following the "velvet revolution" in 1989, the Czechoslovakian Society for Computer Science was established as one of the first professional societies outside the usual Academy umbrella. The Society was organized on a regional principle, with three branches (Prague, Brno, and Bratislava). One of its first activities was providing expertise for the Ministry of Education in designing policy for introducing computers and computer science into secondary schools. The Society became the natural sponsor of the main computer science events (MFCS, SOFSEM) and started production of its *Bulletin.* The Bratislava branch of the Society played a crucial role in designing the National Program of Informatisation of Slovakia, for the Slovak government.

* Czech representative to the General Assembly

t former Czechoslovakian representative to the **IFIP** General Assembly, and member of SSCS Executive Committee

The Czechoslovakian Society for Computer Science started to build international relations. Joint membership agreements with U.S. societies were established.

The Future

The year 1993 brought new changes to Czechoslovakia. The division of the Federal Republic caused similar separations in professional societies. SSCS was established, based on the Bratislava Branch of the Czechoslovakian Society for Computer Science. The Czech Society for Computer Science and the Slovak Society for Computer Science agreed to keep the Czech and Slovak Society for Computer Science as a federation of the two new societies, to facilitate continuation of the cooperation in the regional activities and international contacts.

The present activities of SSCS are aimed at building the structure of the new organisation, with the election of new officers, including *Igor Privara* as president, who is also the Slovak representative to the **IFIP** General Assembly. We hope to overcome the general decrease in activity noticeable in all professional societies in Slovakia caused by the loss of hope for fast recovery from the misery of the past years.

The present base of 52 individual members and *5* institutional members is modest but covers the main computer science centres in Slovakia reasonably well and includes renowned Slovak computer scientists. Increasing the membership base is one of the top priorities of the Society. The Society plans to continue to support and organise seminars and conferences. It is currently working on establishing information flow to its members.

SSCS plans to form Special Interest Groups corresponding to the Technical Committees (TCs) of **IFIP.** Each of these SIGs will select a representative to the corresponding **IFIP** TC. A committee formed of these representatives will be responsible for the relationship with **IFIP.** All this is expected to take some time. Special attention will be paid to ensuring proper involvement of the membership of other professional societies in Slovakia whose professional orientation overlaps that of **IFIP** (e.g., the Slovak Society for Cybernetics and Informatics).

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.

THAI FEDERATION FOR INFORMATION PROCESSING

by Prof Dr. Srisakdi Charmonman (T)t

The Thai Federation for Information Processing (TFIP) was founded in 1982, when the National Registrar of Organizations, a unit of the government of Thailand, granted permission to *Prof. Dr. Srisakdi Charmonman* to establish the Federation. The number of members at that time was 179 individual members and 3 institutional members, which has increased to 1,319 individual members and 21 institutional members.

One of the purposes of establishing TFIP was to become a member of **IFIP.** Before TFIP sent an application to **IFIP,** however, SEARCC (the South East Asia Regional Computer Confederation) became a member. Since Thailand was a member of SEARCC, TFIP did not apply to **IFIP** at that time; when SEARCC withdrew from **IFIP** (in January 1992), TFIP decided to apply.

The purposes of TFIP are

- to promote education, research, and applications of information processing technology, including, but not limited to the areas of data processing equipment, management concepts, and data processing personnel.
- to disseminate information processing knowledge to governmental agencies, governmental enterprises, and private companies, as well as to the general public, students, and all other parties interested in information processing.
- to exchange knowledge and experience in information processing with organizations and learned societies, both in Thailand and abroad.

TFIP has organized national and international conferences. For example, in 1982, jointly with the Ministry of Science, it organized the National Seminar on Computers, presided over by H.R.H. Princess Maha Chakri Sirindhorn; and in 1993, it organized the International Conference on Expert System Technology and Applications, in cooperation with the Thailand chapter of the ACM (U.S. Association for Computing Machinery) and the Thailand chapter of the Computer Society of the IEEE (U.S. Institute of Electrical and Electronics Engineers). Also, in 1987, jointly with IDRC and UNCTC (the Canadian International Development Centre, and the United Nations Centre on Transnational Corporations), TFIP organized the Regional Conference on Transborder Data Flow.

TFIP also provides speakers requested by various government agencies, private companies, and educational institutions. Starting in 1993, TFIP has been organizing monthly seminars conducted by international experts. Some lecture topics in 1993 were Enterprise-Wide Area Networks, Fuzzy Logic, Neural Computing, Computer-Integrated Manufacturing, and Internetworking. TFIP has a policy of holding one international conference in Thailand each year. The one near the end of 1994 will be "Worldwide Computer Internetworking through the Internet."

In the past, TFIP contributed news and technical papers to local periodicals; starting in 1993, TFIP, with the local ACM and IEEE chapters, has been publishing its own *International Journal of Computer and Engineering Management,* three times a year. ■

president of TFIP and its representative to the **IFIP** General Assembly

AIMS AND SCOPES continued from p. 3

AIM: To explore the use of knowledge modeling techniques (knowledge structuring, knowledge acquisition, knowledge explanation) for general application-program development.

SCOPE:

- conceptual frameworks for application-program specification and design based on structured knowledge models
- implications on reusability and development of application programs by non-programmers
- corporate knowledge management
- relationships with current approaches and life cycles for development and formulation of application programs in conventional software engineering and information-systems engineering
- new knowledge-based user interfaces for development, explanation and operation of systems supported by this concept of application-program structure
- standards for knowledge transfer
- integration of AI software and systems with conventional databases, programming languages, and operating systems
- related research issues to support the previous concepts, such as knowledge acquisition, learning, validation and implementation techniques ■

SYMPOSIUM ON NETWORK INFORMATION PROCESSING SYSTEMS

*by Prof. Dr. Kiri! Boyanov (BG)**

The third symposium on Network Information Processing Systems was held from 12 to 14 October 1993 in Sofia, Bulgaria. It was organized by the Bulgarian Academy of Sciences (BAS), under the auspices of the Technical Committee on Communication Systems (TC6) of **IFIP** and the sponsorship of the Commission of the European Communities and the Union of Bulgarian Scientists (UBS).

The Symposium was opened by the President of the Committee of Post and Telecommunications of Bulgaria, *Prof. Venko Markov.* A welcoming address on behalf of TC6 was presented by *Mr. Trevor Housley (AUS),* vice-chairman of TC6, and *Prof. Luben Dolapchiev* welcomed the participants on behalf of the UBS.

More than 150 delegates from 18 countries closely followed the keynote speech, "New Communication Services in a Competitive Environment — the European Situation," delivered by *Dr. Louis Pouzin (F),* a former chairman of TC6. After his speech, *Dr. Pouzin* was awarded an honors diploma and the "Marin Drinov" medal of the Bulgarian Academy of Sciences for his introduction of the datagram method in package commutation in computer networks, for his great service in their implementation worldwide, and for his contribution to scientific cooperation between Bulgarian and French institutes and scientists.

The symposium was dedicated to the application of computer networks for information processing and to the methods of analysis and synthesis for new architectures and hardware and software tools. Seven invited lectures were delivered by eminent scholars, and 24 papers were delivered on distributed systems, protocols for data communication, traffic control, performance evaluation, local networks (which have recently become more and more widespread), new types of services available to the users by means of telephone lines, databases, and high-speed networks. Certain questions connected with the architecture and the development of integrated services digital network (ISDN) were also considered.

The panel discussion chaired by *Prof. Otto Spaniol* ***(D),*** TC6 chairman, on "Networks and Telecommunications in EEC — Problems and Strategy" evoked special interest. It was noted that several approaches exist for approving telecommunications, but all the participants agreed on the priority of activities in the following order: creation of joint ventures with Western European companies, increasing investments, including the participation of European and international companies, and consolidating local industry.

The symposium was declared closed by the chairman of the Program Committee, *Prof. Kiril Boyanov (BG).*

After the Symposium, on 15 and 16 October, the annual meeting of TC6 was held. Representatives of 21 countries participated. *Mr. Tibor Szentivanyi* ***(H)*** was awarded a special present in connection with the termination of his activity in TC6, because of his retirement, and for his 21 years of fruitful work in the TC. ■

* representative of Bulgaria in TC6

INFORMATICS AND CHANGES IN LEARNING

by Mr. Brian Samways (GB)t

In June 1993, nearly 400 delegates attended an **IFIP** conference on Informatics and Changes in Learning. The Conference, sponsored by the Working Groups on Informatics Education at the Secondary Level (WG3.1) and Informatics in Elementary Education (WG3.5) of the Technical Committee on Education (TC3), was held in Gmunden, Austria, 7-11 June. It focused on teaching and learning in a rapidly changing world. In the past decade, significant changes in learning have been predicted, based on the increased availability of interactive and dynamic information processing tools. The degree to which these predictions have become reality, the effects, and future trends, were represented in the major themes of the Conference:

- changes in society affecting learning
- equity in learning
- flexible learning environments
- interactive learning and the changing role of the teacher
- learning about dynamic systems (frequently by way of simulation)
- policies for change

The Conference included 6 keynote presentations, 6 panel discussions (one on each theme), several demonstrations, over 100 paper presentations, and an "Austrian Day," to promote the sharing of experiences and ideas between the international participants and the Austrian teachers and pupils.

The Austrian presentations were the "winners" of a competition run throughout Austria, and represented some of the best and most exciting projects taking place in the schools. The schools represented also had exhibition stands, where Conference delegates could discuss the projects with the students who had been involved and could try out the various applications. A compact disc describing all the demonstrations was available on request.

It is difficult, if not impossible, to summarise the lasting impressions from the wealth of ideas that were discussed at the Conference. The enthusiasm and commitment of the speakers, who had advanced the use of computers in the world of education, were certainly impressive. Also clear, however, was the disillusionment of some delegates with the many failed fads and fashions of the past two decades. But failures were often linked to mistakes of implementation rather than to errors of principle. In any of the major areas of software development — word processing, microworlds, spreadsheets, computation, simulation, multimedia, telematics — the specialist's enthusiasm for the good idea can cause him to ignore the essential process of change that ordinary teachers must undergo if best practice is to find a place in common use.

Teacher training emerged as the vital issue for the future, with initial training highlighted as being in need of the most reform. Unless the professional development of teachers includes the use of computers as a natural component of the art of learning, classroom practice will not change.

Perhaps the real impact will come when the personal and portable computer is re-

continued on page 13

t TC3 correspondent to the *IFIP Newsletter*

NEW IFIP PUBLICATIONS FROM NORTH-HOLLAND

Software Engineering Education

Proceedings of the IFIP WG3.4/SEARCC (SRIG on Education and Training) Working Conference, Hong Kong, 28 September-2 October 1993

Edited by **B.Z. Barta, S.L. Hung** and **K.R. Cox**

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NetWORKing: Connecting Workers In and Between Organizations

Proceedings of the IFIP WG9.1 Working Conference, Vienna, Austria, 16-18 June 1993

Edited by **A. Clement, P. Kolm** and I. **Wagner**

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Decentralized and Distributed Systems

Proceedings of the IFIP WG10.3 International Conference, Palma de Mallorca, Balearic Islands, Spain, 13-17 September 1993

Edited by **M. Cosnard** and **R. Puigjaner**

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Applications in Parallel and Distributed Computing

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Computer Support for Environmental Impact Assessment

Proceedings of the IFIP TC5/WG5.11 Working Conference, CSEIA 93, Como, Italy, 6-8 October 1993

Edited by **G. Guariso** and **B. Page**

IFIP Transactions B: Computer Applications in Technology Volume B-16

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Diffusion, Transfer and Implementation of Information Technology

Proceedings of the IFIP TC8 Working Conference, Pittsburgh, PA, USA, 11-13 October 1993

Edited by **L. Levine**

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Open Distributed Processing, II

Proceedings of the IFIP TC6/WG6.1 International Conference, Berlin, Germany, 13-16 September 1993

Edited by **J. de Meer, B. Mahr and S. Storp**

IFIP Transactions C: Communication Systems Volume C-20

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Fractals in the Natural and Applied Sciences

Proceedings of the Second **IFIP** Working Conference, London, UK, 7-10 September 1993

Edited by **M.M. Novak**

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High Speed Networks and their Performance

Proceedings of the IFIP TC6 Task Force/WG6.4 Fifth International Conference on Data Communication Systems and their Performance, Raleigh, NC, USA, 26-28 October 1993

Edited by **H. Perros** and **Y. Viniotis**

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AN **IMPRINT OF** ELSEVIER SCIENCE

Security and Control of Information Technology in Society

Proceedings of the IFIP TC9/WG9.6 Working Conference on board M/S Ilich and ashore in St. Petersburg, Russia, 12-17 August 1993

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Knowledge-Based Reactive Scheduling

Proceedings of the IFIP TC5/WG5.7 International Workshop, Athens, Greece, 1 October 1993

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VLSI 93

Proceedings of the IFIP TC10/WG10.5 International Conference, Grenoble, France, 7-10 September 1993

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Information Infrastructure Systems for Manufacturing

Proceedings of the JSPE/IFIP TC5/WG5.3 Workshop, DIISM '93, Tokyo, Japan, 8-10 November 1993

Edited by **H. Yoshikawa** and **J. Goossenaerts**

IFIP Transactions B: Computer Applications in Technology Volume B-14

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MARCH 1994

INFORMATION TECHNOLOGY AND SOCIO-ECONOMIC DEVELOPMENT*

WG9.4 Plans Conference in Cairo

The IFIP Working Group on Social Implications of Computers in Developing Countries (WG9.4) is planning an international conference on Information Technology and Socio-Economic Development: Challenges and Opportunities. It will be held 9-11 January 1995 in Cairo, Egypt, and will be co-hosted by the Regional Information Technology and Software Engineering Centre of Cairo.

The potential of information technology (IT) in improving public administration and increasing industrial competitiveness is recognized, but its widespread use is still a distant goal. It is at this stage, when developing countries are making increasing investments in IT, that there is need to understand the factors that will promote its effective utilization. There is very little in the way of a body of knowledge or documented practice to guide trainers, educators, and practitioners in planning and implementing IT projects. Both failures and successes of IT applications must be examined and documented. By and large, documents on IT applications in developing countries tend to highlight positive aspects and ignore negative impacts. This Conference is being organized to bring together and critically examine experiences from a number of developing countries, which have much to learn from each other's experiences.

There will be no registration fee for overseas participants. Authors from developing countries will be provided free hotel accommodation by the Conference organizers. Further details may be obtained from the WG9.4 Chair:

Prof. S. C. Bhatnagar
IIM
Ahmedabad 380015, India
fax: 91-272-427896
e-mail: subhash@iimand.ernet.in

* reprinted from the *WG9.4 Newsletter*

SYSTEMS PROGRAMMING: LANGUAGES AND APPLICATIONS

From 29 March to 2 April 1993, IFIP's Working Group on System Implementation Languages (WG2.4) held an "autumn school" on Systems Programming: Languages and Applications, in Pretoria, South Africa. A distinguished faculty of 19 experts from around the world conducted seminars, workshops, tutorials, and lectures for 150 participants (some for only one day, some for all 5 days).

The IFIP African Autumn School was born out of a desire on the part of members of WG2.4 to increase the flow of technology to developing countries. After many years, the two South African members of the WG were successful in inviting the WG to meet in Africa, and the School is a follow-up from that meeting. It was decided to present courses that would be both commercially attractive and accreditable at the university level. The resulting mix of quarter-day seminars and one- or two-day tutorials enabled both industrialists and students to gain the maximum benefits from the expertise present at the school.

Fees were kept very low to encourage a large attendance. Although an attempt was made to fund the event through fees from industry, this was not accomplished. The South African Department of National Education, however, provided substantial support. Speakers' expenses took the lion's share (43%) of the budget, although these expenses were not met in full. Funds from IFIP were used to assist three academics from Zimbabwe and Malawi and four local participants to attend. The proceedings were thriftily produced in 11 separate books and distributed only to those registered for the corresponding streams; however, many requests for additional copies were received.

- *Prof. Judy Bishop (ZA),* a member of WG2.4, was chairman of the Organizing Committee for the Autumn School. ■

CHANGES IN LEARNING continued from page 10

garded as a normal tool of the educated person. Schools are servants of society and must react to the environment in which they are placed. Successful industries have already moved to incorporate information technology into normal working practice. Schools cannot ignore the inevitable.

The Conference International Program Committee was chaired by *Tom van Weed (NL),* while *Anton Knierzinger (A)* chaired 'the Organizing Committee.

From the papers presented, a set of 27 were reviewed and selected for inclusion, along with the six keynote lectures, in the official publication of the Conference, edited by *David Johnson (GB)* and *Brian Sam ways (GB)* and available from Elsevier/North-Holland as one of the **IFIP** *Transactions* series (ISBN 0 444 81492 2). ■

NEW *INFORMATION BULLETIN* AVAILABLE

The 25th edition of the ***IFIP*** *Information Bulletin* was printed in January and has been distributed to all IFIP participants. All new appointments and changes of address can be found there.

On-Line IFIP Database

All readers are reminded that a database of IFIP information (including this *Newsletter)* is now available through international computer networks. Access is possible via ftp from the repository at

software.watson.ibm.com

and via ordinary e-mail from the

listserv@cearn (Bitnet)

repository. In addition, the database can be accessed through GOPHER. An article giving details of how to access the database can be found on page 10 of the March 1993 ***IFIP*** *Newsletter* or requested from the IFIP Secretariat. Member societies of IFIP are urged to bring the IFIP database to the attention of their members.

National Abbreviations Used in Newsletter

A	Austria	E	Spain	RUS	Russia
AUS	Australia	F	France	S	Sweden
B	Belgium	GB	United Kingdom	SF	Finland
BG	Bulgaria	H	Hungary	SK	Slovakia
CDN	Canada	IND	India	T	Thailand
CH	Switzerland	IRL	Ireland	USA	U.S.A.
CZ	Czech Republic	J	Japan	ZA	South Africa
D	Germany	N	Norway	ZW	Zimbabwe
DK	Denmark	NL	The Netherlands		

CALLS FOR PAPERS

Eighth **IFIP** WG11.3 Work. Conf. on **Database Security**
23-26 Aug 94, Bad Salzdetfurth, Germany
papers due: 14 Mar 94
contacts:
Matthew Morgenstern
Xerox Design Research Institute
Cornell University
5144 Upson Hall
Ithaca, NY 14853, U.S.A.
tel: +1 607 255-9899, fax: +1 607 254-4742
e-mail: morgenstem@cs.cornell.edu
or
Joachim Biskup
Institut f. Informatik
Univ. of Hildesheim
Samelsonplatz 1
Postfach 10 13 63
D-31113 Hildesheim, Germany
tel: +49 5121 883-731, fax: +49 5121 883-732
e-mail: biskup@informatik.uni-hildesheim.de

IFIP Conf. on **South East Asia Communications — SEACOMM '94**
4-6 Oct 94, Kuala Lumpur, Malasia
papers due: 30 Mar 94
contact: Chairman
SEACOMM'94 Programme Committee
Malaysian National Computer Confederation
P.O. Box 1128, Jalan Pantai Bahru
59700 Kuala Lumpur, Malaysia
fax: 60-3-774-7026
e-mail: Seacomm94@mya020l.wins.icl.co.uk

Eighth **IFIP** WG5.6 Intl. Conf. on **Computer Applications in Shipbuilding — ICCAS'94**
5-9 Sep 94, Bremen, Germany
papers due: 30 Apr 94
contact: ICCAS 94 Intl. Programme Committee
c/o Kockums Computer Systems AB
P.O. Box 505 55
S-202 15 Malmö, Sweden
fax: +46 40 97 02 72
e-mail: iccas94@kcs.se

IFIP Intl. Conf. **NETWORKS'94**
30 Dec 94-2 Jan 95, Madras, India
papers due: 30 Apr 94
contact: Dr. S.V. Raghavan
Dept. of Computer Science and Engineering
Indian Institute of Technology
Madras 600 036, India
e-mail: svr@iitm.ernet.in
tel: +91 44 2351365, ext. 3508 (work)
+91 44 2350732 (home)
fax: +91 44 2350509
telex: 41-21062 **IITM** IN

IFIP WG6.1 Intl. Conf. on **Formal Description Techniques for Distributed Systems and Communications Protocols — FORTE'94**
4-7 Oct 94, Bern, Switzerland
papers due: 6 May 94
contact: FORTE'94 Organization Committee
Univ. of Bern
P.O. Box 900
CH-3000 Bern 9, Switzerland
tel: +41 31 631 4994
(Prof. Dr. Dieter Hogrefe, conf. chairperson)
+41 31 631 4430
(Stefan Leue, conf. organization chairperson)
fax: +41 31 631 3965
e-mail: forte94@iam.unibe.ch

Fifth **IFIP** TC5 Intl. Conf. on **Computer Applications in Production and Engineering — CAPE'95**
16-18 May 95, Beijing, China
extended abstracts due: 30 Jun 94
contact: Prof. Zesheng Tang
Computer Dept.
Tsinghua Univ.
Beijing, 100084, China
fax: 86.1.256768

Fourth **IFIP** WG6.6 Intl. Symp. on **Integrated Network Management — ISINM'95**
2-6 Apr 95, Santa Barbara, CA, U.S.A.
papers due: 1 Jul 94
contact: Prof. Adarshpal Sethi
Computer & Information Sciences
Univ. of Delaware
Newark, DE 19716, U.S.A.
e-mail: sethi@cis.udel.edu
or
Prof. Yves Raynaud
Univ. Paul Sabatier – IRIT/SIERA
118 route de Narbonne
Toulouse 31062, France
e-mail: raynaud@irit.fr

Sixth **IFIP** World Conf. on **Computers in Education**
23-28 Jul 95, Birmingham, U.K.
papers due: 31 Jul 94
contact: WCCE/95
Margaret St.
Birmingham B3 3BW, U.K.
tel: 44+(0)21-428 1258, fax: 44+(0)21-428 2246

Seventeenth **IFIP** Conf. on **System Modelling and Optimization**
10-14 Jul 95, Prague, The Czech Republic
extended abstracts due: 15 Oct 94
contact: IFIP'95 Conference
Attn. Dr. J. Dolezal
Institute of Information Theory and Automation
P.O. Box 18
Pod vodárenskou vezi4
CZ-18208 Prague, The Czech Republic
tel: 42 2 66052062, fax: 42 2 824755
e-mail: ifip@utia.cas.cz ■

FUTURE IFIP MEETINGS

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

Council	28 Feb-3 Mar 94 (Mon.–Thurs.)	Brussels, Belgium
GA	3-6 Sep 94 (Sat.–Tues.)	Hamburg, Germany
GA	(contiguous to **IFIP** Congress '96)	Canberra, Australia
GA	(contiguous to **IFIP** Congress '98)	Vienna, Austria, or Budapest, Hungary

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

TC2	26 Aug 94	Hamburg, Germany
WG2.1	Sep 94	Japan (under study)
WG2.2	6-10 Jun 94 (with conf.)	San Miniato, near Pisa, Italy
WG2.3	same	
WG2.4	23-27 May 94	Szeged, Hungary
WG2.7	April/May 94	Boston, MA, U.S.A.
WG2.8	mid 94	Calgary, Alberta, Canada
TC3	26-27 Aug 94	Hamburg, Germany
	22 Jan 95	Geneva, Switzerland
	22, 29, 30 Jul 95 (with WCCE '95)	Birmingham, U.K.
WG3.1	Oct 94 (tent.)	Barcelona, Spain
WG3.5	26 Jun-1 Jul 94 (with conf.)	Philadelphia, PA, U.S.A.
TC6	22-23 Apr 94	Funchal, Madeira Islands, Portugal
	7-8 Oct 94 (with SEACOMM conf.)	Malaysia
	23-24 Mar 95 (with conf.)	Durban, South Africa
	95 (under study)	Turkey
	96 (under study)	Hawaii, U.S.A.
TC7	17 Dec 94	Prague, Czech Republic
TC8	8-12 May 94 (with conf.)	Queensland, Australia
WG8.1	26-28 Sep 94 (with conf.)	Maastricht, the Netherlands
WG8.2	15 Aug 94 (with conf.)	Ann Arbor, MI, U.S.A.
	9 Dec 95	Amsterdam, the Netherlands
WG8.3	6-8 Sep 94 (with conf.)	San Sebastian, Spain
	late Jan 95 (with conf.)	Delft, the Netherlands
WG8.4	May 94	Australia ?
	Aug 94	Hamburg
WG8.5	May 94	Australia ?
	late Jan 95	Delft, the Netherlands
TC9	27-28 Aug 94	Hamburg, Germany
WG9.2	23-24 Jul 94 (tent.)	Amsterdam, the Netherlands
WG9.3	Jun 94 (tent.)	Copenhagen, Denmark
WG9.6	4-6 Mar 94	Bratislava, Slovakia
	28-30 Oct 94	Bergen an Zee, the Netherlands
TC 10	Mar 94 (under study)	South Africa
WG10.2	18-20 May 94 (with conf.)	Niagara Falls, Ontario, Canada
WG10.4	Jun 94	Austin, TX, U.S.A.
	Jan/Feb 95	Melbourne, Australia
	Jun 95	California, U.S.A.
TC11	21-22 May 94 (prior to IFIP/SEC'94)	Curacao, Netherlands Antilles
TC12	28 May 94 (with conf.)	near Bonn, Germany
WG12.1	Nov 94 (with workshop)	Mexico City, Mexico
WG12.2	Apr 94	Catania, Sicily, Italy
	Jul 94	New Jersey, U.S.A.
	Sept 94	Hamburg, Germany

* 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.

CALENDAR OF EVENTS

(continued from page 16)

Event	Date	Location	Sponsored by
Workshop on *Computer-Based Environmental Education*	25-26 Aug 94	Hamburg, Germany	IFIP WG5.1 I GI
IFIP Congress '94 — Thirteenth World Computer Congress	28 Aug-2 Sep 94	Hamburg, Germany	IFIP
Eighth Intl. Conf. on *Computer Applications in Shipbuilding — ICCAS'94*	5-9 Sep 94	Bremen, Germany	**IFIP** WG5.6 et al.
Work. Conf. on *Decision Support and Organizational Transformation*	6-8 Sep 94	San Sebastian, Spain	**IFIP** WG8.3
Symp. on *Robot Control — SYROCO'94*	19-21 Sep 94	Capri, Italy	IFAC/ **IFIP** WG7.6, IMACS
European Conf. on *Design Automation — EURO-DAC'94 (with EURO-VHDL'94*	19-23 Sep 94	Grenoble, France	GI, **IFIP** WG10.5, et al.
Work. Conf. on *Comparative Review of Information Systems Methodologies Revisited — CRIS'94*	26-28 Sep 94	Maastricht, Netherlands	**IFIP** WG8.I
Work. Conf. on *Expert Systems in Computer Integrated Manufacturing*	? Sep 94	Kiev, Ukraine	**IFIP** WG5.3
Third Intl. Workshop on *Hardware/Software Codesign — Codes/CASHE '94*	? Sep 94	Grenoble, France	**IFIP** WG10.5 WG10.2
Work. Conf. on *Mathematical and Scientific Computing: Interfaces in and Integration of Scientific Environments*	? Sep 94	Raleigh, NC, U.S.A.	**IFIP** WG2.5
Second Symposium on *Artificial Intelligence in Real Time Control*	3-5 Oct 94	Valencia, Spain	IFAC **IFIP** WG5.4
Conf. on *South East Asia Communications '94 — SEACOMM* '94	4-6 Oct 94	Kuala Lumpur, Malasia	**IFIP** TC6
Intl. Conf. on *Formal Description Techniques for Distributed Systems and Communications Protocols — FORTE'94*	4-7 Oct 94	Bern, Switzerland	**IFIP** WG6.1 ACM SIGCOMM IEEE Comp. Soc. (appr. pend.)
Fifth Intl. Workshop on *Distributed Systems: Operations and Management — DSOM'94*	10-11 Oct 94	Toulouse, France	**IFIP** WG6 6 IEEE CNOM
Work. Conf. on *ISON in Distance Education*	27-30 Oct 94	Nantes, France	**IFIP** WG3.6
Work. Conf. on *Integrating Information on Technology into Education*	? Oct 94	Barcelona, Spain	**IFIP** WG3.1
Workshop on *Large Scale Stochastic Programs: Applications and Solutions*	? Oct 94	Jalta. Russia	**IFIP** WG7.7
Seventh Intl. Workshop on *Protocol Test Systems — IWPTS'94*	8-10 Nov 94	Tokyo, Japan	**IFIP** TC6/WG6.1 et al.
Fourth Intl. Conf. on *Local and Metropolitan Communication Systems: LAN & MAN — LAN&MAN'94*	7-9 Dec 94	Kyoto, Japan	**IFIP** WG6.4
Fifteenth Intl. Conf. on *Information Systems — ICIS '94*	15-17 Dec 94	Vancouver, B.C., Canada	ICIS **IFIP** TC8
Work. Conf. on *Change-Point Detection*	? 94	Vilnius, Lithuania	**IFIP** WG7.1
Intl. Conf. *NETWORKS'94*	30 Dec 94-2 Jan 95	Madras, India	**IFIP** CSI
Work. Conf. on *Information Technology and Socio-Economic Development: Challenges, Opportunities, and Actions*	9-11 Jan 95	Cairo, Egypt	**IFIP** WG9.4 et al.
Fourth Intl. Symp. on *integrated Network Management — ISINM'95*	1-5 May 95	Santa Barbara, CA, U.S.A.	**IFIP** WG6.6 IEEE Comm. Soc.
Eleventh Intl. Open Conf. on *Computer Security — IFIP/SEC'95*	9-12 May 95	Cape Town, South Africa	**IFIP** TCII CSSA
Fifth Intl. Conf. on *Computer Applications in Production and Engineering — CAPE'95*	16-18 May 95	Beijing, China	**IFIP** TC5 et al.
Workshop on *Stochastic Methods and Global Optimization*	12-15 Jun 95	Vilnius, Lithuania	**IFIP** WG7.7
Fifteenth Intl. Symp. on *Protocol Specification, Testing, and Verification — PTSV'95*	13-17 Jun 95	Warsaw, Poland	**IFIP** TC6/WG6.I
Fifth Intl. Conf. on *Human-Computer Interaction — INTERACT'95*	25-29 Jun 95	Lillehammer, Norway	**IFIP** TC13
Seventeenth Conf. on *System Modelling and Optimization*	10-14 Jul 95	Prague, Czech Republic	**IFIP** TC7
World Conf. on *Computers in Education — WCCE '95*	23-28 Jul 95	Birmingham, U.K.	**IFIP** TC3 BCS
Eighth **IMIA** World Congress on *Medical Informatics — MEDINFO'95*	23-28 Jul 95	Vancouver, B.C., Canada	IMIA
Eighth Intl. Conf. on *Very Large Scale Integration — VLSI'95*	29 Aug-1 Sep 95	Makuhari, Chiba, Japan	**IFIP** WG10.5
Intl. Conf. on *Computer Hardware Description Languages and Their Applications — CHDL'95*	? Aug 95	Tokyo, Japan	**IFIP** WG10.2
Work. Conf. on *Approximations and Applications in Stochastic Programming*	? 95	Tallinn, Estonia	**IFIP** WG7.7 IIASA
IFIP Congress '96 — Fourteenth World Computer Congress	2-6 Sep 96	Canberra, Australia	**IFIP**
Thirteenth *IFAC World Congress '96*	? 96	San Francisco, CA, U.S.A.	IFAC
IFIP Congress '98 — Fifteenth World Computer Congress	23-29 Aug 98	Vienna, Austria, and Budapest, Hungary	IFIP

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

CALENDAR OF EVENTS

Event	Date	Location	Sponsored by
Second Intl. Conf. on *Broadband Communication '94*	2-4 Mar 94	Paris, France	**IFIP** TC6
Work. Conf. on *The Impact of Information Technology from Practice to Curriculum*	15-18 Mar 94	Neve-Ilan, Israel	**IFIP** WG3.2, WG9.5, IPA
Conf. on *Evaluation of Production Management Methods*	21-24 Mar 94	Porto Alegre/Gramado, Brazil	**IFIP** WG5.7
Second Intl. Work. Conf. on *Compiler Construction — CC'94*	7-9 Apr 94	Edinburgh, U.K.	IEE CAAP/ESOP **IFIP** WG2.4
Second *VHDL Forum for CAD in Europe – VFE*	17-20 Apr 94	Tremezzo, Lago di Como, Italy	**IFIP** WG10.2/10.5
Intl. Conf. on *Information Networks and Data Communications — INDC'94*	18-21 Apr 94	Funchal (Madeira Isl.), Portugal	**IFIP** TC6, API, ICCC
Intl. Conf. on *Applications in Parallel and Distributed Computing*	18-22 Apr 94	Caracas, Venezuela	**IFIP** WG10.3
Seventh Intl. Conf. on *Modelling Techniques and Tools for Computer Performance Evaluation*	4-6 May 94	Vienna, Austria	Univ. of Vienna, **IFIP** TC6, WG7.3, 10.3, 10.4, et al.
Work. Conf. on *Information Systems Integration — TC8AUS*	8-12 May 94	Gold Coast, Queensland, Australia	**IFIP** TC8 and WGs, ACS
Seventh Intl. Workshop on *High-Level Synthesis — HLSW'94*	17-20 May 94	Niagara-on-the-Lake, Ontario, Canada	ACM/SIGDA, IEEE/DATC **IFIP** WG10.5
Tenth Intl. Conf. on *Information Security — IFIP/SEC'94*	23-27 May 94	Curacao, Netherlands Antilles	**IFIP** TC11
Intl. Conf. on *Feature Modeling and Recognition in Advanced CAD/CAM Systems*	24-26 May 94	Valenciennes, France	**IFIP** TC5 & WG5.3, AFCET, CNRS
Work. Conf. on *Optimization-Based Computer-Aided Modelling and Design*	*24-26 May* 94	Prague, Czech Republic	**IFIP** WG7.6 et al.
Work. Conf. on *Upper Layer Protocols, Architectures, and Applications — ULPAA* '94	1-3 Jun 94	Barcelona, Spain	**IFIP** WG6.5
Work. Conf. on *Programming Concepts, Methods and Calculi — PROCOMET'94*	*6-10* Jun 94	San Miniato, Italy	**IFIP** TC2 WG2.1-3
Fourteenth Intl. Symp. on *Protocol Specification, Testing, and Verification – PSTV'94*	7-10 Jun 94	Vancouver, Canada	**IFIP** WG6.1, ACM SIGCOMM, IEEE TC Comp. Comm.
Workshop on *Benchmarking — Theory and Practice*	**I6-18 Jun** 94	Trondheim, Norway	**IFIP** WG5.7
Workshop on *Intelligent Manufacturing Systems-*	22-24 Jun 94	Vienna, Austria	IFAC **IFIP** WG5.3 IFORS et al.
Nineteenth Workshop on *Real Time Programming — WRTP'94*	22-24 Jun 94	Isle of Reichenau, Germany	IFAC **IFIP** WG5.4
Fourth Intl. Workshop on *Design Automation*	*26-29* Jun 94	Moscow, Russia	E.C., Russian Acad. Sci. **IFIP TC10**
Work. Conf. on *Exploring A New Partnership: Children, Teachers, and Technology*	26 Jun-1 Jul 94	Philadelphia, PA, U.S.A.	**IFIP** TC3 WG3.5
Fifth Work. Conf. on *High Performance Networking — HPN'94*	27 Jun-1 Jul 94	Grenoble, France	**IFIP** WG6.4
Second Work. Conf. on *Reconstituting OIKOS: Home-Oriented Informatics, Telematics and Automatics — HOIT-2*	27 Jun-1 Jul 94	Copenhagen, Denmark	**IFIP** WG9.3
Conf. on *Asia Pacific Information Technology in Training'and Education — APITITE'94*	28 Jun-2 Jul 94	Brisbane, Australia	e,,ge ACS, **IFIP** TC3, et al.
Fifth Conf. on *Women, Work and Computerization — WWC5'94*	2-5 Jul 94	Manchester, U.K.	**IFIP** WG9.I et al.
Work. Conf. on *Interactive Multimedia in University Education: Designation for Changes in Teaching and Learning*	6-8 Jul 94	Melboume, Australia	**Tv· IFIP** WG3.2
Work. Conf. on *Information Technologies in Educational Management — I.T.E.M.'94*	11-15 Jul 94	Jerusalem, Israel	**IFIP** WG3.4, IPA, et al.
IMACS World Congress '94	11-15 Jul 94	Atlanta, GA, U.S.A.	IMACS
Fourth Intl. Workshop on *Protocols for High-Speed Networks — PfHSN'94*	10-12 Aug 94	Vancouver, Canada	IFIP WG6.1
Work. Conf. on *Information Technology and New Emergent Forms of Organizations*	11-13 Aug 94	Ann Arbor, MI, U.S.A.	**IFIP** WG8.2
Eighth Work. Conf. on *Database Security*	23-26 Aug 94	Hildesheim, Germany	**IFIP** WG11.3
Intl. Work. Conf. on *Parallel Architectures and Compilation Techniques — PACT'94*	24-26 Aug 94	Montreal, Canada	**IFIP** WG10.3, ACM, SIGARCH

(continued on page 15)

IFIP Congress '94 — 13th World Computer Congress	28 Aug-2 Sep 94	Hamburg, Germany	**IFIP**
IFIP Congress '96 — 14th World Computer Congress	2-6 Sep 96	Canberra, Australia	**IFIP**
IFIP Congress '98 — 15th World Computer Congress	23-29 Aug 98	Vienna, Austria and Budapest, Hungary	**IFIP**

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