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International Federation for Information Processing
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Welcome to **IFIP** Congress '98 from President Bauknecht

It is a particular pleasure to welcome the delegates to the 15th IFIP World Computer Congress on "The Global Information Society—on the Way to the Next Millennium." This flagship event is a product of the active involvement of the Congress Program and Organizing Committees and of hundreds of IT specialists and many national computer societies around the globe. The Congress program and agendas are targeted at topical areas of information processing and are intended to disclose the current state of the art, in order to stimulate debate and to project trends for new developments, which transcend the threshold to the 21st century and lead society to the magical future of technology.

Vienna and Budapest are renowned for their beauty as historical, cultural, and technological crossroads of achievement and civilization. In the heart of Europe, we can experience the intertwining effects of technology and culture by visiting Musikverein and Vigsznhaz while listening to inspiring keynote addresses. This great feeling will go beyond the opening ceremonies and pass on to the universities of technology in Vienna and Budapest, making the IFIP Congress the world forum and platform for IT professionals to meet and discuss issues of common interest and concern.

I thank everyone who made this possible, and I look forward to personally meeting with you during the Congress days.

Prof. Kurt Bauknecht
IFIP President

Living, Learning, and Working in the Information Society

Professor Gunilla Bradley's Namur Lecture

In January, the **IFIP** Working Group on Computers and Society (WG9.2) presented the fourth Namur Award to Prof. Gunilla Bradley (S) for her research on the impact of information technology (IT) and the interrelations between techniques, organizations, and humans. (See the article on page 3 in the December 1997 ***IFIP*** *Newsletter.)* At the Award ceremony, Prof. Bradley delivered an address, *How Will We Live, Learn, and Work?,* from which we present the following selections. The full text of the lecture can be found on the Web at

http://www. in fo.fu ndp. ac. be/~jbl/IFIP/ NALectures. htm I.

Introduction

We are living in a time of accelerated technological development, which affects us all—in our professional lives, in our private lives, and in our roles as citizens. This is true with regard to the nature of our work, the design of our organizations, and communication between people....

Within social psychology, we talk about human physiological and psychosocial needs. e.g., influence, social belonging, learning and development, meaningful life content, and security. When these human needs are satisfied, the individual is involved in society, but when this is not the case—when these needs are not fulfilled— we become almost "strangers." The end result is that we feel powerlessness, a lack of norms, and meaninglessness....

Social Contact between People

There is a change taking place in the structure and quantity of the contacts and collaboration between people in work life, in private life, e.g., in the residence area, and

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

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Kindly submit material for the ***IFIP*** *Newsletter* three months before the publication date.

Please send announcements of conferences, workshops, and other meetings directly to the Secretariat, which prepares the Calendar of Events. Calls for papers should be sent to both the Secretariat and the *Newsletter* editor.

IFIP on the Internet

IFIP information (including this *Newsletter)* is available through the Internet as follows:
anonymous ftp: ftp.ifip.or.at
WWW: http://www.ifip.or.at

Change of Address

Please note that the mailing address, telephone number, and e-mail address of the ***IFIP*** *Newsletter* Editor have changed; the current coordinates are in the masthead above.

Dr. William 011e Honored for Attending All IFIP Congresses

Dr. William 011e (GB) will be honored during the opening ceremony of IFIP Congress '98 for having attended all World Computer Congresses—beginning with the founding Congress, sponsored by UNESCO, in 1959. He is the only person to have been a delegate to all 15 Congresses.

In the nearly 40 years since that first Congress, Dr. 011e has been an active participant in **IFIP,** as the U.K. representative to the Technical Committee on Information Systems (TC8) since its inception (never having missed a meeting), as secretary of TC8 ('76-'92), and as a member of Working Group 8.1, having been involved in the organization of four working conferences. In addition, he was an invited speaker at the 1974 and 1992 Congresses. He has also served on the International Program Committees for three Congresses.

In commenting on the upcoming ceremony honoring his participation in all Congresses, Dr. 011e said, "I hope any such presentation will not preclude my attending future Congresses! Although I am already retired (in a loose sense), I am anxious to 'stay professionally involved' as long as I have the required resources to do so. I would like to think in terms of another five Congresses at least." We second that wish.

Proposed Working Group Charters

In March 1998, the IFIP Technical Assembly received the following reports of plans for the formation of additional Working Groups (WGs).

Term Rewriting

(planned by the Technical Committee on Foundations of Computer Science, TC1)

Equational reasoning has been at the center of many research areas in mathematics and computer science. One common approach to handling equations is to use them as rewrite rules, with which equational replacements are applied in one direction until no more replacements can be performed. Although this notion of simplification has been known for a very long time, a formal study—in particular with respect to its mechanization—did not start in earnest until the sixties. In the past three decades, term rewriting has blossomed into the most successful approach to equational theorem proving. It has also played a central role in bridging the fields of automated deduction, equational programming languages, program specification and verification, and symbolic computation. Indeed, term rewriting now plays a significant role in the most prominent conferences in theoretical computer science, programming languages, and automated reasoning.

In spite of its immense popularity, many research problems in term rewriting remain to be studied and new applications to be investigated. There is, however, no organization to coordinate research activities on a global basis. The goal of the proposed Working Group on Term Rewriting is to provide such a forum. We plan to invite the best researchers in the field to brainstorm and exchange the most recent research results. Through e-mail and informal technical meetings, we hope to better coordinate research activities around the world, to explore new applications, to form new research collaborations, and to launch new research initiatives.

Two-Dimensional Combinatorial Structures and Languages

(planned by TC1)

The main aim of the WG is to bring together people working in this area with various backgrounds and points of view. The main topics to be addressed are:

- Reconstruction of matrices with elements in a given set satisfying various conditions. This problem appears in image processing, data compression, and especially discrete tomography. A related useful problem is the exact or approximate coverings of given finite figures by given finite patterns.
- Pattern matching. The search for a given pattern in a larger bi-dimensional one is difficult algorithmically but useful for all sorts of image analysis and pattern recognition purposes, as well as in genome analysis.
- Periodic, aperiodic, and quasiregular tilings of the plane. Even in the case of tiling with simple polyominoes, several conjectures are still open and several problems unsolved.
- Bidimensional sequences or distribution of letters in the cells of the bi-infinite square grid.

Continued on page 7

Prof. Zemanek to Receive Auerbach Award at Congress '98

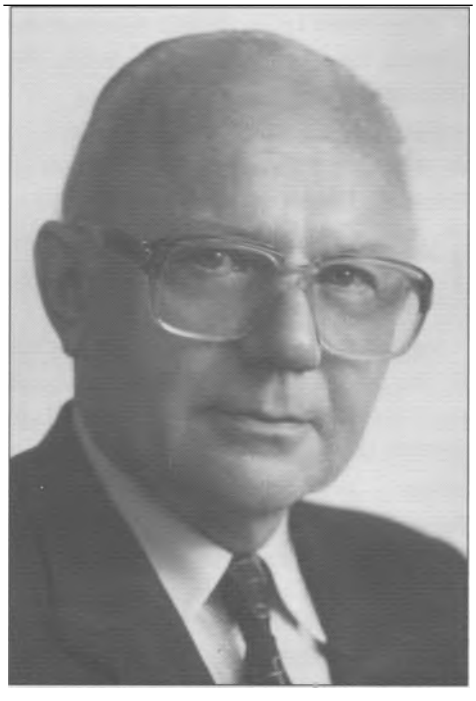
The third **IFIP Isaac L. Auerbach** Award, commemorating our founding president, will be presented to **Prof. Dr. Heinz Zemanek** (A) at the opening ceremony of **IFIP** Congress '98 in Vienna, Austria, on 31 August. The Award is presented every other year "... to the individuals whose service in support of **IFIP** in its mission is deemed by their peers to be extraordinary." The recipients are nominated by Member societies of **IFIP,** and the selection is made by the **IFIP** Executive Board. A medallion and cash award are conferred.

His Background

Prof. Zemanek, one of the European pioneers in computer technology, was born in Vienna in 1920. His formal education, from elementary school to university, all took place in Vienna. After his military service, he started an electrical engineering company, but he soon returned to the University of Technology in Vienna in 1947 as an assistant professor, working on digital communication technology, cybernetic models, information theory, and switching algebra, slowly preparing for computer development.

From 1954 to 1959, he gathered a group of students to develop one of the earliest fully transistorized computers in Europe, the Mailüfterl. (This enterprise, having no official university backing, was supported primarily by industry, banks, and the U.S. Army.) In parallel, a project aimed at a digitized vocoder, and several projects for post office automation were carried out. When the IBM Corporation offered to establish a laboratory in Vienna centered around the Mailüfterl group and vocoder development, **Prof. Zemanek** moved his group there in 1961. The main achievement from 1961 to 1976 was the formal definition of the PL/I programming language. The formal definition was written in the "Vienna Definition Language," which was later extended to the "Vienna Definition Method." An **IFIP** Working Conference on Formal Language Description Languages in 1964 helped initiate this definition-method activity. (The Conference was the first of its type and served as a model for subsequent **IFIP** conferences. The first IFIP working conference proceedings volume was also the model for many hundreds to follow.) In 1976, **Prof. Zemanek** was appointed an IBM Fellow.

Prof. Zemanek has 500 publications to his credit (possibly more by the time this newsletter is printed), including 12 books, and he has given innumerable talks at conferences and seminars. He has also received many awards, from which he takes special pleasure in an award from the Austrian government for having organized the **IFIP** Conference on Human Choice and Computers and the related cooperation with the Austrian trade unions, election to the Russian Academy of Sciences, and election to the Berlin Academy of Arts, which enables him to associate with composers and other artists in that "different world."



IFIP Activities

Prof. Zemanek was present in Paris in 1959 for the first IFIP Congress. In 1962, after the formation of **IFIP,** he was appointed chairman of the Technical Committee on Programming Languages (TC2), serving as such until 1969. During this time, three **IFIP–ALGOL** documents were produced. Later, **Prof. Zemanek** was instrumental in creating TC4 on Medical Informatics (1967).

He was the first president of the Austrian Computer Society, and after Austria joined **IFIP,** in 1964, he served as its **IFIP** General Assembly representative until 1976. In 1967, he was elected **IFIP** trustee; after one year, he was elected vice-president; and he became president in 1971. In 1977, he was named the second **IFIP** Honorary Member. Immediately, he took over the chair of the Publications Committee (1977-1984). He has also been a member of several other committees.

TC9 on the Relationship Between Computers and Society also considers him as its father. He organized the first Conference on Human Choice and Computers (1974), where, for the first time, entrepreneurs, employees, workers, trade-union leaders, social scientists, and computer scientists came together in order to achieve cooperation, mutual understanding, and a common language. TC9 was eventually created in 1976.

On behalf of **President Dorodnicyn,** he supervised the 1971 Congress in Ljubljana, Yugoslavia, which he opened with a speech in Slovenian. During **Prof. Zemanek's** presidency, he was responsible for the 1974 Congress, in Stockholm, which included the IMIA (medical informatics) Congress. **Prof. Zemanek** also created the Silver Core Award.

He was the editor of the 10-year, 25-year and 36-year IFIP anniversary volumes. Although he failed more than once to get an **IFIP** History Committee started, he has been the IFIP Historian since 1992.

Other Interests

Those who have had the pleasure of talking with **Prof. Zemanek** know him to be a man of many talents. Among his numerous interests are the 9th century Persian mathematician al-Khorezmi, the legend of the Seven Sleepers of Ephesos, and music—especially music played or composed by computer.

IFIP is delighted to confer the third Isaac L. Auerbach award to **Prof. Heinz Zemanek,** a notable scientist who has served and continues to serve **IFIP** so devotedly. ▫

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Host Societies for IFIP Congress '98

Austrian Computer Society

*by Dr. Walter Grafendorfer**

The Austrian Computer Society (Oesterreichische Computer Gesellschaft, abbreviated OCG) was founded in 1975 by a group of Austrian scientists and IT experts, with the support of the Austrian Ministry of Science and Research. Its first president was **Prof. Heinz Zemanek,** this year's recipient of the **Isaac L. Auerbach** Award (see the article on page 3). In the same year, the Austrian Computer Society became the Austrian member of **IFIP,** taking over from the Austrian Productivity Center, which had represented Austria in **IFIP** since 1963.

The mission of OCG, which is as valid today as when it was established in 1975, is the comprehensive and interdisciplinary promotion of information processing, with due regard to its effects on man and society. In fulfilling this objective, the OCG performs several primary functions:

• It serves as an umbrella organization of associations, organizations, and institutions in Austria involved in information processing.

• It represents Austria in **IFIP** and in similar regional associations (e.g., CEPIS—the Council of European Professional Informatics Societies).

• It is an affiliate member of ACM (Association for Computing Machinery) and has a close cooperation with the IEEE (Institute of Electrical and Electronics Engineers) Computer Society.

• It provides members with services, information, and consultation. Information is provided by the OCG journal, *Computer Kommunikativ,* and a newsletter dedicated to topics related to the European Computer Driving License (ECDL), *Computer Aktiv,* both of which appear six times a year, in German. Monthly mailings include information about national and international events. The book series of OCG boasts 110 volumes so far. The volumes are published in German and/or English.

• It promotes research and development projects, especially those of an interdisciplinary nature.

• It has established 22 working groups dealing with specialized topics in the field of information technology.

• It organizes national and international conferences and congresses and helps its member institutions to organize such events.

• Since 1997, it has been a member of the ECDL Foundation (a CEPIS initiative) and coordinates the activities of the ECDL in Austria.

At this time, the OCG has approximately 760 individual members, more than 30 supporting members (companies), and 28 institutional members (societies, ministries, public organizations, etc.). The more than 40 000 members and/or employees of the latter are basically treated as OCG members.

In fulfilling its mission, the society has tried not only to have close contacts to international and regional organizations but also to sister societies throughout Europe. The very close and intensive cooperation between OCG and the Hungarian John v. Neumann Computer Society and the favorable experience in co-organizing national and international conferences and events over the last ten years encouraged the two societies to make a joint proposal for hosting and organizing the 15th **IFIP** World Computer Congress in Vienna and Budapest.

* IFIP vice-president and Secretary General of OCG

John v. Neumann Computer Society

*by Mr. Csaba Gergely***

The only one of the national Member societies of **IFIP** to bear the name of an individual is the John v. Neumann Computer Society (Neumann János Számítógéptudományi Társaság, abbreviated NJSZT). Generally recognized as one of the greatest scientists of this century and an outstanding pioneer of computing, **von Neumann** grew up and spent the first half of his lamentably short life in Hungary. We therefore proudly consider him our compatriot. So did the men who, thirty years ago, decided that the country and her computer community needed a computer society. Thus, they founded one—the first in this region—and named it after him.

Recognizing the ever more important role of IT on the way to the next millennium and adapting the objectives set in 1968 to the political and economic changes brought about in recent years, NJSZT seeks to

• study computer theory and technology

• promote the exchange of information on the development of theory, practical results, and experience of users

• assist users to solve their problems

• spread the culture and ethics of computing

• provide further education for computer professionals

• expound the views and represent the interests of the computer community

Serving its primary goal of exchanging technical information, NJSZT regularly stages conferences and company and product presentations and runs workshops. Of outstanding professional and corporate importance is the Society's triennial congress.

** General Assembly representative of Hungary

National Abbreviations Used in Newsletter

A	Austria	F	France	NZ	New Zealand
AUS	Australia	GB or UK	United Kingdom	P	Portugal
B	Belgium	GR	Greece	PRC	China
BR	Brazil		Hungary	RUS	Russia
CDN	Canada		Italy	S	Sweden
CH	Switzerland	IL	Israel	SF or FIN	Finland
CZ	The Czech Republic	IND	India	TN	Tunisia
D	Germany	J	Japan	USA	U.S.A.
DK	Denmark	MAL	Malaysia	ZA	South Africa
E	Spain	N	Norway		

We put our support behind new ideas and initiatives, helping them to materialize. One such initiative taken resulted in the first Copyright Act passed in Central and Eastern Europe. Our efforts largely contributed to setting up a law on database security. Testing the quality of software products and thereby providing guidance for our members is yet another important task. To expedite young people's education, we have set up a special standing committee. We have staged many nationwide contests in programming and have managed the Hungarian participation in similar international events. Prominent members of our Society expended their efforts writing early versions of a proposed National Informatics Strategy, which was further developed by the government. The most significant of its current projects is the introduction and establishment of the European Computer Driving License, which is coordinated by NJSZT all over Hungary.

Currently, NJSZT has 3500 individual and 200 corporate members. It is run by a Governing Board and Council. Professional work is done in forty technical divisions and groups, over ten user groups, and clubs. Regional operations of the Society are organized around branches in the 19 counties and five major townships of the country.

NJSZT represents Hungary in **IFIP** as well as a number of other major international organizations. It also maintains bilateral ties with other national computer societies. The long-standing, exemplary cooperation with the Austrian Computer Society culminated in our joint effort to host WCC '98.

For the overwhelming part of its existence, NJSZT has been associated with **IFIP,** having become a Member shortly after its foundation. What is more, it has done its best to satisfy its responsibilities therein, as difficult as conditions may have been at times. Besides organizing a number of **IFIP** technical events over the years, it felt privileged to host the 1987 General Assembly. Eleven years later, with many circumstances changed, it is with unchanged pleasure and hospitality that NJSZT looks forward to welcoming **IFIP's** top representatives to Budapest for the 1998 General Assembly.

ICCC Publishes 25th-Anniversary Book

The International Council for Computer Communication (ICCC) has published a book to celebrate its 25th anniversary. Entitled *The Computer Communication Revolution—Multi-Disciplinary Retrospective and Prospective*, the book was edited by **Dr. S. Ramani (IND) and Dr. Pramode Verma** (USA) and published by the ICCC Press in 1997. The book reflects on the past 25 years of the revolution in computer communication and its technological and societal impacts, the process in which the ICCC has had its share of contributions.

The authors of several of the contributions to this book have affiliations with **IFIP: Prof. John Bennett** was the first Australian representative to the **IFIP** General Assembly (GA); **Prof. Philip Enslow** (USA) was ICCC representative to the GA; **Dr. Prem Gupta** (IND) was co-chair of the International Program Committee (IPC) for **IFIP** Congress '96; **Prof. Dipak Khakhar (S) is IFIP** Treasurer; **Dr. Ronald Uhlig** (USA) has held many positions in **IFIP,** including chair of the IPC for Congress '94 and chair of the Technical Committee on Communication Systems (TC6); and **Dr. Verma** is the present ICCC representative to the GA.

The book's preface begins as follows:*

> The Chairman of the US Federal Communications Commission, Reed E. Hundt, has observed that a major factor behind the productivity of the US is the use of computer networks. They have been called the most important tools of business developed in this decade. The phenomenal growth of the Internet and the rise of electronic commerce are now recognized by everyone. It appears obvious that such a useful technology must see very wide applications. However, this was not at all obvious a mere twenty-five years ago. Most communication experts doubted if packet switching would ever compete and survive in a world of circuit switching. Those who were technically knowledgeable could only dream of the social and economic impact that the technology would have. They could only guess what it could do for different sectors such as education and environment.
>
> The International Council for Computer Communication was born twenty-five years ago. Its birth was very timely, as its first conference saw a major demonstration of the precursors of the Internet. The event not only attracted a thousand attendees, but also brought together a team of experts working in a wide range of disciplines. They could foresee the impact the then quiet revolution was going to have.
>
> ICCC has grown manifoldly since then, has visited every continent and has covered every significant development in this area. ICCC has over a hundred Governors distributed around the world now. Their interests are truly multi-disciplinary. On the occasion of the Silver jubilee of the ICCC, some the Governors have written on their favourite themes under the broad scope of the title.

Among the contributions to the book are descriptions of how communication has developed:

> *The Economist, in* **a** wonderful recent survey evocatively titled, "The Hitchhiker's Guide to Cybernomics," has reminded us that during but the last two decades, the global network of computers, telephones and televisions has increased its information-carrying capacity a million times over. In 1960, a transatlantic telephone cable could carry only 138 conversations simultaneously. Now, a fibre-optic cable can carry 1.5 million conversations. Very soon, a fibre the diameter of a human hair will be able to transmit in less than one second the contents of every issue *The Economist* has ever printed in its 153-year history!

and

> Started by a small band of enthusiastic, visionary "techies," ARPANET has evolved from a single net connecting mostly academic and research groups into an Internet with over 50,000 networks connected, and commercial activity costing billions of dollars.

Finally, it was interesting to read that **Dr. Kaoru Ando** (J), then Managing Director of Fujitsu, Ltd., and later president of **IFIP,** gave a talk at the first ICCC conference.

One can order the book at the Web site http://www.icccpress.org or by contacting icccpress@sprynet.com.

* © ICCC Press

CEPIS Expands Eastward

At its meeting in May, the Council of European Professional Informatics Societies (CEPIS) approved the admission to membership of three societies from Central Europe—from Czechoslovakia, Lithuania,

Continued on page 7

Prof. Benjamin Wah Has Been Named Program Committee Chair for **IFIP** Congress 2000

In June, the IFIP president, Prof. Kurt Bauknecht (CH), appointed Prof. Benjamin Wah (USA) as chair of the International Program Committee for the 16th World Computer Congress, to be held 21-25 August 2000 in Beijing.

Prof. Wah was born in Hong Kong. He did his undergraduate studies at Columbia University in the U.S. and received his Ph.D. degree in computer science from the University of California in Berkeley in 1979. He is currently the Robert T. Chien Distinguished Professor of Engineering, a Professor in the Department of Electrical and Computer Engineering, and a Research Professor in the Coordinated Science Laboratory and the Beckman Institute of the University of Illinois at Urbana–Champaign. Previously, he has served on the faculty of Purdue University ('79–'85) and as a Program Director at the National Science Foundation ('88-'89).

His current research interests are in parallel and distributed processing, nonlinear optimization, computer networks, computer architecture, artificial neural networks, evolutionary computation, and multimedia signal processing. He has received a number of awards—most recently, the IEEE Computer Society Technical Achievement Award.

Prof. Wah has served as the editor of a number of journals, including the *IEEE Transactions on Knowledge and Data Engineering* (Editor-in-Chief '93–'96), *Knowledge and Information Systems* (currently Honorary Editor-in-Chief), and the *Chinese Journal on Electronics*. He has served as conference chair or co-chair for seven conferences and as program chair or co-chair for eleven conferences. In addition, he has served the IEEE Computer Society in a number of positions, as Second Vice-President on Publications at present. Thus, he brings a great deal of experience to his new IFIP role.

Prof. Wah and his wife Christine have two daughters. In his spare time, he enjoys bicycling, tennis, and building PCs.

For more information about the Congress, please see page 7 of the June ***IFIP*** *Newsletter.*

*Upcoming **IFIP** Conferences*

Following are announcements of upcoming **IFIP** conferences.

Designing Effective and Usable Multimedia Systems

9-11 September 1998 in Stuttgart, Germany

As the multimedia marketplace becomes more crowded, ease of use is becoming a key competitive advantage. Usability and effective communication are vital to ensure the success of multimedia designs and to avoid problem of information overloading. This conference will bring together researchers and practitioners from a variety of backgrounds to exchange current knowledge in the area, discuss design problems and solutions for improving product usability, and shape future research agendas.

For further information, please contact

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PROLAMAT

9-11 September 1998 in Trento, Italy

The PROLAMAT conference is an international event for demonstrating and evaluating activities and progress in the field of discrete manufacturing. Sponsored by the IFIP Technical Committee on Computer Applications in Technology (TC5), PROLAMAT is traditionally held every three years and includes the whole area of advanced software technology for Design and Manufacturing in Discrete Manufacturing. Some 140 papers will be presented in 3 parallel sessions. The conference will be organized by the University of Trento, under the auspices of the IFIP Working Group on Computer-Aided Design (WG5.2).

For further information, please contact

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marl: Laboratorio di Ingegneria Informatica
via F. Zeni, 8
38068 - Rovereto (TN), Italy

Software Architecture

22-24 February 1999 in San Antonio, TX U.S.A.

The first IFIP Working Conference on Software Architecture (WICSA1) will provide a focused and dedicated forum for the international software-architecture community to unify and coordinate its effort to advance the state of practice and research. An important goal of this working conference is to facilitate information exchange between practicing software architects and software architecture researchers. This conference will serve as a "kickoff' event for a new IFIP TC2 (Software: Theory and Practice) Working Group on Software Architecture and will focus the tasks of the Working Group for its initial months.

Communications and Networking in Education

13-18 June 1999 in Aulanko Finland

In ComNEd '99, the broad range of issues associated with the introduction of informa-

Continued on page 7

Beckman Award to Be Presented to Mr. Richard Sizer

The Kristian Beckman Award Committee of the **IFIP** Technical Committee on Security and Protection in Information Processing Systems (TC11, see the article on page 8) has announced that the 1998 Kristian Beckman Award will be presented to **Mr. Richard Sizer** (GB), who was proposed by the British Computer Society. The Award, named for the founder of TC 11, will be presented at the end of August, during the IFIP/Sec 98 Conference, part of the 15th World Computer Congress.

Mr. **Sizer** is an independent consultant in risk analysis and IT security. He has had a long career involving IT security, starting in the early sixties. He has also had a long involvement with IFIP, having been the British representative to the TC on Relationship between Computers and Society (TC9) since its formation in 1976. He is also the founding chairman of the Working Group on Information Technology Misuse and the Law (WG 9.6).

WG CHARTERS continued from page 2

Intelligent Information Management

(planned by the Technical Committee on Artificial Intelligence, TC12)

One of the major challenges of the information society is organizing and accessing the heterogeneous multimedia data that is becoming available in abundance through modern communication technology. Various areas of AI research and technology must be brought together to contribute to meeting this challenge, e.g., knowledge representation, natural language understanding, speech and image understanding, reasoning methods, learning, and agent technologies. Recently, there has been a considerable increase in research activities and application-oriented developments related to this area, resulting, e.g., in subject-specific brokers, data-mining tools, content-based query languages, multimedia data indexing schemes, and Web-based information services.

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and Slovenia. These societies, with two additional societies from Italy that have joined the existing Italian member, bring the number of members to 23, ranging from Iceland in the West to Cyprus in the East, including two existing members from Central Europe (Hungary and Poland).

An issue that is of concern to these new societies, as it is to the Icelandic Society for Information Processing, is the adoption of character sets by the International Standards Organization (ISO) that take no cognition of the special characters in their languages. To assist them in this work, CEPIS has formed a working group to identify the requirements and how CEPIS may contribute.

Jean-Claude Simon Named Winner of IAPR Award

The International Association for Pattern Recognition (IAPR) has named **Prof. Jean-Claude Simon** of Paris, France, as the recipient of the 1998 King-Sun Fu Prize in pattern recognition. The prize, which consists of a plaque and a cash award, is given once every two years to an individual in recognition of a technical contribution of far-reaching significance and impact on the field of pattern recognition or its closely allied fields. Prof. Simon was cited "for his contributions to the automated recognition of handwritten words and his life-long leadership in pattern recognition."

UPCOMING CONFS. cont. from page 6

tion and communication technologies (ICT) into school education systems—pre-school through 18 years—will be explored through the following themes:

Learning processes and ICT
Supporting autonomous learners
The changing role of the teacher
Creating the school of the future
School systems in a networked society
The social context of learning

Papers, and other contributions are due 15 Jan. 1999. For further information, please visit the Web site
http://www.hyvan.helsinki.fi/kttk/comned99 /
or, to order the print version of the conference brochure, send a message to
comned-99@helsinki.fi

Shriver Book Is Published

The IEEE (Institute of Electrical and Electronics Engineers) Computer Society has just published a book by **Dr. Bruce Shriver** (USA), vice-chair of the International Program Committee and chair of the Tutorial Committee for **IFIP** Congress '98, and **Mr. Bennett Smith** (USA). The book, entitled *The Anatomy of a High-Performance Microprocessor—A Systems Perspective*, describes in detail the microarchitecture of a high-performance microprocessor, giving an integrated treatment of platform and systems issues relating to the design and implementation of microprocessor-based systems.

A unique feature of the book is the accompanying CD-ROM, which provides a wide variety of materials, such as the complete text of the book, including figures and tables, complete "data books," articles from journals and conference proceedings, manuscripts of historical interest, standards, system specifications, and numerous video and audio clips.

For further information, one can refer to the Web page at
http://computer.org/books/anatomy

TECHNICAL COMMITTEE CHAIRMEN

TC I :	G. Ausiello	I	97-99
TC2:	R. Kurki-Suonio	FIN	97-00
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Omission

We regret that the article about the March **IFIP** Council meeting in Manchester, U.K. (on page 4 of the June ***IFIP*** *Newsletter)*, omitted to state that the Council was hosted by the Department of Computer Science at the University of Manchester (as well as by the British Computer Society). We regret this omission and are grateful to the hosts for their kind hospitality.

Technical Committee 11: Security and Protection in Information Systems

Historical Background

In May 1983, the first International Conference on Information Security, IFIP/Sec '83, took place in Stockholm, Sweden. This conference was organized by members of the Swedish Special Interest Group on Information Security and included some people from existing **IFIP** committees. The organization was under the chairmanship of **Mr. Kristian Beckman** (S). Subsequently, a proposal to form a new **IFIP** Technical Committee (TC11) on Information Security was submitted to the 1983 **IFIP** General Assembly. The proposal was accepted, the TC was formally established, and **Mr. Beckman** was appointed as its first chairman.

During the second International Conference on Information Security, **IFIP/Sec** '84 in Toronto, the first official meeting of TC11 was held. Because of ill health, **Mr. Beckman** could not attend that meeting, but he asked **Mr. Per Hoving** (S) to act as Chairman. Unfortunately, **Mr. Beckman** died later that year. At the next TC11 meeting, **Mr. Hoving** was elected as chairman for a three-year term. The other chairs have been **Prof. William Caelli** (AUS) and **Prof. Basie von Solms** (ZA), the current chair.

TC 11's annual IFIP/Sec conferences are now securely established as an integral part of the international Information Security conference scene. In addition, the annual workshop on Database Security organized by Working Group 11.3 (WG 11.3) of TC11, has also established itself as a leading conference in this area. Traditionally, most WGs have held workshops and tutorials in conjunction with the annual TC 11 IFIP/Sec Conference. In line with the strategic planning of TC11, this is now changing, and more of the WGs are now starting to organize their workshops independently of the IFIP/Sec Conference. A joint conference, Communications and Multimedia Security, organized in cooperation with the **IFIP** Technical Committee on Communication Systems (TC6), has also established itself on the international agenda as a highly relevant conference in the area of communications and security.

In 1992, TC 11 created the Kristian Beckman Award, in honor of its founder. The first Award was made in 1993 to **Prof. Harold Highland** (USA); the second, in 1995, went to **Mr. Hoving;** the 1996 Award was made to **Prof. Sushi) Jajodia** (USA); the 1997 Award went to **Prof. Donald Davies** (GB); and this year's recipient is **Mr. Richard Sizer** (GB, see the article on page 7).

Main Trends in the Field of Information Security

The ever-increasing trend towards distributed systems and the associated use of communication networks, as well as the tendency to use such systems and networks for increasingly sensitive applications like electronic commerce and medical-records processing, has catapulted the importance of securing and protecting electronic information during storage, processing, and transmission into the forefront of information technology research and implementation. Many systems will not be acceptable if proper solutions are not found for their security and protection.

The following areas are especially important:

- Developments in cryptography are essential for providing non-repudiability and proof of origin of electronic messages. Without digital signatures, electronic purchasing will not be possible.
- Security in distributed systems is much more difficult and complex than in centralized systems. Authentication and authorization are of extreme importance.
- Information Security is an especial concern in medical applications.
- Since computers are so much more user friendly than before and are being used by the general public to an increasing extent, a serious effort is needed to make users aware of the importance of Information Security on their systems, as well as the risks if such security measures are ignored.
- The growing role, importance, and commitment of the senior management of companies, including the members of their Boards, towards the security of their companies' IT systems cannot be overstated.
- Special effort are needed to train skilled people to evaluate, address, and manage security risks involved **in IT** systems, and to ensure that such systems are operated within the necessary secure environments.
- International standardization efforts and cryptology policies also require attention.

All in all, Information Security has never before been so important and as essential a part of IT systems and networks.

The Future Role of TC11

Because of the factors mentioned above, the role of TC11 has become especially significant over the last few years. TC 11 has taken up this challenge and is active on several fronts through its WGs and a number of special task forces—to provide information about research and development **in** the areas mentioned above, and many others, to Member societies of **IFIP** and to the international community in general.

The following TC11 WGs are active:

- WG11.1: security management issues
- WG 11.2: security in small systems
- WG11.3: security in databases
- WG11.4: security in networks
- WG11.5: integrity and control in IT systems
- WG11.8: education in Information Security

In addition, TC 11 has task forces investigating

- cryptology policies in different countries
- standardization issues in different countries
- Internal controls in **IT** systems

TC11

Deals with the reliability of information processing and the general confidence in such systems. Acts as a forum for security managers and others active in the field of information processing security.

TC11 Chairman: Professor Basie von Solms
Position: Professor of Computer Science
Employer: Rand Afrikaans University
Location: Auckland Park, South Africa
Interests: IT security, electronic commerce, databases, WorldWide Web applications

TC11 Vice-Chairman: Prof. Reinhard Posch
Position: Professor of Applied Information Processing
Employer: Graz University **of** Technology
Location: Graz, Austria
Interests: IT security, networking, VLSI design

TC11 Secretary (acting): Mr. John Beatson
Position: Information Security Consultant
Employer: Integrity Plus Limited
Location: Tawa, Wellington, New Zealand
Interests • Information Security

Working Group **11.1: Information Security Management—Promotes** all aspects of the management of Information Security, from the purely managerial to more technical aspects, such as risk analysis and disaster recovery.

WG11.1 Chairman: Prof. Rossouw von Solms
Position: Professor of Computer Science
Employer: Port Elizabeth Technikon
Location: Port Elizabeth, South Africa
Interests: Information Security, multimedia

Working Group 11.2: Small System Security—Investigates methods and issues related to security of small systems (personal computers, local area networks, and similar installations where nobody is responsible for system administration).

WG11.2 Chairman: Professor Jan Eloff
Employer: Rand Afrikaans University
Location: Auckland Park, South Africa

Working Group **11.3: Database Security—Promotes** wider understanding of the risks to society of database systems that lack adequate measures for security or privacy.

WG11.3 Chairman: Professor David Spooner
Position: Professor of Computer Science
Employer: Rensselaer Polytechnic Institute
Location: Troy, NY, U.S.A.
Interests: database security, object-oriented systems, engineering systems

Working Group 11.4: Network Security—Promotes all aspects of network security.

WG11.4 Chairman: Prof. Sokratis Katsikas
Position: Vice-Rector for Finance and Development, Professor of Computer Science
Employer: University of the Aegean
Location: Samos, Greece
Interests: information and communication systems security, applications of adaptive estimation and control, AI—genetic algorithms

Working Group 11.5: Integrity and Internal Control— Explores the integrity objective within IT security and the relationship between integrity in information systems and the internal control systems that are established in organizations to support corporate governance codes.

WG11.5 Chairman: Mr. Leon Strous
Position: EDP Auditor
Employer: De Nederlandsche Bank NV
Location: Amsterdam, the Netherlands
Interests: internal control systems, security evaluation criteria, security and audit standards

Working Group 11.8: Information Security Education— Promotes education in Information Security at the university level and in government and industry.

WG11.8 Chairman: Prof. Louise Yngstrom
Employer: University of Stockholm
Location: Kista, Sweden

Implementation and Evaluation of Information Systems in Developing Countries

*by Roger Harris (GB) **
*and Shirin Madon (GB)***

[The following article is the combination of two separate articles, each by one of the two authors, that were printed in the April issue of *Information Technology in Developing Countries*, the newsletter of the IFIP Working Group on Social Implications of Computers in Developing Countries (WG9.4). The full text is available on the Web at http://is.lse.ac.uk/ifipwg94/ifipnews.htm.]

The fourth **IFIP** WG9.4 conference, held 18-20 February in Bangkok, Thailand, comprised more than 30 presentations from more than 20 countries and attracted approximately 50 delegates. (Sadly, the participation of Southeast Asian delegates was hampered because of the current economic crisis.) The aim of the conference was to study issues facing professionals when they implement technology-based Information Systems (ISs) and when they try to assess the difference such systems make for organisations and their people. The 3-day event included presentations of full research papers, case studies and practitioner papers, panel discussions, tutorials, and work-in-progress papers.

Whilst many of the presentations described problems of common concern among the IT communities of Africa, Asia, and Latin America, they simultaneously outlined issues that underlined the differences among the countries of each region. Just as anthropologists learn about their own cultures as a result of studying others, so too can IS professionals in the developed world gain an insight into the wider consequences of the use of IT on society by exploring its impacts in conditions of highly varying social, cultural, and political contexts. Although it may seem that, for many developing countries, IT remains, in the words of one presenter, an "inevitable luxury," the conference revealed a number of conditions under which IT can not only contribute positively towards development, but also where it is likely to be essential for development to occur.

Themes

There were several recurrent themes in the presentations, which we summarize in the following paragraphs.

First, there remains a lot of ambiguity concerning appropriate criteria for evaluating IS projects. In general, these criteria are input-oriented, focusing on assessing the return on investment rather than on the extent to which the desired developmental outcome has been achieved. For example, although a computerised IS might generate more information than that produced by a manual one, it remains unclear, for many applications, exactly what purpose the information will be put to. In the absence of rigorous monitoring mechanisms, the computer-based IS becomes useless. Also, the issue of what constitutes success or failure of an IS was discussed. While many projects are deemed successes or failures in terms of the technology component and the short-term objective of return on investment, many of the case studies suggested that the adoption and usage of an IS and its institutionalisation within an organisation are not short-term objectives but involve a subtle, incremental process of learning that takes place within an organisation.

Second, many of the case studies and application areas called for the creation of mechanisms to integrate informal information into the IS—both in business applications and particularly in development administration. It was argued that just because a very large and rapidly increasing stock of knowledge can be tapped quickly, thanks to advanced information technologies, developing countries should not focus primarily on the acquisition, dissemination, and use of globally available knowledge. Of key importance in many applications was not merely the provision of connectivity or access to knowledge, but whether relevant knowledge was being disseminated. The message from many of the presentations was clear: indigenous knowledge, rarely documented, is increasingly recognised as a useful but untapped resource.

Third, the desirability of embarking on computer-based IS projects in developing countries in highly politicised contexts was questioned in many presentations and panel discussions. It was pointed out that in some cases, the wider system has so many fundamental complexities of power structures, coordination, inefficient and ineffective processes, and lack of accountability that an IT project should not even be considered. But this raised an important issue concerning the role of the IS professional. In some cases, it was pointed out that the domain of IS professionals includes issues of data management and organisational change, but that politics and culture were quite beyond their control. In other sessions, the role of the IS professional was taken to be more proactive in terms of acting as a catalyst towards influencing a change in the politics within which the IS is embedded.

Fourth, a major issue is the need to relate the implementation and evaluation of ISs, which are by their nature embedded within an organisational context, within a global context. The events that occur in distant localities across the globe are increasingly influencing one another. Although many sessions exposed the problems of implementing an IS within its immediate context, such as lack of data and poor coordination amongst decision-makers and users, it was argued that the problems of local implementation are inextricably bound to a wider global context that ultimately influences the long-term sustenance of the project.

Finally, a recurrent theme in practically all the sessions was related to the need to define the "reference" disciplines that are relevant to the field of IT and development. Disciplines such as sociology, philosophy, and development studies were mentioned, and the general feeling was that in order to strengthen the body of knowledge in the field, more interdisciplinary research is needed. At the same time, the point was made that more serious attention to management-of-change literature is needed in order to sensitise researchers and practitioners to understand context and to think of process as a continuum that needs to be carefully monitored in the light of changes in the environment.

Presentations

The following paragraphs summarize a few of the presentations at the conference.

The opening events included a very upbeat presentation on Malaysia's Multimedia Super Corridor project by **Muhammad Ghazie Ismail** (MAL). This ambitious project, which is the cornerstone of Malaysia's intention to become a fully developed nation by the year 2020, consists of seven key IT projects: Electronic Government, Smart Schools, Smart Cards, Electronic Data In-

* WG9.4 vice-chair for Asia
** WG9.4 secretary

terchange, Research and Development, Telemedicine, and Electronic Publishing/ Telemarketing. The corridor already has more than 70 participating companies.

In his presentation on "Information Technology, Information Systems and Public Sector Accountability," **Richard Heeks** (GB) described the mixed impact that IT has had on accountability in the public sector, in some cases supporting accountability, in other cases undermining it. Apparently, IT seems to skew or undermine accountability more easily than increase it. Implementers of ISs have to understand the nature of the relationships between the various stakeholders and users of their systems in order to recognise any resistance to computerisation that might affect these relationships with regard to the accountability of public servants.

Despite the demise of the Soviet Union, the ethos of its centralized planning style continues to haunt the implementation of ISs, even in remote parts of Mongolia. According to **Jørn Braa** (N), efforts to develop a health IS in Mongolia have been restricted to the technical aspects of the system, to the neglect of the wider view of health-sector reform. Consequently, the system has not achieved its full potential.

Mathias Nicola (D) summarized the options for developing countries wishing to introduce wireless telecommunications and suggested that wireless communication is easier and cheaper to introduce and to maintain, especially in remote and less-developed areas. The advantages and disadvantages of packet radio and satellite systems were analysed, **and** it was suggested that in the medium- to long-term time frame, global satellite systems would offer the most favourable telecommunication and data communication infrastructure for developing countries.

Geoff Walsham (GB) provided a thought-provoking analysis of the interlocking relationships between globalisation, IT, and culture. As an illustration, **Geoff** described the application of a geographic-information system in India that was intended to assist with forestry management. The intended use of the system exposed several cultural differences between the originator of the technology (USA) and its recipient (India); the latter placed less emphasis on rational analysis, did not have a map-based culture, and did not coordinate the activities of highly compartmentalized departments. In advocating support for cultural diversity, **Geoff** counsels IS practitioners to show sensitivity to local norms and values.

Reflecting recent interest in the business value of IT, **Subhash Bhatnagar** (IND) described the experiences of two organisations in India that seem to have got it right. A large consumer-product company used IT to manage its supply chain, which it identified as a critical success factor. In return for an expenditure of 400 million rupees, the company achieved a reduction in the value of its inventory pipeline of one billion rupees. In the other example, a courier company installed a tracking system and improved its rate of on-time delivery as well as tripled its volume with little growth in personnel. Important lessons for the use of IT were derived from the cases: target critical success factors, specify and measure benefits, change business processes, and change managerial thinking about the value of information.

Some copies of the conference proceedings are available from the Asian Institute of Technology. A selection of papers will be published in a book in the near future. ❑

NAMUR LECTURE cont. from page 1

in the community as a whole. Electronic networks, electronic subcultures, and electronic communities are emerging in work and private life.

If technology is used in **a** proper way, it can give us more time for human contacts, but in many cases, it has produced the opposite effect. Many people are working at a computer screen the whole day and only interacting with the computer; they do not meet living human beings. The dialogue between people is running the risk of getting thinner. However, a new world is opening itself when we think in terms of the virtual company, the virtual classroom and the virtual living room. It seems as if these new opportunities provide us with an insight into the value of meeting in person—its importance for listening, trust, and emotional support and safety. It is important that the emotional development can find its place. Sometimes people can hide behind the computer screen, avoid conflicts, or avoid difficult meetings with other persons. There are experiences that in the long run could contribute to personal growth and development. Children and young persons may lose an important time in their identity development if they are exposed too early and too intensely to electronic communication.

However, the feeling of belonging established when meeting in person can be facilitated—become ennobled with the support of electronic communication. Electronic meetings can also be deepened by following up contacts in the form of meetings in person. This ought to be an important goal. The "electronic solitude" that exists today, that is, the structural loneliness forced upon a person, has to be prevented in the ICT [Informatics and Communications Technology] society, or at least be combatted and counteracted. ...

"Technostress"

Our perception **of** time and space is changing. New opportunities for flexible work (telework), to work and learn independently of location, have changed our perception of space. Our requirements of ourselves regarding pace and tempo are becoming higher all the time. There is a change in the level of expectations (aspiration). An adaptation to the machine occurs. One gets affected by the pace of the machine in an unconscious way. The words "slow" and "fast" have quite new meanings. The same is valid for the words "close" and "far away."

There is a basic level of stress in our technological environments in large cities. It used to be called "technostress," a phenomenon at the societal level. Technostress is a totally accelerated tempo that, to a large extent, is a result of effectiveness and efficiency. ...

Certain ICT stress is related to the fact that we have an increased dependency on computers and networks and that the equipment must function well. ...

Human Needs

... In each new period of ICT history, there have been both risks and opportunities regarding the fulfillment of human needs. The use of information technology could empower and strengthen us, influencing our life conditions—for social belongingness, for a meaningful life content and for learning and developing ourselves.

Nominations Solicited for Next Namur Award

The Award Committee is now soliciting nominations for the next Namur Award. Nominations are due before 30 November 1998. Further information can be found by referring to the item "WG9.2 Namur Award" at the following Web site:

http://www.info.fundp.ac.be/H b I/IF IP/ cadreslFlPbis.html. ❑

Conference on Information Networks and Data Communications Held in Portugal

*by Prof. Fernando Ramos (P) **

NDC'98, the seventh Conference on Information Networks and Data Communications, sponsored jointly by the **IFIP** Technical Committee on Communication Systems (TC6) and the International Council for Computer Communication (ICCC), was held 15-17 June at the University of Aveiro, in Portugal. The Conference was attended by more than 140 delegates from 17 countries.

The Conference included eight sessions, with the following themes: Mobile Networks, Social Applications, Network Protocols, Network Management and Service Engineering, Architectures for Global Networking, Performance Evaluation and Resource Management, Audiovisual Technologies and Applications, and Open and Distance Learning. In addition to the 25 submitted papers (a 50% acceptance rate) presented during the 21/4 days of the Conference, there were three invited papers, a keynote address by **Prof. Harmen van As** (A), with the title Evolution Towards Photonic Networks, and tutorials: Network Security by **Ray Hunt** (NZ) and Unifying Messaging System by **Philipe Kelly** (F).

The Organizing Committee was chaired by Professors **Jorge Alves** and **Fernando Ramos,** and the International Program Committee was chaired by **Prof. Jose Ruela,** all from Portugal. The proceedings were distributed to delegates at registration and are currently available from the Organizing Committee (anabela@inesca.pt) and from the ICCC Press. ▫

* co-chair of INDC'98 Organizing Committee

Professor N. J. Lehmann

We regret to report the death of **Professor N.J. Lehmann** in June. He was the first representative to **IFIP** of the German Democratic Republic, serving from 1970 to 1988. From 1980 to 1983, he was an **IFIP** vice-president. We plan a more extensive obituary in a future *Newsletter.*

FUTURE **IFIP** MEETINGS

GENERAL ASSEMBLY AND COUNCIL (and related meetings)

GA	5-8 Sep 98 (Sat.-Tues.)	Budapest, Hungary
Council	28 Feb - 4 Mar 99 (Sun.-Thurs.)	New Delhi, India
GA	5-9 Sep 99 (Sun.-Thurs.)	Kuala Lumpur (Cyberjaya), Malaysia
GA	26-29 Aug 2000 (provisional)	Beijing, China

TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS

TC1	May 99	Atlanta, GA, USA
WG1.1	Nov 98	Berkeley, CA, USA
	Jul 99	Oxford, UK
	Oct 99	Hong Kong, China
WGI.2	Nov 98	Paderbom, Germany
WG1.5	Dec 98	Santiago, Chile
TC2	Aug 99	Poland
WG2.1	4-9 Oct 98	Quebec City, Canada
WG2.2	May/Jun 99	Udine, Italy
WG2.3	Jun 99	Munich, Germany
WG2.4	Jan 99	Cape Town, South Africa
	Aug 99	Poland
	Sep 2000	Canada
	Jun 2001	Pisa, Italy
	Apr 2002	Paderborn, Germany
WG2.5	19-20 May 99	W. Lafayette, IN, USA
WG2.6	4-5 Jan 99	Rotorua, New Zealand
WG2.7/13.4	14-18 Sep 98	Crete, Greece
	13-15 May 99	Pittsburgh, PA, USA
WG2.8	7-12 Mar 99	Recife, Brazil
	Sep 99	France
WG2.9	Sep 98	Vienna, Austria, or Budapest, Hungary
	Jan 99	Florida, USA
	Oct/Nov 99	Brazil
TC3	2-3 Dec 99	Rotorua, New Zealand
	24-25 Nov 2000	Copenhagen, Denmark
	28 Jul & 3-4 Aug 2001	Copenhagen, Denmark
WG3.1	14 Jun 99	Haemeenlinna, Finland
	Apr 2000	Santiago, Chile
	Jul 2001	Copenhagen, Denmark
WG3.2	5 Aug 99	Irvine, CA, USA
	Aug 2000	Magnetic Island, Australia
WG3.3	2 Sep 98	Vienna, Austria
	28 Nov 99	Palmerston North, New Zealand
WG3.5	17 Jun 99	Haemeenlinna, Finland
WG3.6	5 Aug 99	Irvine, CA, USA.
WG3.7	27 Nov 99	Palmerston North, New Zealand
TC5	12 Sep 98	Trento, Italy
WG5.3	9-11 Sep 98	Trento, Italy
TC6	23-25 Oct 98	Tozeur, Tunisia
	23-24 Apr 99	Copenhagen, Denmark
	3-4 Sep 99	Budapest, Hungary
TC7	12-16 Jul 99	Cambridge, UK
WG7.2	31 Aug - 6 Sep 98	Moscow, Russia
WG7.5	Sep 2000	Ann Arbor, MI, USA
WG7.6	21-23 Sep 98	Laxenburg, Austria
TC8	99	Israel
WG8.2	10-12 Dec 98	Helsinki, Finland
	22-26 May 99	St. Louis, MO, USA.
	May/Jun 2000	Aalborg, Denmark
WG8.6	10-12 Dec 98	Helsinki, Finland
WG9.2	16-17 Jan 99	Namur, Belgium
WG9.6	16-18 Oct 98	Stockholm, Sweden
TC I 0	5 Sep 98	Budapest, Hungary
	30-31 Aug 99	Toulouse, France
WG10.3	Oct 98 (with PACT)	Paris, France
WG10.4	Jun 99	Madison, WI, USA.
	Jun 2000	New York, NY, USA.
TC11	Sept 98	Vienna, Austria, or Budapest, Hungary
	29 Sep 99	Amsterdam, the Netherlands
WGI1.1	30 Sep-I Oct 99	Amsterdam, the Netherlands
WG11.2	30 Sep-I Oct 99	Amsterdam, the Netherlands
WG11.5	19 Nov 98	Warrenton, VA, USA.
	18-19 Nov 99	Amsterdam, the Netherlands
TCl2	2 Sep 98	between Vienna, Austria, and Budapest, Hungary
TC13	Sep 98	Stuttgart, Germany, or Vienna, Austria
	30 Aug 99	Edinburgh, UK
WG13.2	9 Sep 98	Stuttgart, Germany
WG13.4/2.7 see WG2.7 above		

This information is furnished to the *Newsletter* by the Secretariat. Will TC and WG chairs 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.

Some meetings are scheduled in conjunction with conferences, for which the conference dates are listed. ▫

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Testing of Communicating Systems XI

New

edited by **Alexandre Petrenko**, *CRIM*
Nina Yevtushenko, *Tomsk, Russia*

This volume presents the latest world-wide results in both theory and practice. The following topics are discussed in detail: *Types of testing; Phases of the testing process; Classes of systems to be tested; and Theory and practice of testing.*

This book contains the selected proceedings of the 11th International Workshop on the Testing of Communicating Systems, formerly the International Workshop on Protocol Test Systems, sponsored by the International Federation for Information Processing (IFIP), and held in Tomsk, Russia, in August/September 1998.

Contents and Contributors

Preface. Part One: Past and Present of Research on Automata Testing. 1. Testing of Automata: From Experiments to Representations by Means of Fragments; *I.S. Grunsky*. Part Two: New Areas for Testing. 2. TMN and Telecommunication Networks Testing; *M. Guiagoussou, M. Kadoch*. 3. Conformance Testing Methodology of Internet Protocols Internet Application-Layer Protocol Testing – the Hypertext Transfer Protocol; *R. Gescse*. 4. Intelligent Protocol Analyzer for WWW Server Accesses with Exception Handling Function; *T. Ogishi, et al.* Part Three: Test Generation. 5. Factorized Test Generation for Multi-Input/Output Transition Systems; *E. Brinksma, et al.* 6. Test Generation for Specifications Modeled by Input/Output Automata; *Q.M. Tan, A. Petrenko*. 7. Distinguishing Tests for Nondeterministic Finite State Machines; *S.Yu. Boroday*. Part Four: Testing in Context. 8. Evaluation of Test Coverage for Embedded System Testing; *J. Zhu, et al.* 9. Test Suite Minimization for Testing in Context; *N. Yevtushenko, et al.* Part Five: Test Architectures and Concurrent Systems. 10. Test Architectures for Distributed Systems: State of the Art and Beyond; *T. Walter, et al.* 11. Using Partial-Orders for Detecting Faults in Concurrent Systems; *A. Petrenko, et al.* Part Six: Industrial Applications. 12. Conformance Testing of a Multimedia System Using PHACT; L.M.G. *Feijs, et al.* 13. An Industrial Experiment in Automatic Generation of Executable Test Suites for a Cache Coherency Protocol; *H. Kahlouche, et al.* 14. Autolink – Putting SDL-Based Test Generation Into Practice; *M.Schmitt, et al.* Part Seven: Testing of Distributed Systems. 15. Testing Temporal Logic Properties in Distributed Systems; *F. Dietrich, et al.* 16. Programming Service Tests with TTCN; *M. Anlauf*. 17. A Guided Incremental Test Case Generation Procedure for Conformance Testing for CEFSM Specified Protocols; *C. Bourhfir, et al.* Part Eight: Testing from the Industrial Perspective. 18. Testing and Test Generation: State of the Art and Future Expectations; *A. Ek*. 19. Interoperability Test Suite Derivation for the ATM/B-ISDN Signaling Protocol; *J.Shin, S. Kang*. 20. Test Suite Migration Experiences for B-ISUP and B-MTP; *C. Desroches,et al.* Part Nine: Testability. 21. Qualitative Notions of Testability; *B. Baumgarten, H. Wiland*. Index of Contributors.

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Intelligent Systems for Manufacturing Multi-Agent Systems and Virtual Organizations

New

edited by
Luis M. Camarinha-Matos
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Hamideh Afsarmanesh
University of Amsterdam
Vladimir Marik
Czech Technical University, Prague

The development of Intelligent Manufacturing Systems represents a worldwide tendency. The areas of Multi-Agent Systems and Intelligent Mobile Agents offer a promising approach to such developments. Advances in electronic information exchange and multimedia have opened new opportunities for team work in networks of small and medium-sized enterprises (SME), leading to the establishment of Virtual Enterprises. These advances identify new requirements in the areas of distributed information logistics infrastructure, information access control and intelligent interfaces with human users. Today's market requires greater flexibility and agility from the manufacturing process, while taking the immense legacy from the past in manufacturing into account. These new approaches to manufacturing automation have to be carefully observed in the context of the globalization of the economy, and must also take into account the social, economic, and re-engineering needs within the enterprises.

Contents

Preface. **Part One:** Multi-Agent Systems and Mobile Agents. **Part Two:** Multi-Agent Systems in Scheduling. **Part Three:** Building Multi-Agent Systems. **Part Four:** Intelligent Supervision Systems. **Part Five:** Virtual Enterprises. **Part Six:** Infrastructures for Virtual Enterprises. **Part Seven:** Collaborative Work. **Part Eight:** Knowledge Based Systems in Design. **Part Nine:** Planning and Scheduling. **Part Ten:** Modeling in Manufacturing. **Part Eleven:** Manufacturing Information Systems. **Part Twelve:** Product Data Management. **Part Thirteen:** Anthropocentric Approaches in Manufacturing. **Part Fourteen:** Quality Management. **Part Fifteen:** Soft-Computing. **Part Sixteen:** Pattern Recognition and Diagnostics. **Part Seventeen:** Simulation and Design. **Part Eighteen:** Theoretical Aspects of Design. **Part Nineteen:** Workshop 1: Soft-Computing for Automation. **Part Twenty:** Workshop 2: Multi-Agent Systems.

Kluwer Academic Publishers, Boston
International Federation for Information Processing
August 1998, 656 pp. Hardbound, ISBN 0-412-84670-5
NLG 475.00 / USD 210.00 / GBP 143.00

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Strategic Management of the Manufacturing Value Chain

by **Umit S. Bititci** and **Allan S. Carrie**
University of Strathclyde DMEM, Glasgow

New

In the 21st century, most manufacturing organizations will have to respond to challenges through innovative partnerships, by creating virtual enterprises, by operating in agile networks to generate value by exploiting their existing competencies in design, manufacturing, distribution and customer service, while building new competencies in information systems, communications and knowledge management.

A business can not operate without being part of a network of businesses, which is called the manufacturing value chain. This book brings together the works of leading researchers, presenting state-of-the-art research and development on the strategic management of the manufacturing value chain' in the broadest sense.

The objectives of **Strategic Management of the Manufacturing Value Chain** are:

- To provide insights into potential strategies, methods, tools and techniques which could facilitate competitiveness through innovation agility and partnership.
- To explore the use of enabling technologies, such as IT, in meeting the challenges of the 21st century.
- To provide practical case studies which demonstrate the use of new approaches to the generation and management of value in manufacturing.

Strategic Management of the Manufacturing Value Chain is suitable as a secondary text for graduate-level courses of management and manufacturing, and as a reference for researchers and practitioners in industry, commerce and government.

Contents

Foreword. **Part One:** Raising the Challenge. **Part Two:** Strategic Manufacturing. **Part Three:** Agile Manufacturing. **Part Four:** Performance Measurement. **Part Five:** Manufacturing Networks. **Part Six:** Supply Chain Management. **Part Seven:** Production Planning and Control Systems. **Part Eight:** Information Systems. **Part Nine:** Process Modelling. **Part Ten:** Case Studies.

Kluwer Academic Publishers, Boston
International Federation for Information Processing

August, 1998 664 pp. Hardbound ISBN 0-412-82710-7
NLG 520.00 / USD 229.00 / GBP 155.75

Globalization of Manufacturing in the Digital Communications Era of the 21st Century: *Innovation, Agility, and the Virtual Enterprise*

New

edited by **Gianni Jacucci**, *University of Trento*
Gustav J. Olling, *Chrysler Corporation*
Kenneth Preiss, *Ben Gurion University of Negev*
Michael Wozny, *Rensselaer Polytechnic Institute*

This state-of-the-art text aims to expand design and manufacturing issues to include teams and virtual enterprises which come together across space and time to develop new products and bring them to global markets. Manufacturing issues and information models have long been part of concurrent engineering and this book addresses the importance of new product innovation and the developmetn of manufacturing plans and processes which span multiple countries and reach businesses on an international level.

The fields covered in the book include: • *telecommunication use in industry for agility and innovation* • *human and machine communications* • *telecommunication and agility impact on software technology for discrete manufacturing; and* • *software engineering*

This book will be essential reading for researchers, engineers and technical managers involved in the development of advanced applications for engineering and manufacturing.

Kluwer Academic Publishers, Boston
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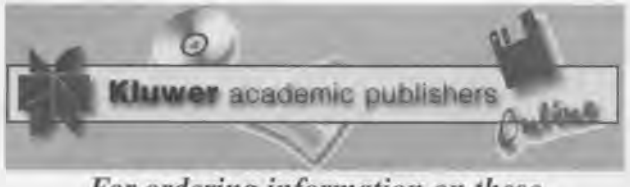
Price To Be Announced



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Calendar of Events

(Continued from page 16)

Event	Date	Location	Sponsored by	Org. Contact
2nd IFIP WG11.5 Work.Conf. on Integrity & Internal Control in Information Systems: Bridging Business Requirements and Research Results	19-20.11.1998	Fairfax, VA, USA	IFIP WG11.5, IFAC, ACSA, George Mason Univ.	strous@iaehv.nl , Fax: +31 492 548636
Workshop on Modelling and Motion Capture Techniques for Virtual Environments	26-27.11.1998	Geneva, CH	IFIP WG5.10, Swiss French 3rd Cycle in Comp.Sc.	nadia.thalmann@cui.unige.ch, http://miralabwww.unige.ch/captech98, Fax: +41 22 7057780
3rd IFIP WG5.2 Work.Conf.on Knowledge Intensive CAD	1-4.12.1998	Tokyo, J	IFIP WG5.2, JSPE	tanaka@jspe.or.jp, Fax: +81 3 33670994
6th IFIP Work.Conf.on Geometric Modelling: Fundamentals and Applications	7-9.12.1998	Tokyo, J	IFIP WG5.2, JSPE	tanaka@jspe.or.jp, Fax: +81 3 33670994
3rd Intl.Work.Conf.on Diffusion, Transfer and Implementation of Information Technology	10-13.12.1998	Helsinki, FIN	Bootstrap, IFIP WG8.2/8.6, BOOTSTRAP Institute, Univ.of Oulu, Ericsson Finland, European Commission	kuvaja@rieska.oulu.fi, Fax: +358 8 5531890
Intl.Confon Formal Methods for Open Object-based Distributed Systems	15-18.2.1999	Florence, I	EU-DGXIII, IFIP WG6.1, EU-DGXIII, CNR-Italy	fantechi@dsi.dsi.unifi.it, Fax: +39 55 4796363
Minisymposium on Stochastic Optimization & Technical Appl.	12-16.4.1999	Metz, F	IFIP WG7.7, GAMM	kurt.marti@unibw-muenchen.de, Fax: +49 89 6004 3560
Conf.on Communications & Networking in Education	13-18.6.1999	Aulanko, FIN	IFIP WG3.1/3.5, Univ.of Helsinki, Comp.Soc.of Finland, Min.of Education	matti.sinko@helsinki.fi, http://www.hyvan.helsinki.fi/kttk/comned99/, Fax: +358 9 8574328
15th IMEKO World Congress	13-18.6.1999	Osaka, J	IMEKO, IFIP, BIPM, OIML	i90415@sinet.ad.jp, Fax: +81 3 38144699
Intl. Work.Conf. on Distributed Applications & Interoperable Systems	28-30.6.1999	Helsinki, FIN	IFIP WG6.1	dais99@cs.helsinki.fi, http://www.cs.Helsinki.FI/events/DAIS99, Fax: +358 9 7084 4441
19th IFIP Conf. on System Modelling & Optimization	12-16.7.1999	Cambridge, UK	IFIP TC7	m.j.d.powell@damtp.cam.ac.uk , Fax: +44 1223 337918
Intl. Conf. on Building University Electronic Educational Environments	3-6.8.1999	Irvine, CA, USA	IFIP WG3.2	IFIPconf@uci.edu , http://eee.uci.edu/program/ifipwg32/, Fax: +1 714 8242069
INTERACT '99 Human Computer Interaction	29.8.-3.9.1999	Edinburgh, UK	IFIP TC13	kilgour@bcs.org.uk , Fax: +44 1314513327
IFIP TC6/WG6.1 Joint Intl.Conf.on Formal Description Techniques (FORTE XII) and Protocol Specification, Testing & Verification (PSTV XIX)	5-8.10.1999	Beijing, PRC	IFIP WG6.1, Natl.Natural Science Found.of China, Chinese Inst.of Electronics	jianping@cernet.edu.cn , Fax: +8610 62785933
IFIP World Computer Congress 2000	21-25.8.2000	Beijing, PRC	IFIP	mqzhou@public.bta.net.cn . http://www.cie-china.org/wcc2000.htm, Fax: +861 06828 3458
7th IFIP World Computer Conf. on Computers in Education	29.7.-3.8.2001	Copenhagen, DK	IFIP TC3	tf@sek.ddf.dk , Fax: +45 33 931580
Symposium on Information Control Problems in Manufacturing Technologies	24-26.9.2001	Vienna, A	IFIP TC5, IFAC	e318@ihrtl.ihrt.tuwien.ac.at , Fax: +43 1 50418359

A schedule of administrative meetings can be found elsewhere in this Newsletter

Calendar of Events

Event	Date	Location	Sponsored by	Org. Contact
Euro-Par	I-4.9.1998	Southampton, UK	EuroPar, IFIP WG10.3	jsr@ecs.soton.ac.uk, Fax: +44 1703 593903
PROLAMAT '98	9-11.9.1998	Trento, I	IFIP WG5.2/5.3, University of Trento Fax: +39 464 443141	gianni@lii.unitn.it, http://www.lii.unitn.it/prolamat/,
2nd Intl. Workshop on Mobile Agents	9-11.9.1998	Stuttgart, D	Uni.Stuttg., IFIP TC6 Fax: +49 711 7816 424	kurt.rothermel@informatik.uni-stuttgart.de,
Work.Conf. on Designing Effective and Usable Multimedia Systems	9-11.9.1998	Stuttgart, D	IFIP TC13/CEPIS, City Univ., Fraunhofer Institute	a.g.sutcliffe@city.ac.uk, Fax: +44 171 4778411
Engineering the Human Computer Interface	14-18.9.1998	Iraklion, GR	IFIP WG2.7, ICS-FORTH	ljb@sei.cmu.edu, Fax: +1 412 268 5758
10th Intl.Conf. on Modelling Techniques and Tools for Computer Performance Evaluation	14-18.9.1998	Palma Mallorca, E	IFIP WG6.3/7.3, ACM/Sigmetrics	tools98@ps.uib.es, Fax: +34 971 173003
Intl.Conf. on Distributed System Platforms & Open Distributed Processing (formerly ICODP/ICDP)	15-18.9.1998	Lake District, UK	IFIP WG6.1	gordon@comp.lans.ac.uk, Fax: +44 1524 593608
IFIP WG7.6-IIASA Workshop on Advances in Modelling: Paradigms, Methods & Applications	21-23.9.1998	Laxenburg, A	IFIP WG7.6, IIASA	marek@iiasa.ac.at, Fax: +43 2236 71313
5th Annual Australasian Conf.on Parallel & Real-Time Systems	28-29.9.1998	Adelaide, AUS	IFIP WG 10.3, IEEE, Uni.Adelaide, Uni.S.Australia	andrew@cs.adelaide.edu.au, http://www.cs.adelaide.edu.au/PART98, Fax: +61 8 8303 4366
Telematics - a new Dimension of Automation	28-30.9.1998	Vienna, A	IFIP TC5, IFAC	Fax: +43 1 50418359
17th Intl. Conf. on Computer Safety, Reliability and Security	5-7.10.1998	Heidelberg, D	IFIP WG5.4, IFAC Fax: +49 228 378690	dia@gi-ev.de, http://www.th-fulda.de/safecomp,
Intl. IFIP WG10.3/WG10.5 Workshop on Distributed & Parallel Embedded Systems	8-10.10.1998	Paderborn, D	IFIP WG10.3/10.5	franz@uni-paderborn.de, http://www.uni-paderborn.de/cs/franz/DIPES.html, Fax: +49 5251 606502
IFIP WG6.7 Intl.Conf. on Intelligent Networks	14-15.10.1998	Moscow, RUS	IFIP WG6.7	rodjonova@komset.mmtel.msk.su, Fax: +7 095 3067709
5th Conf.on Computer Communications	20-22.10.1998	Tunis, TN	IFIP TC6, ICCC	beIghith<maddouri@ensi.rnrt.tn, http://www.ensi.rnrt.tn/Africom-CCDC98, Fax: +216 1 706297
9th IFIP/IEEE lntl.Workshop on Distributed Systems: Operations & Management	26-28.10.1998	Newark, DE, USA	IFIP WG6.6, IEEE CNOM	sethi@cis.udel.edu, Fax: +1 302 831 8458
Sculptured Surface Machining Conf.: "Machining Impossible Shapes"	9-11.11.1998	Detroit, MI, USA	IFIP TC5, WG 5.3, Chrysler	bkchoi@bezier.kaist.ac.kr, Fax: +82 42 8693110
Work.Conf.on Management of Multimedia Networks and Services	16-18.11.1998	Versailles, F	IFIP WG6.4, IEEE	rboutaba@nal.utoronto.ca

(continued on page 15)

IFIP Congress '98 15th World Computer Congress	31.8.-4.9.1998	Vienna, A and Budapest, H	IFIP
IFIP Congress 2000 - 16th World Computer Congress	21-25.8.2000	Beijing, PRC	IFIP

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