IFIP newsletter
International Federation for Information Processing

Editor:
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# IFIP'S ROLE IN CREATING STANDARDS

*Recommendations Presented to General Assembly*

A position paper, *The **IFIP** Role in Standards,* was presented to the **IFIP** General Assembly (GA) in August 1986 by Dr. Ronald Uhlig (USA), chairman of the Technical Committee on Data Communication (TC6). (See the article on the GA meeting in the December 1986 ***IFIP** Newsletter,* page 1.) Dr. Uhlig wrote the position paper in response to a request, made by the Activity Development Board at its meeting in Lisbon in March 1986, to suggest how **IFIP** should be involved with emerging standards in the information processing field. The paper was warmly received by the GA, which noted that although **IFIP** is not a standards body and does not intend to become one, it plays an important role in the standards process.

Following are highlights of the position paper:

> There are many areas in which standards could help maximize the benefits of information processing technology to society. In these areas, there is usually a vague feeling among those knowledgeable within the area that standards could greatly contribute to exploitation of the technology, but no clear path exists for initiating work to develop a standard. This is where **IFIP** can play a major role.
>
> The principal role is best described as "pre-standards consensus generation." A secondary role is to review and provide constructive criticism of draft standards under development within recognized international standards organizations.

The paper made the following recommendations:

1. The focus of **IFIP** standards efforts should be in pre-standards consensus generation.
2. Every member of a TC should work to identify key areas in which his TC should undertake pre-standards consensus generation efforts.
3. TC members should identify individual experts in their countries, and in their fields of interest, to work on these efforts.
4. These individuals should be invited to participate in the formation of Working Groups (WGs) and subgroups, through workshops, working conferences, symposia,... organized by TCs.
5. The goal of such WGs and subgroups should be to develop models or

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## *WORKING CONFERENCE ON OFFICE SYSTEMS*

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

*Office Systems: Methods and Tools,* the second Working Conference (WC) of IFIP's Working Group on Office Information Systems (WG8.4), was held in Pisa 22-24 October 1986. The first WC of WG8.4 was held in Helsinki in September 1985. There, 31 people expressed an interest in this new WG. More than half of that group joined a substantial number of new faces (140 in all) when the second WC convened in Pisa.

The keynote speech, *Modeling Office Organization and Support Technology,* by David Conrath (CDN) opened the Conference.

Your reporter observed the following about the Conference program:

• The topic of object oriented systems has, of late, become a fashionable subject. In some ways, it is structured programming and semantic modelling rolled into one. One may also say that it is just a very solid form of common sense for looking at the world in general and office information systems in particular.

• Database matters, as discussed, transcend the office. They are of a far more general nature, but they are of great importance in the application area of WG8.4.

* IFIP trustee, GA representative and TC8 representative of The Netherlands, and chairman of WG8.4

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## TEMPORAL ASPECTS OF INFORMATION SYSTEMS

IFIP's Technical Committee on Information Systems (TC8), in cooperation with the French Computer Science and Information Society (AFCET), is sponsoring a working conference on *Temporal Aspects of Information Systems* 13-15 May 1987 in Sophia-Antipolis, France.

Recent developments in the area of information systems emphasize the role played by time. There is a need for a realistic world model that includes representations not only of snapshot descriptions of the real world, but also of histories—the evolution of such descriptions over time. Concepts, languages, and theoretical foundations dealing with the design of temporal and behavioral aspects of information systems are missing. These issues will be addressed at this conference.

The conference Program and Organizing Committee chairmen are Prof. Colette Rolland (F) and Prof. Michel Leonard (CH), respectively. Francois Bodart (B) is General Chairman.

For further information, contact-

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*STANDARDS continued from page 1*

frameworks which can be used as a basis for work by official standards organizations.

6. Transfer of results to standards organizations should be informal, but results need to be clearly identified as IFIP contributions.

7. IFIP WGs should participate in the work of standards organizations in an advisory capacity.

8. IFIP WGs should review draft standards recommendations and provide comment back to standards organizations.

### A Case Study

The report contained an interesting case study of standards generation:

> In 1978, a number of early users of what were then called Computer Based Message Systems (CBMS) recognized the great potential of these systems. However, message systems were generally incompatible—they could not exchange messages with each other. There was not sufficient understanding and agreement on the issues for any standards organization to begin development of a messaging standard. It was in this environment that WG6.5, International Computer Message Systems, was created in 1979.
>
> Through numerous meetings, WG6.5 developed the concepts of the User Agent and the Message Transfer Agent, and the **IFIP** Mail/Messaging Model. By mid-1981 the work progressed to the point that a Special Rapporteur Group for Message Handling Systems (MHS) was created by the International Telegraph and Telephone Consultative Committee (CCITT), and work began on what has now emerged as the X.400 series of recommendations for MHS. The **IFIP** Mail/Messaging Model has provided the framework for all subsequent standardization efforts in CCITT and the International Organization for Standardization (ISO), as well as in many regional standards organizations.

### Transfer of Results

Another major section of the position paper was devoted to the transfer of the results to standards organizations:

> The results from a WG or subgroup should be transferred to standards organizations for further work. These results should be clearly identified as **IFIP** results. The actual information transfer may take a number of forms. It may come in the form of a formal paper presented at an **IFIP** Workshop or Conference, or it may be a "living document," or it may be one or more papers circulated among members of a WG or subgroup. A formal letter from an **IFIP** TC or WG to a standards organization is probably the least effective mechanism.
>
> The mechanism used for transfer of the **IFIP** Mail/Messaging Model from WG6.5 to CCITT was nearly ideal. Many of the individuals who were members of WG6.5 were subsequently appointed by their various countries to the CCITT Special Rapporteur Group on MHS. IFIP did not need to make written recommendations to CCITT, because the results of the **IFIP** work were transferred directly into CCITT by the individuals involved.

The paper also suggested that **IFIP** WGs should participate in meetings of standards organizations in an advisory capacity. The purpose would be to present results of **IFIP** work, to obtain drafts of developing standards, and to comment on them.

Following the presentation of this report, the GA requested Dr. Uhlig to gather information from the TCs concerning pre-standards activity currently taking place in IFIP. Of course, some TCs may not be interested in standards. It was stressed that **IFIP** will not generate standards itself.

Anyone interested in this area is invited to contact Dr. Uhlig at—

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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; changes of address; and new publications. The Secretariat is the clearinghouse for all such information; it will forward it to the *Newsletter.*

## *Who's Who in IFIP: MR. GRAHAM MORRIS*

Mr. Graham Morris, **IFIP** vice-president, was born in Wales, left his native country to attend London University at Imperial College, and has lived in England ever since. He has worked in the computer industry since 1951, remaining with the same company, which after several name changes is today known as ICL. He has very broad experience, having been a programmer, systems analyst (or "investigator"), salesman, planner, trainer, and publicist.

He was an original member of the British Computer Society, in which he has served in many capacities, including that of president in 1972. In what must be a unique situation, his younger brother, who has also spent his entire career in our industry, will become president of the BCS in 1987.

Mr. Morris' connections with **IFIP** go back to 1959, when he attended the inaugural World Computer Congress, and he is one of the stalwart band that has attended every Congress. He was a member of the Organizing Committee for Congress '68 in Edinburgh.

He has represented the British Computer Society in **IFIP** since the 1977 General Assembly meeting in Toronto, at which he was elected a trustee. He served in that capacity until 1985, when he was elected a vice-president. During his service with **IFIP,** he has been chairman of the Public Information Committee and of the Restructuring Task Group.

He is actively involved in local church, social and musical activities. His wife Margaret, like him, is a mathematics graduate from London University. She shared her time between school teaching and bringing up their four daughters. ■

## *FIACC MEETS IN VIENNA*

The Five International Associations Coordinating Committee (FIACC) held its annual meeting 8 September 1986 in Vienna. **IFIP** is one of the five Sister Federations; the others are the International Federation of Automatic Control (IFAC), the International Federation of Operational Research Societies (IFORS), the International Association for Mathematics and Computers in Simulation (IMACS), and the International Measurement Confederation (IMEKO). FIACC was founded in Paris in 1969 to coordinate the activities of its five members. Prof. Dr. Heinz Zemanek (A), a past president and Honorary Member of **IFIP,** represented **IFIP** at the FIACC meeting. Prof. Heinar Mtiller-Merbach (D), a past president of IFORS, is the current chairman of FIACC.

Among the issues discussed at the Vienna meeting were-

• authors who do not show up at conferences—One Sister Federation reported that up to 35% of its scheduled speakers do not attend.

• support from the United Nations Economic, Scientific and Cultural Organization (Unesco) and the United Nations Industrial Development Organization (UNIDO)—The general opinion was that support is weak. It does occur, but it is complicated to arrange.

• "Intelligent Products"—IFORS proposed a symposium to be held in 1988. This will consider the evolution, over the years, of machinery into "intelligent products," which involve automatic control, information processing, and measurement and require system planning, mathematical modeling, and simulation. This involves the domains of all Sister Federations, who are invited to be co-sponsors.

• secretary's report—Honorary Secretary Prof. György Striker (H) began his report as follows:

> In the past year we could again register with satisfaction the mutual effort of the Sister Federations to keep each other properly informed on events and developments. The event calendars contain an ever growing number of co-sponsorships proving that we have all recognized the need for cooperation in order to be able to do something new, better and more sophisticated in our relevant and bordering fields.

Prof. Striker expressed the wish to retire from FIACC but acceded to FIACC's request that he serve for an additional year.

• code of ethics—IFAC is preparing a code of ethics. It concerns the responsibilities of engineers as individuals and of engineering associations. Other Federations are invited to join in this effort. The following is taken from the IFAC proposal.

> In recent months several major and minor catastrophes have focussed attention on the dangers of technology and the responsibility of people who design, consult, operate, maintain and control these artifacts of quickly increasing complexity.
>
> 1. Engineers designing, constructing, producing, testing, operating, maintaining, checking their creations are responsible for their safety and human consequences.
>
> 2. Engineers should not be denied the possibility of fulfilling these responsibilities. They must receive all pertinent and relevant data and information, and they should not be persecuted, discriminated, repressed or anyhow directly or indirectly forced to act against their conscience.
>
> 3. Engineers are obliged to keep track of all progress of their profession to enable them to fulfill these responsibilities. The access to the resources of this knowledge and information should be provided for them and not denied in any way. Engineers should be free to directly contact acknowledged nonpolitical uncommitted scientific, technical international professional organizations to be in contact with latest results of their discipline.
>
> 4. Engineers should keep as their major principle honesty towards their professional values and respect this even in cases of competition and loyalty conflicts; the highest value is to be given to the safety of human lives, human conditions and consequences for future generations.

The next meeting of FIACC will take place in Budapest 31 August 1987, during the week the **IFIP** General Assembly will meet there. ■

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# MICHAEL JACKSON ENTERTAINS CONGRESS '86

## Keynote Speech on Software Creation

*[Mr. Michael Jackson (GB) of Michael Jackson Systems, Ltd. delivered a provocative as well as amusing keynote address at* ***IFIP*** *Congress '86. (See the article on page 1 of the December 1986* IFIP Newsletter.) *The following excerpts are taken from that speech. *1*

I am delighted to be in this lovely city of Dublin, and honoured that I have been asked to give this keynote address at IFIP's 10th World Computer Congress. The rich variety of the scientific programme does credit to the programme committee, to all contributors, and to the state of computing and information science today.

Perhaps the cooking metaphor fits the business of software creation at least well as the engineering metaphor. We can immediately recognize the old-fashioned ***haute cuisine*** of software in the first airline reservation systems of the late 1950s: gigantic concoctions of assembly language, magnificent in their way, but heavy, indigestible, and dreadfully expensive. Our *nouvelle cuisine* is surely functional and logic programming, whose leading cooks continually exhort us to give up the unhealthy and damaging ingredients of procedurality and instruction sequencing. Nor do we lack our software equivalent of junk food: many of the programs offered to the amateur hobbyist user of personal computers taste suspiciously like hamburgers with French fries and lots of tomato ketchup.

### Serious Purpose

My purpose in suggesting the cooking metaphor is serious: I would like to point out two essential features of cookery which I think we would do well to emulate in our activity of software creation. The first feature is that any cooked food, unless it is of the utmost simplicity, demands the use of several different raw materials, each chosen for its individual contribution to the finished product.... The second feature of cookery is that it involves many different production operations, in which the ingredients are combined and transformed, often losing their original identities and many of their original characteristics in the process of contributing to the flavour, texture, and appearance of the completed dish.

What are the materials, parts, and operations of software creation? The materials of software creation are the languages we have available to our use: not just programming languages, but every kind of specification language, natural language, mathematical notations, formal grammars, graphs, tables, and other languages that we may find useful. The parts of software creation are descriptions. I mean here to use the term in a very wide sense, applying it to every visible product of the software creation activity....The operations of software creation are operations on descriptions: these operations can include formulation of a new description, composing two descriptions into one, transforming, rewriting, abstracting, compiling: in fact, anything we can imagine doing with a description that might contribute to the software creation purpose in hand.

My suggestion, then, that we need to emulate the wide variety of material used in cooking, is a suggestion that in creating each software product, we are using fewer languages then we ought to use. I am not suggesting that we have too few languages available; on the contrary, we have perhaps too many. Rather, I am suggesting that in creating each piece of software, we choose to use one or two of the available languages when we ought to be using ten or twenty or even, sometimes, a hundred.

Frequently, we need a way of composing several descriptions, some kind of composition operation that can compose each description in the language most suitable to its subject matter. In the absence of such an operation, we are likely to be compelled to choose among languages, and to use the chosen language for all descriptions, although it is clearly unsuited to most of them....No outcome is satisfactory; we are using the wrong material for much of our work.

### Methodological Framework

**I** propose a methodological framework based on the idea of descriptions, using the term in the wide sense I have already indicated. The task of software creation, in a particular case, is the task of producing, over time, descriptions of the desired software, its subject matter, its environment, its function, its proportions, its purpose, and anything else considered to be of interest and importance. The task continues until the set of descriptions produced eventually contains a subset which is itself the desired product, appropriately documented, justified and validated, and capable of execution.

A software creation method is a set of rules about the production of descriptions. The rules concern the choice of what is to be described, and in what order; they concern the choice of language for each description, and the operations by which the descriptions are to be produced and related to one another.

*[Mr. Jackson proceeded to give an example of a software creation method.]*

I believe that thinking about the software creation task in this kind of way, from a methodological point of view, may lead to a deeper understanding of our successes and failures, of why some problems seem intractably difficult while others, superficially similar, yield quite easily to straightforward techniques. A methodological analysis of particular projects, or of a particular method, would pay attention to the descriptions, to their content and meaning, to the choice of language for each description, to the operations on the descriptions, and the flow graph of the whole software creation task.

### Proposed Study

Of course, much of what I have said—if it is right—should emerge among the results of a serious and widespread study of methods of software creation. I am not, alas, reporting the well-founded results of such a study, but merely trying to stimulate it. Such a methodological study would take a long time; it would be the work of many people with knowledge of many areas of formal and informal software creation. It would transcend, or abstract from, particular languages. It would aim at identifying general operations on descriptions, and elucidating the principles that should govern their appropriate use and ordering for particular software creation tasks and for the formulation of more general methods for whole classes of such tasks.

Let me end my talk by returning to the theme of software cookery with which I began....There are good recipes for nourishing food. Many of the necessary ingredients are laid out before us in the excellent scientific programme of the Congress that we can look forward to this week. I wish us all *bon appetit.* ■

* © IFIP

# WIDE RANGE OF TOPICS DISCUSSED AT IFIP CONGRESS '86

*Selections Are Presented Here **

The program of IFIP Congress '86 was notable for its diversity. (See the articles about Congress '86 in the December 1986 ***IFIP*** *Newsletter.)* Some 250 papers (invited papers and responses, panelist position papers, and submitted papers) were presented, covering all aspects of information processing—from VLSI to "women and computerization." The preponderant number covered various aspects of software. Also highly visible in the program were papers on artificial intelligence and expert systems, databases, and computer aided design and computer integrated manufacturing (CAD & CIM). There was also a substantial number of papers on theoretical computer science, computer architecture and hardware, communications, and social issues.

Sections from several of the papers presented at the Congress follow. They were selected for their general interest and to illustrate the scope of the Congress.

### Recovery from Disaster

Mr. Bill Donner (USA) began his talk on *The "Real World" of Disaster Recovery and Planning* with the following bone-chilling description of his personal involvement in a computer disaster:

> The phone rang. It was 4:30 a.m. on a Sunday. The Chief Accountant said, "Good morning, the administration building is burning to the ground and taking your computer with it." By 5:30 a.m., I was at the fire. Flames were billowing out of all the windows, and firemen were spraying thousands of gallons of water at the burning structure. The city's Public Schools Administration building was definitely a total loss.
>
> The Business Manager asked me about the status of our files. I told him that if the vault effectively protected the disk packs, we would be current with all data up to Friday's back-ups, and that recovery would not be extremely difficult. If the vault did not protect files, we would have to revert back to off-site tape storage and recover from the last back-up point, which would normally be either last week or last month-end. This would be a lot more difficult, but not impossible.
>
> The first question I asked the Operations Manager was, "Were all of the disk packs backed-up on Friday?" He said, "They were, but there is a problem. They did not put the packs in the vault. When we got the additional disc drives, all of the disc packs would not fit on the cart, so we stopped putting the cart in the vault." What could I say? It was obviously too late to do anything. I am sure, however, that my comment lacked humor.
>
> Getting our data and programs from the off-site storage was a simple task. There were only about 40 tapes. We made two important discoveries at this point. First, our procedures for applying and updating external tape labels were not followed. We were unable to determine what files or program libraries were on the tapes nor what date the last update was made. Second, we became very aware that our vulnerability was extremely high until we could duplicate these tapes and get copies back into protected storage.

Mr. Donner concluded with these words:

> Countries, corporations, and businesses of all sizes are relying more heavily on their computer resources than ever before. This trend will continue, and the emphasis is moving more to decentralized computing capabilities. Disasters involving the data processing function will require increasingly more effective planning. Some corporate management may ask: "How can we afford this?" There is a more basic question: if you want to stay in business, how can you afford not to?

### Software Exports by Developing Countries

Among the papers that considered information processing in developing countries, two discussed developing countries being in the business of exporting software. Augusto Lagman (Philippines), in his position paper for the panel *Can Developing Countries Compete in Information Technologies,* presented this example:

> One advantage of exporting software is that in the software industry, some of the inherent problems of developing countries are not present. For instance, applications software development is not directly dependent on R&D and, therefore, does not require the attendant capital infusion. Except for hardware equipment, which must be imported but can be shared with other users, not much additional funding is needed. The bulk of the requirement is manpower—skilled and well-trained manpower.
>
> One of the largest software companies in the Philippines has just completed a million dollar job for a U.S.A. aircraft company. The initial phases of the project requirements development and preliminary design were done in the U.S.A. The succeeding detailed design, software construction and systems testing were accomplished in the Philippines.
>
> This is the first venture for a U.S.A. company to try offshore programming of this magnitude in the Philippines. The success of the system only proves beyond reasonable doubt the viability and the mutual, significant financial advantages that companies in developed and developing countries can reap in such an undertaking. .

Mr. Faqir Kohli (IND), in his invited paper *Information Policy Issues in Developing Countries,* raised the following issues:

> Software export is very much dependent on the size of the internal market that exists for developing software. It, therefore, means that countries that are serious about getting into the software business must give priority to building up experience in the development of software to meet internal software needs.
>
> What should be done to build up experience and quality consciousness? How much encouragement and preference should Government and other organizations give to software organizations within the country? This may mean that the organizations should be prepared to tolerate some delay in getting the systems developed locally as against the fully developed system from abroad.
>
> Many developing countries have been exporting software in terms of providing experienced manpower to clients abroad. This is termed 'body shopping' and does little to build up project experience that has a multiplier effect. However, it does build up more experienced and skilled manpower. How could countries utilize the added experience that their people bring back?

### Complexity Theory

In the panel session *Pragmatic Aspects of Complexity Theory,* four experts discussed the accomplishments and future challenges in this field, which draws from mathematics and computer science.

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* IFIP

*CONGRESS '86 continued from page 5*

Prof. Juris Hartmanis (USA) defined computational complexity theory, as follows:

> Computing, just like the physical world, is governed by strict quantitative laws which, for example, determine the intrinsic difficulty of computational problems and thus, determine how much "computational work" is required to solve them. Computational complexity theory is the study of these quantitative aspects of computing. Today, some of the hardest open problems and most exciting new ideas in computer science are found in complexity theory. Furthermore, its influence and importance are already felt beyond the traditional scope of computer science, and, in my opinion, it will have a deep and lasting effect on mathematics and other sciences.

Dr. Josef Gruska (CS) described the accomplishments of the field, as follows:

> A lot of efficient data structures, algorithms, networks and layouts have been recently designed. Of special importance are new algorithms for data base operations, computational geometry, parallel and distributed computing, and code-breaking algorithms. VLSI technology has given rise to sophisticated layout, routing, and computation algorithms. In many cases, feasible algorithms have been designed for seemingly infeasible problems. In other cases, more efficient algorithms or networks have been designed. Progress has been made even in such classical areas as sorting.

Prof. Jan van Leeuwen (NL) pointed out that progress can be slow:

> Progress in computational complexity theory can be slow and pass through many intermediate designs of algorithms that are not of direct practical use. It may take years before an algorithmic solution to a problem is perfected to the point where it can be released to the "public" domain. It has taken almost a century to devise factorisation algorithms that are practical for integers of up to 80 digits. It has taken about 37 years to get from Dantzig's simplex algorithm for linear programming to Karmarkar's algorithm, which is likely to be faster on large size problems. The main challenge remains to get the solutions and insights across to the practicing software engineer, and for the latter to look at the fruits of the theory.

Prof. Leslie Valiant (USA) anticipated future breakthroughs:

> There are two substantial areas that appear to be particularly promising targets. The first is parallel computation. The question is how to harness the computational power potentially made available by larger scale parallelism. Among the immediate questions are the two quantitative ones of keeping the overhead of communication in parallel machines tolerably small, and of designing algorithms that have large inherent parallelism.
>
> The second and more speculative area is artificial intelligence. Among fundamental questions here are those of mechanizing induction and reasoning. The problems of finding formulations of these processes that do not violate computational feasibility are again quantitative ones that lie in the domain of complexity theory.

Dr. Gruska ended his position paper with a plea for more extensive computer science education in the area of complexity theory:

> Complexity theory considerations and results could have a much larger impact on the development and use of information processing systems if all major levels of computer science education were influenced and governed by complexity and efficiency considerations and abstractions. In other words, computer science education should concentrate more on the science of computation than on the art of programming.

### PBXs and LANs

Another panel session of general interest was *PBXs and LANs*. This forum discussed private automatic branch exchanges (PABXs or PBXs) and local area networks (LANs) as competing or, perhaps, complementary communication media. Mr. David Twyver (USA) summarized the differences and similarities in his position paper:

> PBXs and LANs address the same user need: interconnecting the desks of office workers and connecting them to services. Both also act as gateways to the outside world. PABXs have traditionally performed these functions for voice communication, while LANs have recently become available to provide these capabilities for data communication.
>
> Current PABX and LAN designs share the same technology: multiple microprocessor arrangements, digital transmission and storage, and extensive use of software for control and added value. PABX architectures generally emphasize centralized topologies, hierarchical control, twisted pair cabling, circuit-switching, and extensive administration and maintenance features. They provide relatively low speed (64 kilobits/sec.) and constant bandwidth for each connection but have a high total system bandwidth (>100 megabits/sec.) and support hundreds or thousands of users. Their installed cost is less than $1000 per desk, and their mean-time-between-failure (MTBF) is measured in years. LAN architectures emphasize linear topologies, distributed control, coax or other special cabling, packet switching, and minimal administration. They provide high speed (>1 Mb/s) and instantaneous bandwidth for each connection, but have modest total system bandwidth (-100 Mb/s) and support only tens of users. Their installed cost is over $1000 per desk, and their MTBF is measured in weeks or months.
>
> Obviously, an integrated PABX/LAN with the best attributes of both would be an appealing product. In the past we have debated PABX versus LAN; the current fashion is to speak of PABX and LAN coexistence; I believe that PABX/LAN integration is essential and imminent.

Dr. Louis Pouzin (F) discussed the history of these approaches:

> The LAN technology appeared around 1972. By 1974, prototypes of bus and ring networks were operational. A large number of variants have since been proposed, and occasionally implemented. However, very few models have managed to reach a modest level of market acceptance. Also, wideband networks are not doing so well.
>
> There is a new area in which the PBX may exhibit a definite advantage over LANs—that is the integrated services digital network (ISDN). By necessity, PBXs will come equipped with ISDN protocols. They may be for a number of years the only kind of equipment offering such functions. Provided that PBX's manufacturers acquire the appropriate expertise, protocol conversion could be programmed within PBXs, in order to allow brand new OSI [Open Systems Interconnection—Ed.] systems to use ISDN services. This may not mean LAN disappearance, but tighter coupling between LANs and PBXs.

Prof. Dr. Otto Spaniol (D) forecast the future role of PBXs and LANs as follows:

> Both alternatives for local communication will find their place and will coexist in the future; both of them will occupy different market segments: smaller or medium size institutions will be dominated by LANs which are tailored for the respective application; whereas, larger institutions will use

PABX systems (in addition to some LANs) for improving their communication infrastructures. Even the latter institutions, however, will have to satisfy the need for interconnection of network islands which already exist or which will evolve within their subsections. This requires *high quality and high speed backbone networks* for combining LAN and/or PABX subsystems.

## Coping with Deadlines

A very amusing paper, *Deadline Pressure: How to Cope with Short Deadlines, Low Budgets and Insufficient Staffing Levels,* was delivered by Mr. Tom Gilb (N). He offered maxims and suggestions for living through projects that make unreasonable demands:

It is natural, when faced with deadline pressure, to consider various ways of working harder. More overtime, reducing employee vacations, working weekends. Such a response is designed to give the *impression* of trying to meet the deadlines. But, let's face it, working harder defeats the *real* purpose of life. And there is no certainty that hard work will help the deadline at all.

So, you have to work smarter. This involves doing things such as redesigning for evolutionary delivery, using inspection of requirements and high-level design to find problems while they are small ones, formally identifying the real goals, measurably, and sub-contracting the work to someone else.

Have you ever considered refusing to accept the deadline which someone is trying to impose upon you? You can do so under the guise of loyalty to your boss. Here is an example of a diplomatic formulation:

"I must unfortunately decline, at the present moment, to accept full responsibility for meeting the suggested deadline. I sincerely believe that this would result in you (your boss!) getting blamed for non-delivery at a later date. The project is as yet not clearly defined (it never is), and it is by no means clear that we have the resources (you never will) to complete it on the suggested schedule with the quality expected by the customer. We must not be caught making promises we cannot keep, no matter how great the pressure."

If this diplomatic attempt to avoid responsibility doesn't work, don't worry. The project is sure to be late, or beset with some kind of a disaster. You can then prove that you were wise enough to disclaim responsibility in advance. If, by some miracle, everything succeeds, you can safely assume that your disclaimer will be forgotten in the euphoria of success. And *if* it is remembered, you can safely say that it was luck or that certain factors became *clearer* after it was written.

Speakers at opening of IFIP Congress '86: M. Jackson, keynote speaker; A. Owolabi, Unesco representative; K. Ando, then president of IFIP; J. Mitchell, 1rish Minister for Communications; M. Sherwood-Smith, chairman of the Irish Computer Society; M. O'Grady, president of (BETA; D. Bjørner , PC chairman; and D. Dolan, OC chairman

Mr. Gilb summarized with these rules:

- Rethink the deadline given to you—it may not be real.
- Rethink the solution handed to you—it may be in the way of on-time delivery.
- Rethink the problem from the point of view of other people—it will help you simplify your problem and convince them to agree with you.
- Don't trust the experts blindly—they will cheerfully lead you to disaster. Be skeptical and insist on proof and guarantees.
- Remember, nobody *needs* all of what they ask for by the deadline—they would simply like you to provide a miracle, if possible.
- Don't damage your credibility by bowing to pressure to make impossible promises. Increase your credibility by fighting for solutions which solve the real needs of your bosses and clients.
- The ends dictate the means if the deadline is critical and seems impossible. Otherwise, don't be afraid to change the solution.
- If deadlines are critical, make maximum use of existing systems and "known technology"—avoid research-into-unknowns during your project.
- Any large project can be broken down into a series of earlier and smaller deliverables. Don't give up—even if you have to change the technical solution to make it happen. Keep your eye on results—not technologies.
- If you succeed using these principles, take the credit—give your boss and these ideas some credit in a footnote. If you fail, you obviously didn't apply these principles correctly. (Don't mention my name. Mention your boss's, if you must blame somebody. Management is always at fault.)

The preceding examples are just a few of the highlights of **IFIP** Congress '86. They can be found in *Information Processing '86,* the Congress proceedings, edited by Mr. Hans-Jurgen Kugler (IRL) and published by North-Holland. The Program Committee was headed by Prof. Dines Bjørner (DK).

### National Abbreviations Used in Newsletter

| | | | | | |
|---|---|---|---|---|---|
| A | Austria | F | France | NL | The Netherlands |
| AUS | Australia | GB | United Kingdom | P | Portugal |
| B | Belgium | H | Hungary | PRC | China |
| BG | Bulgaria | I | Italy | SEARCC | South East Asia Regional Computer Confederation |
| CDN | Canada | IND | India | SU | U.S.S.R. |
| CH | Switzerland | IRL | 1reland | USA | U.S.A. |
| CS | Czechoslovakia | J | Japan | ZA | South Africa |
| D | Fed. Rep. of Germany | N | Norway | | |
| DK | Denmark | | | | |

The South East Asia Regional Computer Confederation (SEARCC) will be host to the meeting of the **IFIP** Council 10-12 March in Singapore. SEARCC came into existence in 1976, and its present membership comprises 9 national computer societies: Hong Kong, India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, and Thailand. The total membership of all SEARCC national societies comes to over 15,500. SEARCC became a regional Full Member of IFIP in 1982. Mr. Robert Iau of Singapore, who has been the Secretary-General of SEARCC since its inception, is its representative to the IFIP General Assembly.

SEARCC has held biennial regional conferences since 1976. Beginning in 1989, SEAR CC will move into an annual conference cycle, and locations for these conference have been determined up to 1996. In August, SEARCC will host the Second Pan Pacific Conference in Singapore, in conjunction with Singapore's own national conference. Thereafter, SEARCC will include the Pan Pacific Conference as part of its regional conference when possible. Each national society in SEARCC also holds an annual conference or seminar.

SEARCC has established a number of SEARCC Technical Committees to facilitate the regional coordination of activities and provide liaison with IFIP Technical Committees and Working Groups. SEARCC has also appointed an Assistant Secretary-General to assist in the coordination of rapidly increasing regional activities and to promote regionalism among information processing professionals. A regional professional journal is being planned, to appear in 1987. Extensive bilateral contacts have also been established between individual members and the Australian Computer Society, for the purpose of holding examinations to maintain professional standards.

### Singapore Computer Society

The Singapore Computer Society (SCS) was founded in 1966. Today it has a membership of over 2000, which includes professionals from Singapore's computer industry, as well as from its academic and research institutions.

The SCS holds an annual national conference and has a rich program of technical activities throughout the year. It has established its own electronic bulletin board for the convenience of its members. It has been affiliated with the National Computer Board (NCB) since 1983. (The NCB was established by the government of Singapore to establish plans for developing information technology as a significant industry in Singapore by the 1990s.) Representatives of the SCS participated in the establishment of the NCB and actively serve on the Board and its committees, especially for the establishment of professional standards and public examinations.

Members of the Society also serve on various government bodies as part of SCS's active community service program. They have made contributions, not only to the NCB, but also to the National University of Singapore, the Economic Development Board, and many other public agencies. ■

# FIJI JOINS IFIP

The Fiji Computer Society (FCS) was voted admission to **IFIP** by the General Assembly, meeting in Dublin in August. (See the article on page 1 of the December 1986 ***IFIP** Newsletter.)* It is the first Full Member from the South Pacific, and its presence will bring **IFIP** membership to 43 Full Members and two Regional Members. **IFIP** looks forward to FCS sending its representative to the next General Assembly in Budapest in September 1987 and assuming membership at that time.

This newest member society had its beginnings early in 1983, when a small group invited government and business computer installations to indicate their interest in forming a society for data processing professionals. More than 50 professionals from some 30 different installations met to appoint a steering committee to draft a constitution for the FCS. The first annual general meeting was held later that year, and a council was elected and subcommittees formed. Shortly afterwards, FCS's first evening seminar was held on "Computers and Society," followed at regular intervals by others.

Early in 1984, the first computer exhibition in Fiji was staged by the Society. More than ten stands featuring a wide range of equipment was viewed by 3000 people. At the same time, the first issue of the Society's journal *Computers in Fiji* was launched; this quarterly has a circulation of 1000.

Early in 1985, the inaugural convention of FCS and its second computer exhibition were held. Later in the year, a school essay competition was sponsored by FCS. By late 1985, membership had grown to 125 approved professional and non-professional members. (There are 140 data processing professionals in Fiji.)

Early in 1986, FIJICOM '86 was held, with a total of 22 exhibition stands for 14 computer companies. Ten overseas speakers and 7 local speakers presented papers on the theme "Computing Towards 1990s." The chief guest was the Prime Minister, and the keynote speaker was Dr. Colin Boswell, President of the New Zealand Computer Society. ■

# *EUROMICRO '86 HELD IN VENICE*

## Robot Ping-Pong Contest Featured

**EUROMICRO** '86, the twelfth annual symposium of the European Association for Microprocessing and Microprogramming (an Affiliate Member of **IFIP)** was held 16-18 September 1986 in Venice. Nearly 300 participants attended. The program included 110 presentations based on the theme *Microarchitectures, Developments and Applications* and one-day tutorials on *Teleinformatics* and *RISC Architecture.*

The program featured a Robot Ping-Pong Contest. The organizer of the competition, Dr. John Billingsley (GB), wrote the following amusing report about the contest.

> Venice is a city of canals and footpaths. Road traffic ceases at the huge car park at the end of the two-mile bridge from the mainland. It took three long journeys with a clanking handcart to transport the Brussels robot from van to venue, and sixty thousand lira to hire a boat to take it back. In contrast, Mr. John Knight's robot amply repaid his efforts to make it portable, as he carried it with ease half a mile over four humped-backed bridges from Piazzale Roma to Ca' Foscera.
>
> The eight-strong team from Tampere University, Finland had a much easier transportation problem. They had nothing to carry at all. Despite two days of frantic telephoning, the customs officers of Milan still refused to release their machine. The Finns had made the mistake of engaging a shipping firm for transport and marking an enormous value on the insurance form. Many other robots failed to attempt the journey.

### Robots in Conflict

The Belgian team from Free University of Brussels described their machine, OSCAR. Two CCD cameras analyse the field of view. Their images are processed to remove static objects, leaving the ball as the clear focus of interest. Since the cameras are free standing to either side of the robot, calibration is necessary to coordinate their fields of view. One accidental nudge to a camera tripod, and the lengthy process has to be repeated.

Their bat was carried on a cartesian frame mechanism, in X-Y plotter style. To reduce the necessary stringing [winding string around pulleys—Ed.] and to halve the inertial load, each side of the horizontal cross bar was lifted by its own servomechanism. Ten centimetres or so behind the frame, a second frame was mounted. A stalk on the back of the bat enabled the bat angle to be set by the relative displacement of the two frames. Unfortunately, the second frame was not working. Their spokesman Hugo van Hamme warned the audience not to expect too much, explaining that OSCAR stood for "Our System Crashes At Random."

John Knight (GB) started to describe his robot, "Charlie," a cartesian frame surmounted by a vision system head adorned with ears. The vision system is elementary but most effective. The image is swept vertically across four photocells. The outer ones provide coarse positioning, and the head is driven laterally until the image is balanced between the centre cells. The head has in fact a stereo facility.

In mid explanation, John Knight waved a ping-pong ball mounted on a cane across the centre of the table, and the audience gasped as Charlie burst spontaneously into life to follow it.

### Highly Strung Robot

The Belgians were the first to face service. With a final flurry, their robot was tuned up for action, and they were ready for play. As the server button was pressed, their robot leaped into motion. Unfortunately, the two sides of the crossbar leaped in opposite directions, as the servosystems disagreed violently. Following a sharp twang, the team asked for a few minutes to repair their machine.

To fill in, a few "friendly" serves were aimed towards Charlie. Vertical positioning was variable on the faster serves, but Charlie's horizontal control was perfect. To a slow serve, Charlie produced a perfect delivery, which brought thunderous applause.

At last OSCAR was ready to try again, repaired, restrung and recalibrated. Even before the ball could be launched, however, it leaped into another self-destructive paroxysm, which left Charlie the clear winner.

The 1987 final will be held 14-17 September at EUROMICRO '87 in Portsmouth, England. ■

*OFFICE SYSTEMS continued from p. 1*

• Many other well-known techniques find their application in the office environment, e.g., Petri nets, file searching methods, and time models [models that include temporal aspects—Ed.].

• Typical office system problems have "hard" (physical technology) aspects, "information system" aspects, "communication" aspects, and several more. Examples are documents, which need copying by scanners, which have logical and layout structures, and which require transmission. Apart from these things, they have to be constructed (possibly supported by some application system), to be stored in and retrieved from archives, etc.

The participants in the Pisa WC are greatly indebted to those that organized it. Especially Costantino Thanos and his helpers on the Organizing Committee, who saw to an incredible number of details, with attractive hospitality at the top of the list.

### Plans for the Future

The day preceding the conference, WG8.4 held a business meeting, at which some position papers were presented and a course of action for the next two years discussed. It was decided that activities should straddle the Atlantic as much as possible. Thus, in 1987 there will be a Workshop on *Knowledge Representation, Management and Utilisation in the Office* in Toronto, 17-19 August. Information on the event will be provided by the host: Prof. Fred Lochovsky, University of Toronto, and by the program chairman:

Dr. Winfried Lamersdorf
IBM European Networking Center
Tiergartenstrasse 15, Postfach 103068
D-6900 Heidelberg, W. Germany

(to whom 1000-2000 word abstracts should be sent before 15 April 1987).

In 1988, a formal Working Conference is planned in Vienna. It will deal with communication matters pertaining to the office and manufacturing. It will be organised in cooperation with TC 5 (Computer Applications in Technology) and TC6 (Data Communication). ■

## IFIP PUBLICATIONS AVAILABLE

New IFIP workers should be aware of the availability of the following IFIP publications from the IFIP Secretariat:

Information Bulletin
Statutes and Bylaws
Standing Orders
*What Is* ***IFIP?***
Annual Report
articles about Technical Committees

# NEWS FROM IFORS

The International Federation of Operational Research Societies (IFORS), a sister member with **IFIP** in the Five International Associations Coordinating Committee (FIACC), will hold its eleventh triennial Conference in Buenos Aires, 10-14 August.

Plenary and mainstream sessions will cover the wide scope of applications and methodological developments in Operational Research (OR). The Conference theme, *Supporting Decisions around the World,* stresses the close involvement of operational researchers in the decision-supporting and decision-making actions of successful institutions. Among several issues, the Conference will focus on the reasons for successful and unsuccessful applications of OR, identifying and analyzing the relevant factors involved.

In addition, there will be tutorial sessions, workshops, invited papers, national society contributions, and an exhibit of books and software related to OR problem solving methodology.

For further information, one may contact—

General Secretariat (FORS XI
Moreno 584 - 9° Piso
1091 Buenos Aires, Argentina
tell. 54 34-3216/3283/3408
telex 22036 JECON AR

The following message from Prof. Jacques Lesourne (F), president of IFORS, has direct relevance to the work of **IFIP,** since it justifies the efforts made by **IFIP** to promote international cooperation in the field of information processing. The quotation is taken from a letter to the IFORS membership.

> In textbooks on economics, "gains from trade" is a common topic. Similarly, we must ask ourselves: What are the gains for OR from international cooperation? Are these gains sufficient to offset the costs resulting from distance and language and cultural barriers?
>
> Personally, I see the gains arising from four different sources:
>
> i. For advanced topics, like issues of applied mathematics, the specialists constitute a small community, even at the world level. Hence, the necessity for them to develop their relations across borders to stimulate discussion, exchange views, and accelerate progress.
>
> ii. In fields of application, the interest of an exchange of information stems from the similarity or the diversity of the problems found. To know the applications of OR in banking in the US will be useful in France, whether the problems are identical or not. In the first case, the transportation will be straightforward. In the second case, it may not be possible, but it will generate new ideas.
>
> iii. Of a more subtle nature is the third source of gain. It derives from the fact that the approach to OR differs slightly from one country to another because of cultural differences or diverse historical backgrounds. For instance, at the birth of OR, the British emphasized the empirical dimension and the Americans the modelling aspect. Lately, the French have been very sensitive to the general systems theory approach. Therefore, the international exchange of information provides the possibility of taking advantage of this geographical diversity.
>
> iv. Finally, international cooperation helps OR communities in smaller or economically less developed countries to have access to the large body of models and applications which can be found in larger or more advanced economies. It is of crucial importance for the future of OR in the Third World, though an adaptation to local conditions is always necessary. ■

## *IFAC PLANS 10TH WORLD CONGRESS*

The International Federation of Automatic Control (IFAC) will hold its 10th World Congress in Munich 27-31 July 1987. IFAC and **IFIP** are sister members in the Five International Associations Coordinating Committee (FIACC). They cooperate in jointly sponsoring several technical events each year.

Preparations for the Munich Congress, a triennial meeting, are well under way. Over 500 papers were chosen from 1100 submitted. The program contents reflect the aim of the Congress: to emphasize the relevance of industrial applications in all fields of automation. Thirty-seven survey papers, some covering new fields such as robotics and artificial intelligence, will be presented. In addition, 5 discussion sessions and 5 plenary sessions promise to present the current state of the art and the future development of automatic control.

For further information about the Congress, contact-

Eng. H. Wiefels
VDI/VDE Gesellschaft
Mess- and Regelungstechnik GMR
Postfach 1139
D-4000 Dusseldorf I, Fed. Rep. of Germany ■

# CHANGES IN IFIP

The next issue of the ***IFIP** Information Bulletin* is being printed now and will be distributed shortly. Of the many changes it contains, those concerning **IFIP** officials are listed below.

### NEW APPOINTMENTS

WG OFFICERS

WG6.6 Acting Co-Chairpersons
Ms. K. Kappell
Digital Comm. Assoc., Inc.
1000 Alderman Drive
Alpharetta, GA 30210, U.S.A.
tel. 1 (404) 442-4000
telex 261375 dca ur

Ms. J. Westcott
BBN Laboratories, Inc.
10 Moulton St.
Cambridge, MA 02238, U.S.A.
tel. 1 (617) 497-3148
telex 921470 bbn cam

WG8.4 Vice-Chairman
Prof. F.H. Lochovsky
Dept. of Computer Sci., U. of Toronto
Stanford Fleming Building
10 Kings College Circle
Toronto, Ontario, Canada M5S 1A4
tel. I (416) 9787441

### ADDRESS (and other) CHANGES

Prof. A.A. Verrijn-Stuart (trustee, GA member for the Netherlands, and WG8.4 chairman)
tel. 31 (71) 277067

Prof. P. Thoft-Christensen (WG7.5 ch.)
University of Aalborg
Sohngaardsholmsvej 57
DK-9000 Aalborg, Denmark
tel. 45 (8) 142333
telex 69790 aub dk

Dr. G. Mueller (WG8.4 secretary)
tel. 49 (6221) 404240
telex 461661 ibmhd d

Dr. C.E. Landwehr (WG11.3 chairman)
Code 5593
Naval Research Lab.
Washington, DC 20375-5000, U.S.A.
tel. 1 (202) 767-3381

The **IFIP** Secretariat has moved to the address given in the masthead on page 2.

The ***IFIP** Newsletter* Editor's post office box number has been changed to that given in the masthead on page 2. ■

## FUTURE IFIP MEETINGS

### GENERAL ASSEMBLY AND COUNCIL (and related meetings)

| | | |
|---|---|---|
| Council | 10-12 Mar 87 | Singapore |
| GA | 1-5 Sep 87 | Budapest |
| Council | 1st week Mar 88 | New Zealand (tentative) |
| GA | 1st week Sep 88 | New Delhi |
| GA | last week Aug 89 | San Francisco |

### TECHNICAL COMMITTEE AND WORKING GROUP MEETINGS*

| | | |
|---|---|---|
| TC2 | 6-7 Apr 87 | St. Pierre de Chartreuse (near Grenoble) |
| WG2.1 | 18-22 May 87 | Montreal |
| WG2.2 | 1-5 Jun 87 | Sophia-Antipolis, France |
| WG2.7 | 27 Mar-3 Apr 87 | St. Pierre de Chartreuse (near Grenoble) |
| TC3 | 12-13 Mar 87 | Bombay |
| | 21-23 Jul 88 | Lausanne |
| WG3.5 | Jul 87 | Gent, Belgium |
| TC5 | 3 Apr 87 | Beijing |
| TC6 | 22-23 May 87 | Lisbon |
| TC7 | Sep 87 | Tokyo |
| TC9 | 28-29 Jun 87 | Amsterdam |
| WG11.4 | 3-4 Mar 87 | ? |

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

### IMIA

| | | |
|---|---|---|
| General Meeting | 17-18 Oct 87 | Buenos Aires |

## CALLS FOR PAPERS

TC9 Working Conf. on Social Implications of Home Interactive Telematics (HIT)
24-27 Jun 87, Amsterdam
papers due: 31 Mar 87
contact: Felix van Rijn
Ruysdaelkade t.o. 225
1072 BA Amsterdam, The Netherlands
tel. +31 (20) 620681

WG8.4 Workshop on Knowledge Representation, Management and Utilization in the Office
17-19 Aug 87, Toronto
abstracts due: 15 Apr 87
contact: Winfried Lamersdorf
1BM European Networking Center
Tiergartenstrasse 15
Postfach 103068
D-6900 Heidelberg, Fed. Rep. of Germany

AFRICOM 87—Towards the **21st** Century Planning for Information Communication in Developing Countries
8-10 Sep 87, Harare, Zimbabwe
abstracts due: 28 Feb 87
contact: The Secretary
AFRICOM 87
P.O. Box 8385, Causeway
Harare, Zimbabwe

WG10.3 Conf. on Distributed Processing
5-7 Oct 87, Amsterdam
papers due: 13 Apr 87
contact: Prof. E.L. Dagless
Electrical and Electronic Eng.
The University
Bristol BS8 1TR, U.K.
tel. 44 (272) 303260
telex 444174 buphys g

WG7.3 Symposium on Computer Performance Modelling, Measurement and Evaluation—PERFORMANCE '87
7-9 Dec 87, Brussels
papers due: 13 Apr 87
contact: P.-J. Courtois, Program Comm. Chairman
Philips Research Laboratory
2, Av. E. Van Becelaere, Box 8
B-1170 Brussels, Belgium
tel. (32) (2) 673 41 90

TC9 Working Conf. on the Social Implications of Robotics and Industrial Automation
14-17 Dec 87, Eilat, Israel
abstracts due: 30 Apr 87
contact: Conf. on the Social Implications of Robotics
P.O. Box 29313
61292 Tel Aviv, Israel
tel. 03 654541
telex: 033554

TC6 and TC8 Symposium on Network Information Processing Systems
9-13 May 88, Sofia, Bulgaria
papers due: 1 Oct 87
contact: Prof. K. Boyanov
Bulgarian Academy of Sciences
Center of Informatics and Computer Technology
acad. G. Bontchev str., bI. 8
1113 Sofia, Bulgaria

WG5.3 7th Conference on Software for Discrete Manufacturing—PROLAMAT 88
14-17 Jun 88, Dresden, G.D.R.
papers due: 15 Sep 87
contact: Prof. Kochan
Technische Universität Dresden
Sektion Fertigungstechnik and Werkzeugmaschincn
PROLAMAT 88
Mommsenstrasse 13
Dresden, Dem. Rep. of Germany 8027
tel. 463 3339
telex 022 78

TC3 Symposium ECCE '88—European Conference on Computers in Education
24-29 Jul 88, Lausanne, Switzerland
papers due: 30 Oct 87
contact: EECE 1988
Prof. Bernard Levrat
Centre Universitaire d'Informatique
12 rue du Lac
1207 Geneva, Switzerland ■

## NEW IFIP PUBLICATIONS *

### CONFERENCE PROCEEDINGS

Design Theory for CAD
Procs. of the **IFIP** WG5.2 Working Conf.
Tokyo, Oct 85
H. Yoshikawa, E.A. Warman, Eds.

The Computer in the Home: Its Challenge to Education
Procs. of the **IFIP** TC3/WG3.2/WG3.5 Working Conf.
Interlaken, Switzerland, Apr 86
B. Levrat, F.B. Lovis, E.D. Tagg, Eds.
(paperback) special issue of *Education and Computing* vol. 2, no. 1-2, 1986

Computer Applications in Production and Engineering, CAPE'86
Procs. of the **IFIP** TC5 Second Conf.
Copenhagen, May 86
K. Bø, L. Estensen, P. Falster, E.A. Warman, Eds.

Off-Line Programming of Industrial Robots
Procs. of the **IFIP** WG5.3/IFAC Working Conf.
Stuttgart, Jun 86
A. Storr, J.F. Mc Waters, Eds.

Information Processing 86
Procs. of the **IFIP** Tenth World Congress
Dublin, Sep 86
H.-J. Kugler, Ed.

From HDL Descriptions to Guaranteed Correct Circuit Designs
Procs of the **IFIP** WG 10.2 Working Conf.
Grenoble, Sep 86
D. Borrione, Ed.

### JOURNALS

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

*Computers and Security,* The international Journal of **IFIP** TCI 1
four issues per year ■

** published by Elsevier/North-Holland in 1987, unless otherwise noted*

## *Professor Aad van Wijngaarden*

On 9 February, Prof. Aad van Wijngaarden of the Netherlands passed away. at the age of 70. He was a founding father of IFIP and held the offices of Vice-President, Trustee, and chairman of several committees. He was a major contributor to the field of computer languages.

A full obituary will appear in the June issue of the IFIP Newsletter.

## CALENDAR OF EVENTS

| Event | Date | Location | Organized by |
|---|---|---|---|
| Workshop on *National Issues on Computers in Education* | 16-18 Mar 87 | Bombay | TC3/IIT |
| Workshop on *Fast Prototyping* | 17-19 Mar 87 | Grenoble | WG10.5/IPG/AFCET |
| Work. Conf. on *Office Automation and Small System Security* | 19-20 Mar 87 | London | WGI1.2 |
| Workshop on *High Speed Circuits* | Mar 87 ? | Munich | TC10/WG10.5 |
| Seminar on *Introducing Computer-Aided Techniques in Manufac., Eng.. and Mgmt.* | 1-3 Apr 87 | Beijing | TC5 |
| Work. Conf. on *Fourth Gen. Programmg. Systs. in the Med. and Public Health Field* | 1-6 Apr 87 | Amsterdam | IMIA |
| Work. Conf. on *A Computer for Each Student and Its Impact on Teaching and Curriculum in the University* | 21-23 Apr 87 | Delft | TC3/WG3.2 |
| Intl. Symp. on *Information Systems* | 22-24 Apr 87 | Johannesburg | TC8/CSSA |
| Eighth Intl. Symp. on *Computer Hardware Description Languages and Their Applications-CHDL 87* | 27-29 Apr 87 | Amsterdam | WG10.2 |
| Work. Conf. on *Message Handling Systems: State of the Art and Future Directions* | 27-29 Apr 87 | Munich | WG6.5/GI |
| Seventh Symp. on *Protocol Specification, Verification, and Testing* | 5-8 May 87 | Zurich | WG6.1 |
| Work. Conf. on *Reliability and Optimization of Structural Systems* | 6-8 May 87 | Aalborg, Denmark | TC7 |
| Workshop on *Product Specification and Product Documentation* | 11-12 May 87 | Sopron, Hungary | WG5.8 |
| Work. Conf. on *Temporal Aspects of Information Systems-TA/S 87* | 13-15 May 87 | Sophia-Antip., France | WG8.1 |
| Work. Conf. on *Informatics and the Teaching of Mathematics* | 16-18 May 87 | Sofia, Bulgaria | WG3.1 |
| Intl. Symp. on *Computer Arithmetic-ARITH'87* | 18-21 May 87 | Como, Italy | TC2/WG2.5/IEEE |
| First Iberian Conf. on *Data Communications-IBERICOM 87* | 19-21 May 87 | Lisbon | API/FESI/TC6 |
| Intl. Conf. on *Children in the Information Age* | 19-23 May 87 | Sofia, Bulgaria | Unesco/IIASA/ L.J.F./TC3 |
| Work. Conf. on *Progress in Biological Function Analysis* | 19-23 May 87 | Berlin, G.D.R. | IMIA |
| Work. Conf. on *Security Management* | 20-23 May 87 | Canada | WG11.2/CIPS |
| Work. Conf. on *Artificial Intelligence Tools in Education 1987* | 26-28 May 87 | Frascati, Italy | WG3.3 |
| Work. Conf. on *Info. Systems Development for Human Progress in Organizations* | 29-31 May 87 | Atlanta, GA, U.S.A. | WG8.2 |
| *CAD Engines* | 8-9 Jun 87 | Tokyo | WG10.5 |
| Third Intl. Conf. on *Data Communication Systems and their Performance* | 22-25 Jun 87 | Rio de Janeiro | TC7/TC6/WG7.3 |
| Work. Conf. on *Recent Advances in Communication and Control Theory* | 23-26 Jun 87 | Washington, DC | TC7 |
| Work. Conf. on *Social Implications of Home Interactive Telematics (HIT)* | 24-27 Jun 87 | Amsterdam | TC9/NG1 |
| Work. Conf. on *Optimal Control of Systems Governed by Partial Differential Eqns.* | 6-7 Jul 87 | Santiago d.C., Spain | WG7.2/CAYCIT |
| Work. Conf. on *The Primary Curriculum and New Technology-Ways and Means* | 6-9 Jul 87 | Gent, Belgium | TC3/WG3.5 |
| Workshop on *Architecture for Knowledge Engineering* | Jul 87 ? | | WG 10.5 |
| Workshop on *Wafer Scale Integration* | Jul 87 | Uxbridge, U.K. | WGI0.5 |
| 1ntl. Conf. on *Very Large Scale Integration-VLSI 87* | 10-12 Aug 87 | Vancouver, Canada | WG 10.5 |
| Third Intl. Conf. on *Advances in Production Management Systems-APMS '87* | 11-14 Aug 87 | Winnipeg, Canada | WG5.7 |
| Workshop on *Knowledge Representation. Management and Utilization in the Office* | 17-19 Aug 87 | Toronto | WG8.4 |
| Thirteenth IFIP Conf. on *System Modelling and Optimization* | 31 Aug-4 Sep 87 | Tokyo | TC7/IFORS |
| 1ntl. Workshop on *Hardware Design Verification* | Aug 87 | Edinburgh | WG10.2 |
| Work. Conf. on *Opportunities and Risks of Artificial Intelligence Systems* | Aug 87 | Hamburg | TC9/GIS |
| Second Intl. Conf. on *Human-Computer Interaction-INTERACT 87* | 1-4 Sep 87 | Stuttgart | 1FIP/INTACT |
| Work. Conf. on *Diagnostic and Preventive Maint. Strategies in Manufac. Systs.* | 1-4 Sep 87 | Dubrovnik | WG5.3 |
| Intl. Conf. *AFRICOM'87-Towards the 21st Century Planning for Information Communication in Developing Countries* | 8-10 Sep 87 | Harare, Zimbabwe | TC6/CSZ |
| Work. Conf. on *Governmental and Municipal Information Systems* | 8-11 Sep 87 | Budapest | TC8/JvNSCS/HCSO/ Unesco |
| Work. Conf. on *Computer System Design Methodologies* | Sep 87 | ? | WG10.1 |
| Intl. Workshop on *Techniques and Algorithmic Complexity of Simulation* | Sep 87 | Torino, Italy | WG10.2 |
| Intl. Workshop on *Tool Integration and Design Environments* | Sep 87 | Paderborn, F.R.G | WG10.2 |
| Work. Conf. on *Distributed Processing* | 5-7 Oct 87 | Amsterdam | WG 10.3 |
| Work. Conf. on *Smart Card 2000* | 19-20 Oct 87 | Vienna | WG11.6 |
| Work. Conf. on *Software for Factory Automation* | 19-21 Oct 87 | Tokyo | WG5.3/IFORS |
| Work. Conf. on *Attacking Problems of Computer Use and Abuse: A Technologist's Guide Through Legal Pitfalls and Pathways* | 21-23 Oct 87 | Santa Monica, CA, USA | TC9 |
| Work. Conf. on *Vocational Training for Informatics* | Oct 87 ? | | WG3.4 |
| Workshop on *Process and Design for 3D Chips* | Nov 87 | | WG10.5 |
| 1ntl. Symp. on *Computer Performance Modelling. Measurement and Evaluation-PERFORMANCE '87* | 7-9 Dec 87 | Brussels | WG7.3/ITC/FNRS |
| Work. Conf. on *Social Implications of Robotics and Industrial Automation* | 14-17 Dec 87 | Eilat, Israel | TC9/IPA |
| Work. Conf. on *Computers as Tools for the Teacher-New Dimensions for the Teaching Profession* | 87 | | WG3.3 |
| Workshop on *Human Factors in CAD* | 87 ? | The Netherlands | TC5/WG5.2 |
| Work. Conf. on *Large Scale Computation in Science and Engineering* | 87 ? | Dublin | TC7 |
| Work. Conf. on *impact of Information Systems in Developing Societies* | Jan 88 | Ahmedabad, New Delhi | TC9/TC8 |
| Textbook Conf. | Jan 88 | Namur, Belgium | TC9/WG9.2 |
| Workshop on *Concepts and Characteristics of Declarative-Based Environments* | Feb 88 | | WG10.1 |
| Intl. Symp. on *Info. Systems as a Resource to Support Managerial Decision Making* | 29 Feb-2 Mar 88 | Sydney, Australia | TC8/WG8.3/ACS |
| Work. Conf. on *Computational Issues in Combinational Optimization* | Mar 88 | Capri | TC7 |
| Work. Conf. on *Artificial Intelligence, Data Bases and Information Systems* | 4-8 Apr 88 | Guangzhou, China | WG2.6/WG8.1 |
| Symp. on *Software for Computer Control-SOCOCO 88* | 26-28 Apr 88 | Johannesburg | IFIP/IFAC |
| Work. Conf. on *Parallel Computing: Algorithms, Languages and Architectures* | Apr 88 | Pisa | TC10/WG10.3 |
| IFIP 89 - I I th World Computer Congress | 28 Aug-1 Sep 89 | San Francisco | IFIP |

Please see page 11 for schedule of IFIP administrative meetings.