CONFERENCE HIGHLIGHTS

IFAC Symposia and Workshops, often cosponsored by other International Federations such as IFIP, IMEKO, IIAA, belong to the most important features of IFAC activities. Attended by anything between 50 and 500 participants each, they constitute opportunities for scientists and users all over the world to meet, to exchange views and experiences, and to discuss problems of theory and application in their particular field of interest. Selected papers are usually published in the IFAC Journal AUTOMATICA in full length while the Newsletter will provide overview reports and highlights, if supplied by conference organisers, programme committee chairmen or any other participant. For this issue we are indebted to Prof. Van Cauwenbergh of Antwerp and to Prof. Rembold of Karlsruhe who furnished the following reports.

PRP Conference Shows Trend Towards Computer Control

The 4th IFAC Conference on Instrumentation and Automation in the Paper, Rubber, Plastics and Polymers Industries (PRP) took place in the newly built and very convenient International Congress Centre in Ghent, Belgium (June 3-5, 1980). It was sponsored by the Applications Committee of IFAC.

20 countries were represented among the 240 participants. 53 papers and 10 particularly interesting survey papers were presented. Furthermore nine round table discussion sessions offered the possibility to exchange views on controversial issues. Especially the use and implementation of process computers and microcomputers aroused much interest and was heavily debated on.

The ten survey papers presented were mostly extremely well-documented and of very high quality. The topics treated can all be considered as highlights of the conference:
- "On-line measurements of processes and products in the pulp and paper industry" by H. Waiblau, International Paper Company, Tuxedo Park, N.Y., USA, ctd.p.2

5 IFAC Presidents met in Cleveland

During the recent meeting of the IFAC Executive Council in Cleveland it so happened that five IFAC Presidents - past, present and future - attended at the same time (left to right: Y. Sawaraghi, 1976/81; J. Lozier, 1972/75; H. Chestnut, 1957/58; J. Coales, 1963/66; T. Vamos, President elect for 1981/84).
From the papers presented, it appeared clearly that the process computer is increasingly used, mainly for stabilizing and supervisory control but also for production control and energy management. A strong trend towards (distributed) basic digital control was clearly discernible. The availability of cheaper microprocessors was not only felt in the control field but also in the measurement area. Many new microprocessor-controlled measurement techniques were presented.

An additional successful feature was a series of lectures presenting in elaborated detail a case study on the supervisory control of a pulp mill (Skutskär, Sweden) by L. Eriksson and collaborators. Another case study by C. Fouard and coworkers on a paper machine multicylinder drying section aroused also much interest.

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Information Control Problems in Manufacturing Technology

Research projects on different subjects of automation efforts in manufacturing were presented at the Second IFAC/RP Symposium held at Stuttgart (FRG) from October 22-24, 1980. The results of these projects are important building blocks for programmable manufacturing systems. The areas covered were as follows:

Recent developments in research on flexible manufacturing systems

One paper presented an overview on the US Air Force program on integrated computer-aided manufacturing. This program comprises all aspects of aircraft manufacturing. In the paper, three projects on industrial robots were discussed. They include the application of current robotic systems, the use of off-line programming (including vision and adaptive feedback) and an analysis on how robots can be used in aircraft sheet metal assembly.

Recent trends in manufacturing technology in Japan were highlighted by a paper from the Institute of Industrial Science of the University of Tokyo. The presentation included the present status of manufacturing technology in the automotive industry and precision industries.

In a Japanese paper, a flexible manufacturing system using a laser machining was discussed. The project is part of a 7-year program where fundamental laser technologies for blank fabrication and machining will be developed and a flexible assembly system will be built. In the 12 billion yen program 3 government institutes and 20 companies participate.

Information processing in small and large systems

There was a diversity of different projects under this category.

The Institute for Control of Machine Tools and Manufacturing Systems of the University of Stuttgart presented a multiprocessor control system for machine tools using one common bus. Individual control functions can be assigned to different processors which are connected to the bus by common hardware and software interface modules.

A group of Japanese authors discussed automatic monitoring and diagnosis systems for machine tools. These include a failure causality model method and a sequential machine model method.

Materials handling within manufacturing systems

The Institute for Industrial Production and Factory Operation of the University of Stuttgart presented a paper on a pallet coding and positioning system for a palletized conveyer system using linear motion.

A summary of different recent developments in material handling systems was given by the Fraunhofer Institute for Production Technology and Automation, Stuttgart.

Control requirements for industrial robot application

A very comprehensive paper on assembly research was presented by the Draper Laboratory. The principle of force-friction relationships for insertion tasks were investigated. In order to facilitate insertion a remote center compliance tool was designed and tested. The paper also discusses the automation assembly of alternators for automobiles with the help of a robot and material handling system. Finally, the results of a simulation program for a robotic assembly system were presented.

The results of a comprehensive study on the development of robots for handling and assembly in space were discussed by the Jet Propulsion Laboratory. The systems included automatic handling equipment, teleoperators and robots under supervisory control.

The Polytectnic Institute of Electrical and Electronics Engineering of Milan presented a paper on the philosophy of robot programming.

Quality assurance in automated manufacturing

An overview on future on-line hierarchical quality control systems for manufacturing was given by the University of Karlsruhe.

The Laboratory of Machine Tools in Aachen presented a new workpiece measuring system for machine tools and the Case Western Reserve University an in-process optical gauging system for numerical machine tools.

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FORTHCOMING EVENTS

3rd IFAC Conference on System Approach for Development (Rabat, Morocco, November 24-27, 1980)

Co-sponsored by:
The International Federation of Information Processing (IFIP) and the International Federation of Operational Research Societies (IFORS)

Topics:
Modeling and identification of industrial processes, process control, economics and management systems of automatic control, new resources of energy, food and agriculture development, management of water resources, transportation, software for control and transfer of technology.

Language:
English-French translation will be provided.

For more information please write to:
Prof. Mohamed Najim
IFAC Conference
Faculte des Sciences
B.P. 1014 Rabat - Morocco

1st IMEKO Summer School Measurement Training — The Application of Microcomputers in Measurement (Dubrovnik, Yugoslavia, 28 September – 3 October 1981)

Sponsored by:
IMEKO Technical Committee on Measurement Theory and IMEKO Technical Committee on Developing Countries.

Organized by:
JUREMA — the Yugoslav Association of Measurement, Control and Automation.

The purpose of the Summer School is to get engineers and scientists with different basic educations acquainted with measurement and instrumentation problems in research and industry.

The Summer School will last 6 days. Every morning a tutorial will be given, followed by experiments, demonstrations, short presentations and discussions in the afternoon. The working language will be English.

Deadline for application by lecturers with a summary of the proposed topic in three copies to be sent to the JUREMA Secretariat is 10 September 1980

The deadline for the final full texts is 31 January 1981

Further details may be obtained from:

JUREMA Secretariat
41001 Zagreb
POB. 396, Yugoslavia

International Conference “Functional-Differential Systems and Related Topics (III)"

This conference, which is being organized by the Mathematical Institute of the Polish Academy of Sciences, will be held in Kozubnik, Poland, from 16-23 May, 1981.

The main interest of this meeting will be recent advances in the following topics:
- Differential and integral equations with transformed argument.
- Time-lag systems: control and observation problems, stability and stabilization, optimization.
- Algebraic methods.
- Applications in engineering, economics, etc.

The languages will be English and Russian.

The abstracts (1 - 2 pages) should be sent to the Program Committee not later than January 15, 1981. An announcement about the acceptance will be given before March 1, 1981. Proceedings of the conference are expected to be published in the end of 1981. Contributed papers should be delivered no later than during the conference.

For further information please contact
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Sponsored by:
 IFIP – International Federation for Information Processing.

Organized by:
Swiss Federation of Automatic Control.

This Conference will put the accent on the possibilities of informatics adapted to teaching. The meeting will bring together people concerned with the development of computers in education, with emphasis on their application and their use in primary, secondary and university education, as well as in vocational training.

This 3rd World Conference, following those in Amsterdam (1970) and Marseille (1975) has the backing of Unesco and the Inter-governmental Bureau for Informatics (IBI, Rome) which are offering to support participants from developing countries who would like to present a paper, or to take part in round-table discussions. In addition to the Congress a youth world computer programming tournament has begun and the national winners will be able to take part in the Conference.

Further information related to the Conference programme can be obtained from

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AF CET, the French NMO of IFAC

We continue to introduce IFAC organisations with a report on the French National Member Organisation, AFCET.

The main originality of this NMO lies in the fact that it was established (in 1968) by merging three scientific societies working in very close, but also different areas: in automation control (ARFA), the first French NMO, in information processing and operational research (AFIRO) and in components (AFIC).

The merger was preceded by several discussions and it was necessary to overcome strong reserves.

The agreement finally reached is apparent to the public in the name of the new organisation: "ASSOCIATION FRANCAISE PUIG LA CYBERNETIQUE ECONOMIQUE ET TECHNIQUE" which could be translated as "cybernetics" expresses the common aspect of the previous activities, and, in the chairmanship rotating between the representatives of the former three organisations for a period of two years each.

The merger has also created financial problems, since many people were members of more than one association, to cover all fields of their activities. Now they have only to be member of AFCET to get the same result. At the same time AFCET has become the French member in the International Federation: IFAC IFIP, IFORS,IMEKO and IMACS. The annual fees are a heavy burden, amounting to about 8000 U.S.$ for 1980, as of course, none of the federations agrees to offer a discount!

These difficulties were quickly overcome and AFCET has been working for several years at cruising speed. The Association is structured into three great divisions: automatic control and components, theory and techniques of information processing, management and economic systems. It comprises also three smaller units called "Colleges": applied mathematics, office of the future and systems analysis. The representatives of these divisions and colleges participate every month in the meetings of the board of AFCET. On the other hand, the scientific and technical activities are accomplished in about 60 working groups which, in order to maintain a manageable size, comprise 10 to 30 members. The indicated number is relative to the year 1980. It is variable because the working groups are structures which can be created or dissolved easily.

AF CET has a number of different publications. First, it publishes an internal liaison bulletin of about 12 pages each month. 3200 copies of this bulletin are printed. Then, it participates in the editing and writing of 4 technical monthly reviews with a wide circulation among the general public: AUTOMATISME, MESURES ET CONTRÔLE INDUSTRIEL, INFORMATIQUE ET GESTION and INFORMATIQUE. Finally it owns, in proper, a scientific review of high level, the RAIRO Review which includes 5 series covering the fields of: systems analysis and control, operational research, numerical analysis, theoretical information processing and computer science. Each series forms the subject of a publication about every 3 months. Circulation is about 2250 copies, about 700 of them being bought by foreign institutions.

In the field of events, AFCET organizes 2 national congresses and about 15 national symposia per year. The congresses, which last generally 4 to 5 days, concern the activities of the 4 divisions of AFCET. They are attended by 300 to 700 participants. The symposia are, as for IFAC, devoted to a specific topic, which is thoroughly discussed during 2 to 4 days. The attendance is from 80 to 120, according to the subject. The proceedings of the most important events are published by AFCET.

AFCET organizes also, in France, international events for the Federations of which it is a member. For IFAC, we mention the 5th World Congress in Paris in 1972 (attendance 1300) and also several symposia and workshops in different fields: application of computers, transportation systems, ... For IMEKO, AFCET has organized the World Congress IMEKO 5 in Paris (1970). For IFIP, different symposia and world conferences have been organized, and AFCET is responsible for the organization of the next world congress in September 1983. The proceedings of the international events are published according to the own rules of each Federation.

In summary, we can say that AFCET, in spite of some difficulties mentioned above, has succeeded in its mission of coordination and played its part as welcoming structure for the systematic bringing together of scientists and technicians working in related fields. Indeed, it happens quite often that some of the members are moved by "centrifugal" trends. But it is possible differently in such an individualistic country where, as a proverb says (surely a foreign proverb), if you join together two inhabitants, you will have four different opinions! Anyhow, these trends are generally weak and AFCET, by its activities and by the satisfaction it gives to its members, seems at present, after 12 years of life, a balance that we can qualify as globally positive.