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No. 1
Jan.

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Offenlegung:

Das Medienwerk „IFAC Newsletter“ wird als Organ der „International Federation of Automatic Control (IFAC)“ verlegt und ist Eigentum dieser internationalen Föderation, deren Tätigkeit der Förderung von Wissenschaft und Technik automatischer Regelung und Steuerung dient. Die Föderation hat ihren Sitz in Genf und ist nach Schweizer Recht als gemeinnütziger Verein angemeldet. Sie verfolgt weder wirtschaftliche noch politische Ziele. Das Sekretariat der IFAC befindet sich seit 1978 aufgrund eines Übereinkommens mit der Österreichischen Bundesregierung und der Österreichischen Akademie der Wissenschaften in Laxenburg. Der „IFAC Newsletter“ erscheint sechsmal jährlich in englischer Sprache unter der Redaktion des Generalsekretärs der IFAC, Prof. Dipl.-Ing. Fred Margulies. Die Zeitschrift dient der Information über die Aktivitäten der IFAC. Sie wird kostenlos an Abonnenten in 48 Ländern versandt, die Kosten werden von der IFAC aus den Beiträgen der derzeit 41 Mitgliedsländer getragen. Präsident der IFAC ist für 1981/84 Akademienmitglied Prof. Dr. T. Vámos (Ungarn), Vizepräsidenten sind Prof. Dr. M. Thoma (BRD), Akademienmitglied Prof. Dr. B. Tamm (UdSSR) und W. E. Miller (USA). Die komplette Liste der Vorstandsmitglieder wurde im Newsletter Nr. 5 (Oktober 1981), ein Auszug aus den Statuten in Newsletter Nr. 6 (Dezember 1981) veröffentlicht. Alle Funktionen werden ehrenamtlich ausgeübt.

(To our readers: To comply with the Austrian "Media Act" every publication must contain a declaration once a year concerning ownership and purpose as above.)

Editor: Prof. Dipl.-Ing. Fred Margulies
Layout: Margaret A. Gottfried
published bimonthly

IFAC Technical Committees Establish New Working Groups

The IFAC Constitution provides for the formation of Technical Committees (TC) "to organise the technical activities of the Federation... They shall take active steps to promote the participation of industry and commerce in the activities of the Federation and to foster collaboration between those working on theoretical aspects of control and those engaged in its application."

At present 14 TCs are in existence and in full working order, planning and supervising some 30 symposia, workshops and conferences every year. Six of these TCs have

subdivided the field of their activities by forming Working Groups (WG).

The recent meeting of the Technical Board encouraged the formation of WGs, now reported to have come up to 22, with four of them newly established, while another four have been dissolved after completing the task assigned to them.

For the benefit of our members interested in these activities here is a list of the Working Groups and their Chairmen according to the latest information available at the Secretariat:

TC-Applications

- Electric Power Systems
- Electric Generating Plants
- Chemical Process Control
- Metallurgical, Mining, Mineral Processing

T. DyLiacco (USA)
C. Maffezzoni (I)
M. Kümmel (DK)
D. Bristol (USA)

TC-Economic and Management Systems

- Dynamic Modelling and Control of National and Regional Economies
- Management Planning and Control in Industrial Organizations

C. L. Sandblom (CDN)
P. Tilanus (NL)

TC-Education

- Continuing Education
- Education Programs in Robotics

P. M. Larsen (DK)
P. P. Groumos (USA)

TC-Mathematics of Control

- Differential Games and Multicriteria Control Problems
- Asymptotic Analysis and Singular Perturbations
- Control Applications of Nonlinear Programming
- Mathematical System Theory
- Stochastic Analysis and Control

M. Pachter (ZA)
P. V. Kokotovic (USA)
H. E. Rauch (USA)
M. L. J. Hantus (NL)
R. J. Elliott (UK)

TC-Systems Engineering

- Computer Aided System Analysis and Design
- Environmental Systems
- Industrial Systems
- Large Scale Energy Systems Analysis
- Large Scale Systems Engineering Methodology and Applications
- Man-Machine Systems
- Supplemental Ways for Improving International Stability (SWIIS)
- Water Resource Systems

G. G. Leininger (USA)
T. Takamatsu (J)
W. Seifert (FRG)
L. K. Kirchmayer (USA)

A. Titli (F)
G. Johanness (FRG)

H. Chestnut (USA)
Y. Y. Haimes (USA)

TC-Theory

- Adaptive Systems in Control and Signal Processing

I. D. Landau (F)

(For a complete list of TCs and for further details with respect to scope and activities of both TCs and WGs please refer to the IFAC Secretariat - Schlossplatz 12, A-2361 Laxenburg, Austria.)

How to become TC (WG) Member

The Constitution of IFAC does not provide for individual membership but each member of a National Member Organisation is eligible to join any Technical Committee, provided he/she is qualified to take part in the TC's activities and has obtained the agreement of his/her NMO. As a rule an NMO should not

recommend more than three of its members to one TC.

To participate in WG activities no explicit NMO approval is required. An informal letter of application should be sent to the chairman of the respective TC via the IFAC Secretariat.

IFAC-Reports

SAFECOMP '83

20th - 22nd September 1983, Cambridge, U.K.

J. A. Baylis (U.K.)

The Third International Workshop on Achieving Safe Real-Time Computing Systems was sponsored by IFAC (COMPUT, SECOM and APCOM) and organised by the Institution of Electrical Engineers, U.K. for the United Kingdom Automatic Control Council (the IFAC N.M.O.). Co-sponsors were the International Federation for Information Processing (IFIP), the European Workshop on Industrial Computer Systems (EWICS), the British Computer Society (BCS) and the National Centre of Systems Reliability, U.K.

The call for papers drew 55 submissions from which 38 were chosen for presentation at the Workshop. The Workshop was structured into seven paper sessions, and one panel session organised by IFIP W.G. 10.4 (Reliable Computing and Fault Tolerance - Chairman Prof. Avizienis).

Registration for attendance was considerably above that expected. The 110 participants came from 19 different countries including Australia, Japan and the USA (9), but about half the participants came from the U.K.

Papers were made available to participants as a bound volume published by Pergamon, which is now available as one of their titles in the IFAC proceedings series ("Safety of Computer Control Systems [1983]", editor Baylis).

Some themes and impressions from the Workshop were:

- the breadth of application, with papers based on work for aerospace, railways, shipping, offshore platforms, mining, military systems, telecommunications, and power station nuclear reactors and steam turbines;
- the growing body of experience and case studies, with data presented on software production error rates and how to interpret them, on reliability performance for systems of which many are in service, on the performance of error recovery techniques and on management procedures for design teams. Enthusiasm for peer group review procedures;
- a degree of consensus on quality assurance practice, and a growing body of guidance documents;
- progress with the use of computer aided design, perhaps more in the areas of project monitoring, logical checking and information systems than with formal specification languages;
- various opinions on merits of graphical as compared with textual specifications. Possibility of layering graphical representations;
- a wide variety of designs for incorporating redundancy in hardware and software to achieve reliability goals, including triplex systems with various voting systems, systems with self-check and error recovery, diverse programming etc. No consensus on best design for given goals;
- full realisation of the inevitable complexity and overheads in time, software

and hardware in reliable real time systems. A need to optimise modularity;

- a keen interest in those papers which gave details of system architecture, inter-processor communication design or test techniques;
- the industrial view that reliability must be achieved at satisfactory cost and with timely delivery of the product;
- a statement that the way into knowledge-based systems for control is first to develop an application oriented language;
- one paper on the problems of software sabotage;
- difficulties in the statistics and predictive modelling of reliability of software, which may still cause licensing problems for some inspectorates when approval is

Third IFAC/IFORS Symposium on Large Scale Systems: Theory and Applications

A. Straszak (Poland)

The symposium was held on 11-15 June 1983 in Warsaw, Poland. Almost 140 experts from 22 countries attended the symposium which was sponsored by four IFAC Technical Committees i.e.:

Systems Engineering,
Economic and Management Systems,
Theory and
Social Effects of Automation.
IFORS, the International Federation of Operation Research Societies co-sponsored the Symposium.

The local organizer was the Systems Research Institute, Polish Academy of Sciences. It was the third symposium on this subject with the first held in Udine, Italy (1976) and the second in Toulouse, France (1980).

The aim of the symposium was to present the recent development, and the state-of-the-art of the subject and provide a useful exchange of ideas and experience between theorists and practitioners.

The IPC, chaired by A. Titli (Toulouse, France) and composed of 39 members, selected 111 papers from 173 submitted abstracts. Finally a total of 93 technical papers were presented. The program also contained 8 plenary papers, 2 case study sessions on Population Control Studies and on Production and Manufacturing, a round table session on Impacts of Large Scale Systems and a session on Fuzzy Sets Applications co-organized with the EURO Working Group on Fuzzy Sets.

The plenary papers were:

"Feedback Control of Linear Distributed Parameter Systems: What Can Be Accomplished with a Finite-Dimensional Controller?" by M. J. Balas,
"The Roots and Art of Hierarchical Control" by W. Findeisen,
"Parametric Optimization Control Systems with Time Delay" by H. Górecki,
"Multiobjective Problems in the Lotka-Volterra Approach for the Description of Nonlinear Systems" by M. Peschel,

sought for applications for which extremely high reliability is demanded;

- a view that software people were attacking reliability problems with an intensity not shown by hardware people;
- a strongly pressed view that these problems extend back to the definition of basic terms and that this is an important issue. The majority seemed however to find the issue academic.

In addition to the main sessions there was a reception before the Workshop, a short film on a highly reliable space vehicle computing system, a conference dinner with a guest speaker, Mr. P. Hall, O.B.E., chairman of the council of the BCS, and a closing session in which the next SAFECOMP was discussed (probably in Italy in 1985). It was agreed that the only serious omission from SAFECOMP '83 was consideration of human factors, there was a plea for invited papers and greater selectivity in accepting papers, and a proposal that theory and practice be more closely juxtaposed in the Workshop programme and discussion, with, if possible, more material on practical achievement.

"Complex Dynamic Systems: Dimensionality, Structure and Uncertainty" by D. D. Šiljak,
"Decentralized Decision Making and Control: An Overview" by M. G. Singh, A. Titli, K. Malinowski,
"Theory of Value and Problems of Centralized Economic Control Using Individual Activities Estimation" by K. K. Valtukh.

The technical papers were divided into 13 groups:

- Hierarchical Systems (10 papers)
- Decentralized Control (7 papers)
- Aggregation and Decomposition (5 papers)
- Decision Making (12 papers)
- Stability (4 papers)
- Optimization (7 papers)
- Modelling, Simulation, Identification (7 papers)
- Structural Problems (6 papers)
- Production Planning (6 papers)
- Management and Socioeconomic Systems (8 papers)
- Energy and Power Systems (7 papers)
- Water Systems (7 papers)
- Other Applications (7 papers).

The papers presented provided an excellent coverage of current issues in theory and applications of large scale systems. Many theoretical papers were highly appreciated, in particular those dealing with hierarchical control, decentralized control, and decision making. The application sessions showed numerous applications of large scale systems methods in a broad spectrum of problems in technology and the economic sciences, like production planning, management, modelling of national economies, energy, power, water, transportation, telecommunication and other systems.

The proceedings of the symposium will be published by Pergamon Press. A follow-up event in this series is scheduled for August 1986 in Zurich (Switzerland).

(More IFAC reports on p. 5)

IFAC-Reports (ctd.)

3rd IFAC Symposium on Control in Power Electronics and Electrical Drives

C. Yechouron (Switzerland)

The third IFAC-Symposium on Control in Power Electronics and Electrical Drives was held in Lausanne, Switzerland, September 12-14, 1983, in the new buildings of the Swiss Federal Institute of Technology in Lausanne-Ecublens.

More than 250 experts from 32 countries attended the symposium which was sponsored by the IFAC Technical Committees on "Applications" and "Components and Instruments".

The International Programme Committee was chaired by H. Bühler (Lausanne, Switzerland) and composed of 14 members. More than 140 abstracts were received, 107 were selected and finally 97 papers were submitted and collected in the preprint volume.

Furthermore, a Tutorial Session

— A. DE CARLI (I):
Steady State Behaviour of Converter Fed Systems

and three Survey Papers

— F. HARASHIMA (J):
State of the Art on Power Electronics and Electrical Drives in Japan

— W. LEONHARD (FRG):
Control of AC-Machines with the help of Microelectronics

— G. MAGGETTO (B):
Road Transportation with Electric Vehicles

completed the technical programme.

The technical papers, divided into six topics, were presented by the authors and discussed in 20 technical sessions.

1. Theory of control systems
(Chairmen: W. Leonhard, J. Hugel, M. Mansour, J. Leimgruber)

These 20 contributions dealt with modelisation, control laws, identification, observers, new control methods, adaptive control and sliding mode control.

2. Controlled electronic power converters
(Chairmen: M. Marty, J. D. Pahud)

In this topic, 15 papers were presented, dealing with current converters, inverters, cycloconverters and also with forced commutation and PWM (Pulse Width Modulation).

3. Converter-fed a.c. motor drives
(Chairmen: D. Stroele, M. Jufer, G. Pfaff, J. Leimgruber)

20 contributions dealt with variable speed induction motors including the control methods, cascade asynchronous motors and controlled synchronous motors.

4. Applications of microprocessors
(Chairmen: G. Maggetto, J. D. Pahud, A. De Carli, D. Naunin)

The use of microprocessors was presented in 18 papers especially in the fields of static converter control, PWM (Pulse Width Modulation) and fault detection, high level programming language,

modern control methods and controlled drives.

5. Application in industrial, traction and electric ground transportation
(Chairmen: R. Zwicky, F. C. Zach)

In this topic, there were 14 papers dealing with electric vehicles, traction and industrial applications.

6. Applications in special fields
(Chairmen: R. Joetten, H. Stemmler)

This last topic collected 10 papers from different fields such as solar energy, harmonic compensation, uninterruptible power supply, high voltage DC transmission (HDVC) and reactive power compensation.

The proceedings of this symposium will be published by Pergamon Press.

This Newsletter may be reproduced in whole or in part. We encourage reprinting in national and local automatic control periodicals. Acknowledgement to IFAC would be appreciated.

Workshop on Adaptive Systems in Control and Signal Processing

I. D. Landau (France)

This was the first IFAC Workshop dedicated to the field of Adaptive Systems. The organization of this workshop was motivated by the important developments that have taken place in this field in the last few years. The action was initiated by the working group on Adaptive Systems which is part of the IFAC Theory Technical Committee who sponsored the workshop. It was co-sponsored by the Centre National de la Recherche Scientifique (France) and the A.A.C.C. and was held at the Sheraton Palace Hotel in San Francisco from June 20 to 22, 1983 in conjunction with the American Control Conference. I.D. Landau (CNRS - GRENOBLE) chaired the I.P.C., D. AUSLANDER, University of California - BERKELEY) chaired the N.O.C. and M. TOMIZUKA (U. C. BERKELEY) was in charge of the preparation of preprints and proceedings. The staff of the University of California Extension under the leadership of L. REID, provided the organizational support for the workshop. 120 people attended.

The workshop was organized around five main topics:

- New adaptive control algorithms
- Multivariable adaptive control
- Robustness of adaptive control algorithms
- Adaptive signal processing
- Applications.

66 papers from 24 countries were presented in 2 plenary sessions, 7 technical sessions and 2 poster sessions. In addition 4 round

EDCOM Working Group "Education of Robotics"

The Technical Board of IFAC during its last meeting in Laxenburg approved "that the Technical Committee on Education immediately establish a new working group on Educational Programs on Robotics". EDCOM has charged Prof. Peter P. Groumos, Cleveland State University to head the working group and prepare a survey report on Education Programs in Robotics on the university level.

Rapid development within Robotics will increase the demand for qualified specialists and the interest for specific curricula considerably. The survey report to be prepared and presented at the 1984 IFAC World Congress in Budapest would be of great importance and of value to the control societies.

The survey will be organized according to geographical areas and Professor P. P. Groumos is determined to collect as much information from as many possible institutions around the world. In order to help in this effort, we ask your active input.

Please send all information of your educational and research activities on Robotics to:

Prof. P. P. Groumos
Department of Electrical Engineering
Cleveland State University
Cleveland, Ohio 44115 U.S.A.

Thank you for your assistance.

table sessions were organized.

- Round table on Adaptive Signal Processing (Chairman: B. Friedlander)
- Round table on Robustness of Adaptive Control Algorithms (Chairman: P. Kokotovic)
- Round table on Applications of Adaptive Control (Chairman: K. Aström)
- Round table on Multivariable Adaptive Control (Chairman: G. Goodwin).

The workshop reflected the fact that besides important developments on the theoretical side the number of applications of adaptive control techniques is growing and this attracts more people to the field. The connections between adaptive control and adaptive signal processing as well as the specific problems raised by the use of adaptation algorithms in adaptive signal processing have been emphasized. The round table discussions were very useful for getting an impression of the state of the art in the various areas.

At the closing session, which was chaired by I.D. Landau and which was dedicated to a general discussion and to conclusions, participants suggested that a second workshop should be organized in 1985.

The Proceedings of the workshop will be published by Pergamon Press. A limited number of preprint volumes are available from Professor M. Tomizuka, Dept. of Mechanical Eng. Univ. of California, Berkeley, Ca, 94720 U.S.A.

Austrian Government Scholarship Program

This Scholarship Program is open to applicants from all developing countries under the terms of the Austrian Development Assistance Act 1974.

Its aim is to enable nationals of developing countries to study at a university or receive specialist training (in Austria) by granting them scholarships.

Priority will be accorded within the range of financial possibilities to nationals of least developed countries (UN list) and of countries located in areas of concentration for bilateral technical assistance, especially Africa, as identified in the Three-Year Program for Development Assistance of the Federal Chancellery.

The following types of scientific studies may receive assistance under the Program:

- Studies pursued as a *regular student* intending to take a degree at an Austrian university. Assistance under the Program is, however, only available for the *final stage* of the applicant's studies before graduation (e.g. master's degree, diploma in engineering, doctorate).
- Specialist training or work by the applicant on his or her own scientific projects which can be pursued within the framework of university research or practical activities.

Special attention will be paid to the applicability of the acquired knowledge and skills after the scholar's return to his or her country of origin or to another developing country.

A description of the applicant's programme for his or her proposed studies and of their time schedule must be submitted with each application:

- The study program and the expected date of completion of the applicant's studies must be indicated in each application.
- New applications must be accompanied by 3 recommendations from university professors.
- In awarding scholarships, special attention will be paid to the description by the applicant of the aims of his or her studies and career plans with a view to the possibility to apply the acquired knowledge and skills in his or her country of origin.

Applicants must show that they have a sufficient command of the German language, unless scientific supervision in the applicant's language is possible and available for the study or research programmes chosen.

Impressum:

Medieninhaber und Herausgeber:
International Federation of Automatic Control (IFAC), Genf
Schloßplatz 12, A-2361 Laxenburg

Verlagsort:
A-2361 Laxenburg

Redaktion:
Dipl.-Ing. Fred Margulies
Schloßplatz 12, A-2361 Laxenburg

Hersteller:
Artur Schefczik & Sohn
Kollergasse 7, A-1030 Wien

Scholarships under this Programme will be awarded for a maximum period of 12 months (2 semesters) between October 1984 and September 1985.

The IFAC Secretariat (Schlossplatz 12, A-2361 Laxenburg, Austria) and the Austrian Foreign Student Service (Dr. Karl Lueger-Ring 1, A-1010 Vienna) are available for further information and advice on the Program.

Welcome to the IFIP Newsletter

One of our sister federations, the International Federation for Information Processing (IFIP) has recently published the first issue of their Newsletter. It was assigned a three-fold purpose:

1. to keep those affiliated with IFIP informed of important IFIP events,
2. to let national societies know what IFIP is doing, and
3. to publicise the work of IFIP as broadly as possible.

This is very near to the aims and scope of the IFAC Newsletter, just as IFIP and IFAC having many other things in common with respect to their structure, their aims and their activities. A great number of IFAC symposia and workshops are being cosponsored by IFIP and vice versa; and a great number of persons are serving both federations because the field of their interest is covered by both. To mention just one example: we read in IFIP Newsletter No. 1 that Fred Margulies was presented with the IFIP Silver Core Award in appreciation of his service as Chairman and Vice-Chairman of TC 9, the Technical Committee on "Relationship between Computers and Society".

We hope that the Newsletter will further enhance and strengthen cooperation between IFIP and IFAC. Our best wishes for good success go to the editor of the Newsletter Dr. Jack L. Rosenfeld (USA) and to the new IFIP President, Dr. K. Ando (Japan).

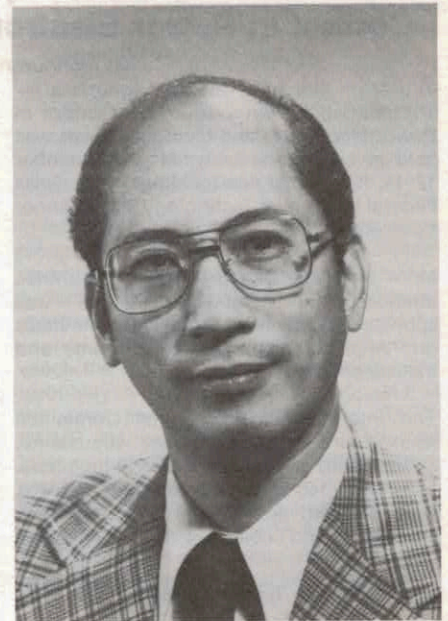
1st Latin American Conference on Automatic Control

Sponsored by the Brazilian Automatic Control Society, the First Latin-American Conference on Automatic Control will take place in Campina Grande, PB, Brazil, from September 3—6 1984. It will bring together specialists in Automatic Control and related areas to exchange ideas informally and present technical papers describing results of recent research and development in Latin America.

General information about the Conference and presentation of papers may be obtained from:

Comissão Organizadora
5º Congresso Brasileiro de Automática
1º Congresso Latino-Americano
de Automática
DEE/CCT/UFPA — Campus Universitário
58.100 — Campina Grande-PB, Brasil

WHO IS WHO IN IFAC



Professor Jose B. Cruz Jr.
Chairman IFAC-TC on Theory

Jose B. Cruz was born in the Philippines on September 17, 1932. He received the B.S.E.E. degree *summa cum laude* from the University of the Philippines in 1953. He was a research assistant at the Research Laboratory of Electronics of the Massachusetts Institute of Technology from 1954 to 1956 and in 1956 he received the S.M. degree in electrical engineering. He then joined the faculty of the University of Illinois in 1956 as an instructor, where he completed his Ph.D. degree in electrical engineering in 1959 and has been professor since 1965.

In 1964 he was a visiting associate professor at the University of California, Berkeley; in 1967 he was an associate member of the Center for Advanced Study at Illinois; in the fall of 1973 he was a visiting professor at M.I.T. and at Harvard University.

At present Jose B. Cruz is professor and associate head of the Department of Electrical Engineering and research professor in the Decision and Control Laboratory, Coordinated Science Laboratory, University of Illinois at Urbana-Champaign. He is president of Dynamic Systems, a research and development company. His areas of research are modeling and control of systems with multiple decision makers, decentralised control of large scale systems, sensitivity analysis, and stochastic control of systems with uncertain parameters.

Having been elected Fellow of IEEE in 1968, he is now IEEE Vice-President for Publication Activities. He previously served as IEEE Vice-President for Technical Activities, editor of the IEEE Transactions on Automatic Control and member or chairman of various committees and boards.

He is the chairman of the IFAC Technical Committee on Theory for the period 1981—1984 and a member of the International Program Committee for the 1984 IFAC World Congress in Budapest. He has served on several International Program Committees of various IFAC Symposia.

FORTHCOMING EVENTS

Title	1984	Place	Deadlines	Further Information
IFAC Workshop Systems Engineering Approaches in Control Engineering	March 26—28	Noord- wijkerhout, NL	—	H. Feikema Foundation for post-degree- education in control engineering Lorentzweg 1 NL 2628 CJ Delft, Netherlands
IMACS/IFAC Int'l Symposium Modelling and Simulation of Electrical Machines and Converters	May 17—18	Liège, B	—	Prof. H. Buysse Unité Courant Fort et Electrotechnique Université Catholique de Louvain Bâtiment Maxwell Place du Levant 3 B-1348 Louvain-la-Neuve, Belgium
6th INRIA/IFAC Int'l. Conference Analysis and Optimization of Systems	June 19—22	Nice, F	—	Prof. A. Bensoussan INRIA Domaine de Voluceau B.P. 105 F-78153 Le Chesnay, France
9th WORLD CONGRESS	JULY 2—6	BUDAPEST, H	—	Computer and Automation Institute Hungarian Academy of Sciences P. O. Box 63 H-1502 Budapest, Hungary
IFIP/IFAC Conference Human Factors in Computer Systems Human-Computer Interaction INTERACT '84	Sept. 3—7	London, UK	—	Prof. B. Shackel Dept. of Human Sciences University of Technology Laughborough Leicestershire, UK
IFAC Workshop Reconfigurable Spacecraft Systems Autonomous and Non-Autonomous	Sept. 11—13	Cambridge MA, USA	—	John W. Hursh Aircraft and Spacecraft Division The Charles Stark Draper Lab., Inc. 555 Technology Square Cambridge, MA 021389, USA
Title	1985	Place	Deadlines	Further Information
IFAC/IFORS/IFIP Workshop Artificial Intelligence Pattern Recognition in Economics and Management	March 12—14	Zurich, CH	not yet known	Prof. L. F. Pau Battelle Institute 7, Route de Drize CH-1227 Carouge Switzerland
6th IFAC Workshop Distributed Computer Control Systems	May 19—24	San Francisco, CA, USA	not yet known	Dr. R. W. Gellie CSIRO P.O. Box 71 Fitzroy, 3065 Australia
IFAC Workshop Control Application of Nonlinear Programming and Optimization	June 11—14	Capri, I	not yet known	Gianni Di Pillo Dipartimento di Informatica e Sistemistica Universita di Roma „La Sapienza“ Via Eudossiana 18 I-00184 Rome, Italy
IFAC/ISAGA Workshop Simulation and Games	June	Alma-Ata, SU	not yet known	Acad. V. A. Trapeznikov Institute of Control Sciences Profsojuznaja 65 Moscow 117342, USSR

(ctd. next page)

FORTHCOMING EVENTS (ctd.)

Title	1985	Place	Deadlines	Further Information
IFIP/IFAC Conference Programming Languages for Machine Tools (PROLAMAT)	June 11—13	Paris, F	May 1, 1984	AFCET 156, Bd. Pereire F-75017 Paris, France
IFAC Symposium Automatic Control in Space	June 24—28	Toulouse, F	not yet known	Prof. M. Pelegrin CERT Complexe Aérospatial de Lespinet 2, Avenue Édouard Belin BP 4025 F-31055 Toulouse Cedex France
IFIP/IFAC Symposium Automation for Safety in Shipping and Offshore Petroleum Operations — ASSOPO '85	June 25—27	Trondheim, N	not yet known	The Norwegian Society of Automatic Control Kronprinsens gt. 17 Oslo 2, Norway
7th IFAC/IFORS Symposium Identification and System Parameter Estimation	July 3—7	York, UK	April 1, 1984	Prof. H. A. Barker University College of Swansea Dept. of Electrical and Electronic Engineering Singleton Park Swansea SA2 8PP, UK
1st IFAC Symposium Automation for Mineral Resource Development	July 9—11	Brisbane, AUS	April 1, 1984	Prof. Alban J. Lynch Julius Kruttschnitt Mineral Research Centre University of Queensland Isles Road, Indooroopilly, QLD 4068 Australia
IFAC Symposium Planning and Operation of Electric Energy Systems	July	Rio de Janeiro, BR	not yet known	T. E. DyLiacco Consultant 651 Radford Drive Cleveland, OH 44143 USA
3rd IFAC/IFIP Symposium Computer Aided Design in Control and Engineering Systems	July 31— Aug. 2	Copenhagen, DK	not yet known	Prof. P. M. Larsen Electric Power Engineering Building 325 DK 2800 Lyngby, Denmark
Regional Conference Control Science and Technology for Development	August 20—22	Beijing, PRC	not yet known	Prof. YANG Jiachi Beijing Institute of Control Engineering P.O. Box 2417 China
2nd IFAC/IFIP/IFORS/IEA Conference Analysis, Design and Evaluation of Man-Machine Systems	Sept.	Stresa, I	not yet known	Prof. Dr. Ing. Gunnar Johannsen Laboratory for Man-Machine Systems (FB 15) University of Kassel (GhK) P.O. Box 10 13 80, D-3500 Kassel, FRG
7th IFAC/IFIP/IMACS Symposium Digital Computer Application to Process Control	Sept. 17—20	Vienna, A	not yet known	Dr. P. Kopacek Ö P W Z Postfach 131 1014 Vienna, Austria
IFAC/IFORS Symposium Systems Analysis Applied Water and Related Land Resources	Oct.	Lisbon, Portugal	not yet known	Prof. Luis Valadares Tavares APDIO Av. Rovisco Pais 1000 Lisbon, Portugal
1st IFAC Symposium Robot Control	Nov.	Barcelona, E	—	Prof. G. Ferrate Polytechnic University of Barcelona Via Augusta 242 Barcelona, Spain
1st IFAC Symposium Modelling and Control of Biotechnical Processes	Dec. 11—13	Noordwijker- hout, NL	not yet known	Prof. Dr. A. Johnson Lab. voor Fysische Technologie Prins Bernhardlaan G 2628 BW Delft The Netherlands