IFAC International Federation of Automatic Control
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1993
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Newsletter

Contents:

To all our readers
we wish
A Happy, Healthy, Peaceful and Successful 1994

Stephen Kahne, IFAC President 1993 – 1996
Address Given at the Sydney World Congress

We have only recently completed IFAC's 12th Triennial World Congress in Sydney. This delightful city served as a wonderful venue for authors of the 1000 or so papers and more than 1200 attendees. IFAC was greatly taken with the efficiency with which this Congress was mounted by the Australian NMO.

At the Closing Ceremony, I had the opportunity to make a few remarks, excerpts of which follow below:

I am honoured to assume the Chair of IFAC and commit myself to help guide its future in a manner consistent with the wishes of the General Assembly and Council.

It is somewhat humbling to stand before so many of my predecessors:
Harold Chestnut - founding President of IFAC and author of one of the earliest textbooks in the field;
John Coales - more than anyone else, responsible for the tremendous strides IFAC publications have taken in the past 25 years;
Yoshikazu Sawaragi - leader of one of the great national success stories: Japanese progress in control theory and applications;
Manfred Thoma - the great German integrator of control efforts in Germany and Europe in general;
Boris Tamm - an IFAC leader who simultaneously helped a revolution in his country during his term as President;
Brian Anderson - one of today's premier control theorists.

It is indeed a challenge to build on the base, Brian and his predecessors have established. But - let us speak more about the future than the past.

IFAC has come a long way since 1957. Then there were three technical committees. Under the leadership of our past Vice-President and Chairman of the Technical Board, Lennart Ljung we now have 40 technical bodies and their number is growing. In the coming triennium we must stabilize the structure of our technical organization and strengthen each of our technical committees. We can count on our new Vice-President and Technical Board Chairman, Vladimir Kucera, to lead this effort.

In 1967 we had no publication program. Now we have two journals, a proceedings series just being phased out, an Affiliated Journals series just being phased in, a symposium preprints distribution procedure just getting underway, a bimonthly Newsletter, and a contractual arrangement with a major international publisher which assures us excellent distribution of materials and guaranteed income. Pedro Albertos, our new Vice President and Chairman of the Executive Board; Derek Atherton, Chairman of the IFAC Publications Committee; George Axelby and Huibert Kwakernaak, editors-in-chief of Automatica; Michael Rodd, Editor-in-Chief of the new IFAC journal Control Engineering Practice; Gusztav Hencsey, Editor of the IFAC Newsletter; and Janos Gertler, Chairman of the IFAC Publications Managing Board - they all ensure the success of our publications ventures.

Under the guidance of our former Treasurer, Mohamed Mansour, we have reached the planned target of financial reserves equal to three year's expenses and we look to Walter Schaufelberger, our new Treasurer, to keep us on a steady path of fiscal responsibility.

We are creating an IFAC Foundation to help control engineers from countries with IFAC NMOs, who are in positions which compromise their ability to fully participate in IFAC technical activities. Jacqueline Cuénod and Michel Cuénod, our Treasurer before Mohamed Mansour, have shown us the way to start this venture. President-Elect Yong-Zai Lu and I will assume responsibility for bringing the Foundation into fruition and developing its endowment.

Our National Member Organization structure has served us well for over 35 years and we expect this to continue in the future. However, we must also explore opportunities for control engineers from regions in which there are no NMOs and ensure that individuals get the maximum benefits from IFAC. Our IFAC Affiliates Program has been a resounding success with some 3000 individual engineers and scientists now receiving direct benefits from their association with IFAC as Affiliates. We must study other membership options while holding to the principle of supreme control vested in the General Assembly of NMO representatives.

These are some of the management themes of our next three years. Your Council will prioritize and augment this list of initiatives and oversee their execution.

Most of our efforts and most of our people will be devoted to advancing the state of the art of automatic control and providing a forum for communicating these advances to the world's community of control engineers and scientists. We shall not neglect the very difficult problem of advancing theory to practice nor the stimulation of theory by practice. IFAC has achieved a unique international role as a place where theoreticians and practitioners may come on equal footing to exchange ideas and learn from each other. Our smaller meetings have come to be a leading source of in-depth knowledge of theoretical and practice-oriented topics. And our triennial congresses have become an opportunity to celebrate achievements in our field and their impact on mankind.

Let us go from Sydney rededicated to continue our contributions to society through our particular expertise, and let us not neglect the personal interactions with our colleagues which makes this field a special one for each of us, and IFAC a special family to which we contribute and from which we benefit.

The NMO structure of IFAC is really at the heart of the organization. Strong NMOs are necessary, but not sufficient for a strong IFAC. The Council will undertake studies to ensure that our international programs are supportive of national activities conducted by our NMOs. In successive issues of the Newsletter, your Officers will describe the programs for achieving the goals being set by the General Assembly and the Council. Inputs from individuals are always welcome and should be sent to the IFAC Secretariat by post, fax or e-mail for distribution to the Council.

New National Member Organizations of IFAC

KoREMA - Croatian Society for Communications, Computing, Electronics, Measurement and Control

KoREMA is the Croatian professional society which derives its name from the first letters of the various fields of specialization, such as: **Ko**munikacije (communications), **R**acunarstvo (computing), **E**lektronica (electronics), **M**jerenja (measurement) i **A**utomatika (control). This Croatian society is the legal successor of the JUREMA society which existed in former Yugoslavia for 37 years. Following the recent social, economic and political changes in former Yugoslavia, JUREMA was registered under the new name KoREMA in January 1992, and has since widened its activities by incorporating the society for Electronics, Telecommunications, Automation and Nuclear Technology (ETAN). By such a merger of the two very prominent professional societies, we can say that in Croatia there now exists only one society of such a broad scope - KoREMA. KoREMA is a member of the International Measurement Confederation (IMEKO), and very recently (as of July, 1993) it has become the Croatian National Member Organization of IFAC. KoREMA publishes a journal for automation and computer engineering - Automatika, further Vijesti KoREMA (News KoREMA) - the Newsletter of the Society, as well as proceedings for various symposia.

The purpose of the KoREMA is:

- to promote science and profession as well as to stimulate creativity in the areas of communications, computer science, electronics, measurement, automatic control and other relevant areas of specialization;
- to participate in the creation and realization of development for the Republic of Croatia, by making available its broad technical expertise;
- to closely follow the development of new technologies and help in the application of those;
- to provide a framework for collaboration between education and industry;
- to organize professional meetings (symposia, seminars, conferences, workshops, exhibitions and other scientific or professional gatherings related to present problems of the profession);
- to publish and assist with the publication of proceedings, books and other printed materials in order to spread the achievements of the profession;
- to improve collaboration with similar societies in Croatia, and national or international societies abroad;
- to exercise other activities which are within the scope of interest of KoREMA.

In order to fulfil the stated goals, KoREMA is dealing with:

- automatic control and cybernetics;
- communications;
- computer science and informatics;
- information and power electronics as well as corresponding technology;
- industrial and other measurements as well as digital signal processing;

This also involves:

- energy conversion and electrical drives systems;
- robotics and flexible manufacturing systems;
- rational energy use and protection of the environment;
- transport systems;
- biomedical engineering.

KoREMA has an Executive Board (19 members) with the President, Prof. Dr. Nedjeljko Peric (E-mail: nedjeljko.peric@etf.hr), who legally represents KoREMA, the Secretary, Dipl.Eng. Neda Stambuk-Borsic, and an Advisory Board (24 members). Both Boards have a term of office of 2 years.

The activities of KoREMA are carried out through technical committees:

- automatic control
- informatics
- measurement
- circuits, systems and signals
- energy management
- education
- electrical drives and power electronics
- robotics, flexible manufacturing systems and machine tools
- computing
- electronics
- communications
- biomedical engineering
- transport systems
- economics of technical development

KoREMA has organized several significant meetings in 1992 and 1993 and is planning several conferences for 1994, among them the 39th Annual Gathering of KoREMA, with most of the Technical Committees participating.

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The Czech Society of Cybernetics and Informatics

Following the split of Czechoslovakia and the creation of the Czech Republic on 1 January 1993, the Czech Society of Cybernetics and Informatics applied for IFAC membership and became the Czech NMO in July 1993.

The Society is a successor of the Czechoslovak Society of Cybernetics. It was founded in 1966 to provide a forum for scientists and engineers interested in the problems of man-machine interaction and automation of decision making. The Society has several regional subchapters and its main technical activities are centered around its working groups.

The aims of the Society are to further the progress of cybernetics, informatics and related fields by promoting collaborative research and development, supporting higher education, organizing technical events, and publishing a variety of technical materials including the journal Kybernetica.

The seat of the Society is in Prague and its headquarter is hosted by the Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic. The Society is governed by the President (currently Professor Jaroslaw Vlcek, Czech Technical University, Prague) and the Board (consisting of 20 members) elected by the General Assembly for a period of three years.

At present, the Society has about 500 members, who are active in the following working groups: algorithmic structures, applied logic, logic circuits, computers, computer graphics, modelling of dynamic systems, modelling of language communication, semiotics, stereology, biomedical systems, large scale systems, automatic control, robotics and education.

The main centres of research in automatic control (in its broadest sense, as covered by IFAC) are the Institute of Information Theory and Automation, the Institute of Computer Science, the Czech Technical University, the Charles University, and the School of Economics, all in Prague; the Technical University in Brno; the West Bohemian University in Plzen; and the School of Mining in Ostrava.

The Czech automatic control community has been active within IFAC since the very beginning. B. Hanus and V. Strejc signed the resolution in favour of founding IFAC in Heidelberg in 1956. Z. Trnka was a member of the Executive Council in 1960-1963. J. Benes served in the same capacity in 1963-1969 and as Vice President in 1969-1972. V. Kucera has been a member of the Council since 1987 and a Vice President since 1993. Among the technical events, the most successful were the first two symposia on System Identification held in Prague in 1967 and 1970 and the first two workshops on System Structure and Control, also held in Prague in 1989 and 1992.

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Preview

LaTex Style File for IFAC Postprint Volumes

LaTex is the most popular document preparation system in the control community. Freeware versions of LaTex exist for virtually all major operating systems (UNIX, MS-DOS, OS-2, VMS, McIntosh, ...). LaTex allows an author to type in a text in a format-independent way, and then to process this text in order to obtain the final product. The desired format is obtained by using a 'style file' containing the necessary information.

IFAC is able to offer a LaTex style file to authors preparing articles for IFAC Postprint volumes. By using this style, the author can easily format an article (including the bibliography) according to the instruction to authors by Pergamon Press. The time-consuming check of all typographic details is no longer needed.

The IFAC style files can be obtained:

1. under anonymous ftp from the ftp server ifa.ethz.ch [129.132.50.2] in the directory /LaTex_styles/ifac/

2. by sending an E-mail to "IFAC-serv@aut.ee.ethz.ch" with "help" as subject. The help file you will receive contains information about the retrieval of the desired style files.

Artificial Intelligence in Economics and Management

IFAC/IFORS/SEDC Workshop

Portland, OR, USA
24 - 26 August, 1993

The Workshop attracted approximately 80 participants, with two thirds from outside the USA (Europe, China, P.R., Japan, Australia, Canada, Israel). The industrial participation was 20 %. The sessions covered 50 papers and the following areas:

- Knowledge-based management;
- AI applications in economics;
- decision support systems;
- genetic algorithms;
- neural network applications;
- interfaces and databases;
- AI applications in finance;
- causal reasoning;
- AI in manufacturing;
- knowledge representation and reasoning;
- planning and learning;
- AI applications in service sectors.

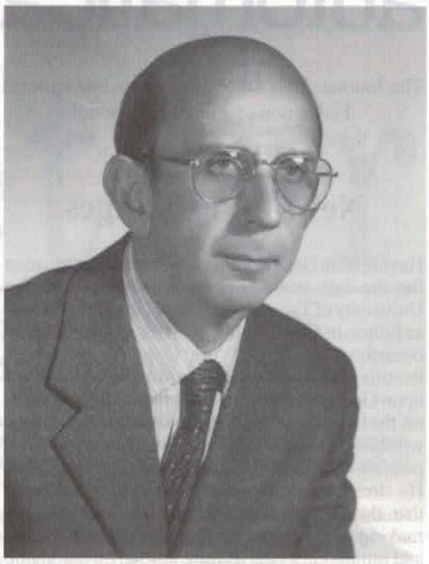
The program chairmen were L.F. Pau, Digital Equipment, Europe, and Kuan-Pin Lin, Portland State University. The local organizing committee chair was Dale Anderson. The keynote speech was given by Alex Kass, Institute for the Learning Sciences.

The interaction was strong and fruitful, although the attendance was less than at previous workshops.

The next workshop is scheduled to take place in two years.

L.F. Pau, IPC Co-Chairman

WHO IS WHO IN IFAC



Prof. Alberto Isidori
Council member

Alberto Isidori was born in Rapallo, Italy in 1942. He graduated in electrical engineering from the University of Rome in 1965. Since 1975, he has been Professor of Automatic Control at that university. He has held visiting positions at various academic institutions, including the University of Florida at Gainesville, Washington University in St. Louis, University of California at Davis, Arizona State University, University of Illinois, University of California at Berkeley, University of Paris-Dauphine and the ETH Zurich. Since 1989 he has also been affiliated with the Washington University in St. Louis.

Professor Isidori's research interests are in control theory. He is the author of several books: Teoria dei Sistemi (in Italian), with A. Ruberti, 1979; Sistemi di Controllo (in Italian), 1979 and 1992; Nonlinear Control Systems (Springer Verlag), 1985 and 1989; Topics in Control Theory (Birkhauser), with H. Knobloch and D. Flockerzi, 1993).

He is also editor or coeditor of various conference proceedings and the author of over 120 articles, for a large part on the subject of nonlinear feedback design. He received the Outstanding Paper Award from the Control Systems Society of the IEEE for papers published on the IEEE Transactions on Automatic Control twice, in 1983 and 1991.

Among his more significant technical contributions have been the application of differential geometry to the problem of noninteracting control and to the problem of asymptotic tracking in nonlinear systems, the development and the application of the notion of zero dynamics to several problems of feedback design.

He is currently serving or has served on numerous editorial boards of major archival systems, which include Automatica, IEEE Transaction on Automatic Control, Systems and Control Letters, mathematics of Control Signals and Systems. He has served IFAC on the Technical Committee on Mathematics of Control and, in this capacity, he promoted the initiation of a permanent series of IFAC Symposia on the subject of Nonlinear Control Systems Design; in 1989 he was the organizer of the first one of these Symposia. He is a Fellow of the IEEE and Vice-President of the European Community Control Association. In IFAC he was elected member of the Council for the 1993 - 1996 term of office.

automatica

The Journal of IFAC the International Federation of Automatic Control

News and Changes

Having been Deputy Editor-in-Chief of Automatica for the last year, Huibert Kwakernaak of the University of Twente will follow George S. Axelby as Editor-in-Chief of the journal as of 1994. On the occasion of the IFAC World Congress in Sydney, the title "Editor-in-Chief emeritus" was conferred upon George Axelby. In his speech, Stephen Kahne, the Incoming President thanked George Axelby who had been involved in Automatica in the leading position of editor-in-chief ever since its foundation. He stressed that it was thanks to George Axelby that the journal had not only reached this top ranking but had managed to maintain its quality and reputation as the leading journal on automatic control over decades.

The year 1994 will see some further changes in Automatica. First of all, the frequency will be increased from 6 issues in 1993 to 12 issues in 1994.

The journal publishes papers on theoretical and experimental research and its practical application to all types of control systems.

Topics covered include: The theory, design and characterization of control systems and components, the reliability of components and systems, data processing and computers for control purposes, computer-aided design and manufacturing and control of various industrial processes, space vehicles and aircraft ships, traffic, biomedical systems, national economics, power systems, agriculture, and natural resources.

The journal also includes the following special features: Survey papers, book reviews and technical communiqués.

Papers should be submitted for consideration to the relevant subject editor, listed below:

Control and estimation theory
(in particular optimal, stochastic and nonlinear control, games, state estimation and discrete event systems)
Editor: Tamar Basar (Deputy Editor-in-Chief), University of Illinois at Urbana-Champaign, Coordinated Science Laboratory, 1308 West Main Street, Urbana, IL 61801, USA

System theory
(including robust, distributed and geometric control systems)
Editor: Ruth F. Curtain, Mathematisch Instituut, Rijksuniversteit Groningen, Postbus 800, 9700 AV Groningen, The Netherlands

System parameter estimation
(including applications in this field, and new topics such as system fault detection)
Editor: Torsten Söderström, Automatic Control Group, Uppsala University, POB 27, S-751 03 Uppsala, Sweden

Applications and computer control:
(development implementation and operational evaluation in all fields of automatic control including software and computer-aided control system design)
Editor: Yaman Arkun, Georgia Institute of Technology, School of Chemical Engineering, 778 Atlantic Drive, Atlanta, GA 30332-0100, USA

Adaptive control
(including applications, robotics, and new topics in this field such as neural networks)
Editor: C.C. Hang, Faculty of Engineering, National University of Singapore, 10, Kent Ridge Crescent, Singapore 0511

Large scale systems, management and decision sciences
(including expert systems, artificial decision support systems, hierarchical systems, man-machine systems, and environments for systems engineering)
Editor: Andrew P. Sage, George Mason University, 4400 University Drive, Fairfax, VA 22030, USA

Special Category Editors

Survey papers
(including all areas in automatic control)
Editor: Karl J. Åström, Department of Automatic Control, Lund Institute of Technology, P.O. Box 118, S-221 00 Lund, Sweden

Rapid publications
Technical communiqués and correspondence (in all fields of control)
Editor: Peter Dorato, Department of Electrical and Computer Engineering, University of New Mexico, Albuquerque, NM 87131, USA

Book Reviews
(in all areas of interest related to automatic control)
Editor: David J. Limebeer, Department of Electrical Engineering, Imperial College, Exhibition Road, London SW7 2BT, UK

Papers From the January 1994 Issue

Special Issue on Statistical Signal Processing and Control
Guest Editors: Björn Ottersten, Torsten Söderström, Bo Wahlberg

Papers

Technical Communiqués

Papers From the February 1994 Issue

Survey Paper

Papers

Brief Papers

Technical Communiqués

Book Reviews

FORTHCOMING EVENTS 1995*

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Title	1995	Place	Deadline	Further Information
IFAC Workshop Control Applications in Marine Systems - CAMS 95	May 10 – 13	Trondheim Norway	1 Nov. 1994	A.Prof. Thor I. Fossen, CAMS-95 Secr. Dept. of Engg. Cybernetics Norwegian Institute of Technology N-7034 Trondheim, Norway FAX +47 /73594399 e-mail: tif@itk.unit.no
Intl. Conference Computer Applications in Biotechnology	May 14 – 17	Garmisch-Partenkirchen Germany	Aug. 1994	Prof. Axel Munack Federal Agricultural Res. Center Inst. of Biosystems Engg. - FAL Bundesallee 50, D-3300 Braunschweig Germany FAX +49/531 596 309
IFAC Conference Dynamics and Control of Chemical Reactors, Distillation Columns and Batch Processes - DYCORD '95	June 7 – 9	Copenhagen Denmark	31 Aug. 1994	Danish Automation Society Symbion Science Park Copenhagen Fruebjergvej 3, DK-2100 Copenhagen Denmark FAX +45/3120 5521
IFAC Conference Intelligent Autonomous Vehicles	June 12 – 14	Espoo Finland	30 Sept. 1994	Finnish Society of Automation Asemapäällikönkatu 12 C SF-00520 Helsinki Finland FAX +358/0/1461 650
1995 American Control Conference (in cooperation with IFAC)	June 21 – 23	Seattle, WA USA	15 Sept. 1994	Prof. M. Tomizuka, Dept. of M.E. University of California Berkeley, CA 94720, USA FAX 510/642 6163 e-mail: tomizuka@euler.berkeley.edu
IFAC Conference System Structure and Control	July 5 – 7	Nantes France	1 Aug 1994	Mr. J.J. Loiseau, CNRS LAN-ECN 1, rue de la Noë F-44072 Nantes Cedex 03 France FAX +33/40/372522 e-mail: loiseau@lan01.ensm-nantes.fr
IFAC Symposium (7th) Large Scale Systems: Theory and Applications	July 11 – 13	London UK	15 Sept. 1994	Prof. P.D. Roberts Control Engineering Research Centre City University Northampton Square London EC1V 0HB,UK FAX +44/71/477 8568
IFAC Conference Youth Automation IYA '95	Aug. 8 – 10	Beijing China. P.R.	30 Nov. 1994	Dr. Li Sun, IFAC Conference IYA '95 CAST Industrial Engineering Co 22 Baiwanzhung Street, Xichengqu Beijing 1000037, China, P.R. FAX +861/8326042 or 861/2545229 (CAA)
IFAC Symposium (8th) Automation in Mining, Mineral and Metal Processing	Aug. 29 – 31	Sun City South Africa	1 Sept. 1994	SACAC Private Bag 34, Auckland Park 2006 Transvaal, RSA FAX +27/11 638 4435
1995 European Control Conference (in cooperation with IFAC)	Sept. 5 – 8	Rome Italy	1 Oct. 1994	ECC 95 Secretariat D I S, Univ. degli Studi di Roma Via Eudossiana 18 I-00184 Rome, Italy FAX +39/6/44 585367 e-mail: ecc95@irmunisa.ing.uniromal.it
IFAC Symposium Low Cost Automation	Sept. 13 – 15	Buenos Aires Argentina	30 Sept. 1994	AADECA, Eng. A. T. Casucci Av. Callao 220 1oB 1022 Buenos Aires, Argentina FAX +54/1/463780
IFAC Symposium Control of Power Plants and Power Systems	Dec. 4 – 6	Cancun Mexico	28 Feb. 1994	Symposium Secretariat Instituto de Investigaciones Electricas AP 475 , Cuernavaca, Mor. 62000, Mexico FAX +52/73/189854 e-mail: Sifac@iievms1.iiecuer.unam.mx

*** The 1994 events were published in the October issue of the IFAC Newsletter**

IFAC '96
13th World Congress

San Francisco, USA

July 1 – 5, 1996

Hosted by the American Automatic Control Council

TECHNICAL PROGRAM

Plenary Lectures – Paper Sessions – Panel Discussions – Case Studies – Poster Sesssions

SUBJECT AREAS

Control Methodology
- adaptive control and tuning
- control design and simulation
- discrete event dynamic systems
- fault detection and diagnosis
- modeling and identification
- nonlinear control
- robust control

Control Implementation
- artificial intelligence in control
- distributed computer control
- intelligent instruments
- man machine systems
- real time computer control
- robotic systems

Control Applications
- aerospace systems
- biomedical systems
- communications systems
- economic and management systems
- energy systems
- environmental systems
- manufacturing systems
- process control
- transportation systems

Control and Society
- automation and development
- control education
- social effects of automation

SUBMISSION OF DRAFT PAPERS
July 1995

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