IFAC International Federation of Automatic Control
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Newsletter

Contents:

12th IFAC World Congress
Sydney, Australia

IFAC World Congresses are very significant highlights in the life of our Federation. They are an opportunity for scientists and industrialists in the different disciplines of automatic control to meet, to see and hear what is being done in the other specialities. They present the state-of-the-art in all these disciplines thus permitting also an interdisciplinary approach.

In addition to permitting and enabling a very fruitful exchange of opinions they are a chance to meet friends and colleagues from all over the world.

The Congress opening is also the opportunity to present the most distinguished award of IFAC, i.e. the Giorgio Quazza Medal, as well as the Automatica Paper Prize. On that occasion also, the President appoints the Advisors and presents them with the Advisor's seal.

The Congresses are also an opportunity to compete by enrolling one's paper in various Congress awards, i.e. the Applications Paper Prize, the Young Author Prize, and the Control Engineering Textbook Prize. For the first two of these awards not only the scientific merit of the paper is important - this criterion of scientific merit is used in the selection of the finalists - but also the presentation at the Congress proper. The decision on the respective winner of a prize is often taken in late-night sessions and members of the selection committees have the task of listening to the presentations of the candidates.

The IFAC World Congresses are also the time for the IFAC General Assembly, i.e. the National Member Organizations, to meet and to take decisions on very important matters that will determine the future development of our Federation. Thus, the General Assembly votes on membership applications, membership fee increases which, alas, are necessary to have a healthy foundation for IFAC's work; further, the General Assembly votes on changes of the Constitution and By-Laws and, last but not least, elects the President and his team. For the 1993 - 1996 triennium, this team is composed as follows:

COUNCIL

President	Stephen Kahne (USA)
President-Elect	Yong-Zai Lu (PRC)
Vice-President (Technical Board)	Vladimir Kucera (CZ)
Vice-President (Executive Board)	Pedro Albertos (E)
Immediate Past President	Brian Anderson (AUS)
Treasurer	Walter Schaufelberger (CH)

Ordinary Members:

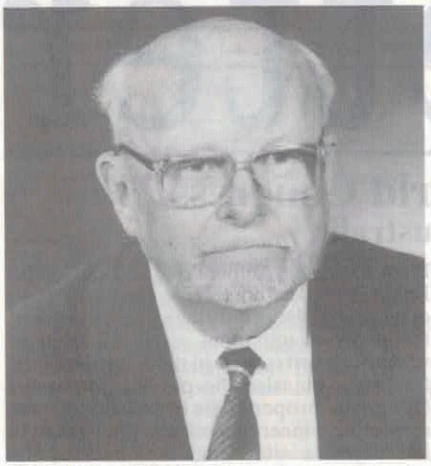
Jürgen Ackermann (FRG)
Derek P. Atherton (UK)
C.C. Hang (SGP)
Edward J. Davison (CDA)
Atsunobu Ichikawa (J)
Alberto Isidori (I)
László Keviczky (H)
Mogens Kümmel (DK)
Paavo Uronen (SF)

This Newsletter issue and the ones to come will be devoted to reports on Congress-related topics. This issue will run reports on the various IFAC Prizes and a technical evaluation by the Past Technical Board Chairman, Professor Lennart Ljung. Forthcoming issues will give more detailed reports on the General Assembly and Council- and Related Meetings, such as the composition of the Technical Board and the Executive Board. Further there will be a list of the technical committees active in IFAC, excerpts from the incoming President's speech, presentation of the new IFAC Advisors Professor Boris Tamm, Professor Lennart Ljung and Professor Mohamed Mansour, as well as some facts and figures about the Congress.

Gusztáv Hencsey
Newsletter Editor

Uolevi A. Luoto
19 October, 1919 - 4 August, 1993

IN MEMORIAM



Uolevi A. Luoto †

Mr. Uolevi Aarre Luoto, President of IFAC from 1975 to 1978, passed away on August 4, 1993, after a short period of serious illness.

Mr. Luoto graduated as Dipl. Eng. from the Helsinki University of Technology in 1945 and subsequently worked with the Finnish radio and instrument industries and related professional education. In 1952 he accepted the position of Senior Research Officer at the Council for Scientific and Industrial Research in Pretoria, South Africa. He then returned to Finland in 1956 to join the Ekono Association for Power and Heat Economy.

In parallel to his professional work, Mr. Luoto pursued graduate studies in Finland and the United States, which he visited as an Eisenhower exchange fellow. In 1953 he received the pre-doctoral degree of Licentiate of Technology from the Helsinki University of Technology.

Owing to his attraction to research, Mr. Luoto was occupied with new, developing technologies, and especially at Ekono with energy technology and related instrumentation and control, becoming a widely recognized consultant especially in the design of automatic control for process power. He was elected Chairman of the Club for Measurement and Control in Industry in 1957, and when the Club was officially registered as the Finnish Society of Automatic Control (FSAC) the subsequent year, he continued as its Chairman until 1960. He established contacts with colleagues in other countries as member of the Working Group on Automation of the European Chemical Federation from 1957 and became Chairman of the Working Group for the 1965-67 period.

A more far-reaching step was the membership of FSAC in IFAC in 1959. Mr. Luoto then was Vice-Chairman of the IFAC Applications Committee from 1963 to 1966 and Chairman of that Committee from 1966 to 1969. During these periods APCOM became an active and frequent sponsor of international symposia, thus contributing to the establishment of a balance between theory and applications in IFAC activities.

Mr. Luoto was appointed member of the IFAC Executive Council for the 1969 to 1972 period, he was IFAC Vice-President from 1972 to 1975 and IFAC President from 1975 to 1978. At the beginning of his presidency, the Secretariat moved from Düsseldorf, Germany to Helsinki, Finland and at its end from Helsinki to Laxenburg, Austria. The dynamics of this period was increased with the establishment of the IFAC one-publisher scheme, recruitment of new members to IFAC and added activity of the technical committees. The period ended with the 7th IFAC World Congress with Mr. Luoto as the main host. More than 1.000 participants from 38 countries gathered in Espoo (Helsinki).

As Past President, Mr. Luoto continued as a member of the Executive Council from 1978 to 1981. His later activities were manifested e.g. in the form of series of sessions on industrial applications of automatic control which he organized and chaired within the framework of several IFAC World Congresses. In 1981 he was appointed IFAC Advisor for life; before that he had been invited to be Honorary Member of FSAC in 1973. He was granted the IFAC Outstanding Service Award in 1990 and the Medal of Merit of FSAC in 1993.

In Ekono, Mr. Luoto also concerned himself with nuclear energy and the industrial use of nuclear radiation. He participated in the development of radiotracer technology by testing industrial processes for their dynamic properties and static parameters by means of at first imported and then domestic radioisotopes in the late 1950ies and early 1960ies.

He was invited to be Business Manager of the Finnish Nuclear Industries Group in 1966 and then General of Oy Finnatom Ab Company in 1970. In addition to these offices, he was Chairman of the Finnish Nuclear Society from 1968 to 1971. From 1965 on he was active in steering bodies of FORATOM (the European Group of Nuclear Industries and Utilities), becoming its Vice-President from 1978 to 79 and President for the 1979 to 1980 period.

Mr. Luoto returned to Ekono in 1975 where he acted as chief consultant of the central administration. He was appointed Vice-Manager in 1980 from which office he retired in 1982. He then worked as independent consultant on business management for a number of years.

As appreciated professional and speaker of many languages, Uolevi Luoto was able to create close ties to a large number of colleagues from many countries and to harmonize their work in IFAC and in other international organizations. He was additionally active in the World Environment and Resources Council (governing board member), the Institution of Mechanical Engineers UK (fellow), the IEEE/USA (senior member) and the American Nuclear Society.

Finnish control engineers had the pleasure of celebrating Mr. Uolevi A. Luoto and enjoying his company still as recently as May 11, 1993, at the 40th anniversary of FSAC and its predecessor. Many colleagues and friends from all over the world noted his absence from the 12th IFAC World Congress in Sydney in July, especially since he had attended all earlier Congresses from 1960 on. Yet, the shock of learning of his death came unexpected all the same.

Uoloevi A. Luoto's calmness, sense of humour and efficiency will be missed by all those who had the privilege to know him and to work with him.

Control Engineering Practice
Volume 1 Number 5
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Preview

IFAC CONGRESS AWARDS

Automatica Paper Prize 1993

In 1979 the IFAC Publications Managing Board decided to award prizes for each of the selected papers published in the IFAC Journal Automatica. The prizes were to be given for outstanding contributions to the theory and practice of control engineering.

To select the best papers published in Automatica in 1990, 1991 and 1992, evaluations were made by the IFAC Awards Committee, headed by Professor Vladimir Kucera (Czech Republic).

The following papers were awarded prizes during the opening ceremony of the 12th IFAC World Congress in Sydney:

L. Ljung and S. Gunnarsson, Adaptation and tracking in system identification - a survey. *Automatica* 26, 1, 7 - 21 (1990)
This paper is a tutorial survey of algorithms for tracking time-varying systems, with emphasis on their rationale and their behaviour under slow adaptation. It is a timely contribution in which advanced results are explained in a way that appeals to a broad audience.

B.R. Barmish and R. Tempo, The robust root locus. *Automatica* 26, 2, 283 - 292 (1990)
This paper describes a simple technique for generating the root loci of a feedback system which includes perturbations entering affine linearly into the coefficients of the plant. The technique readily lends itself to practical application and computer-aided design.

C.I. Byrnes and A. Isidori. On the attitude stabilization of rigid spacecraft. *Automatica* 27, 1, 87 - 95 (1991)
This paper shows that rigid body models for spacecraft with two controls cannot be stabilized by smooth feedback. On the other hand, explicit feedback laws are constructed that stabilize the system about an attractor. It is a nice application of nonlinear feedback design theory.

Applications Paper Prize

The **Applications Paper Prize** is awarded for outstanding technical contributions in the area of control applications.

The Selection Committee comprised both academic and industrial experts and was chaired by Professor Laszlo Keviczky from Hungary. From many nominations, they selected five **finalists**:

Bidan, P., S. Boverie and J.C. Marpinard:
State feedback linearizing control: Application to an engine car
Chen, D.S. and O.L.R. Jacobs:
Parameter estimation on hot-dip galvanising line
Howlett, P.G., I.P. Milroy and P.J. Pudney:
Energy-efficient train control
Nakamoto, M., K. Shimizu and H. Fukuda:
Multivariable control for a combined cycle power plant
Partanen, A.G. and R.R. Bitmead:
Excitation versus control issues in closed loop identification of plant models for a sugar cane crushing mill

The **winning paper** is ***'Multivariable Control for a Combined Cycle Power Plant', by M. Nakamoto, K. Shimizu and H. Fukuda (Heavy Apparatus Engg. Lab, Toshiba Co, Yokohama, Japan; and Control & Instrumentation Engg. Dept., Toshiba Co, Japan)***

The prize is awarded for 'critical evaluation and application of advanced control to an important industrial process.

IFAC Congress Control Engineering Textbook Prize

The recipients of the Control Engineering Textbook Prize are authors of a control engineering textbook in one of the official IFAC languages, for which the first edition was published between 3 to 9 years prior to the Congress, and which is judged to have most contributed to the education of control engineers.

The Selection Committee for this Prize at the Sydney Congress was chaired by Professor Michael J. Rabins from the USA.

The winner is the book 'Computer Controlled Systems Theory and Design', published by Prentice Hall and authored by Karl J. Åström and Björn Wittenmark.

Professor Karl J. Åström was educated at the Royal Institute of Technology in Stockholm, Sweden. He worked for IBM research, then became Professor of Automatic Control at the Lund Institute of Technology. He is interested in many aspects of automatic control, has written 5 books and many papers. He is a Fellow of IEEE, a member of the Royal Swedish Academy of Sciences, an Editor of Automatica, and served IFAC as a Council Member. He has received many honours, including the Quazza Medal and the Medal of Honour from IEEE.

Professor Björn Wittenmark was educated at the Lund Institute of Technology, Sweden, where he is currently Head of the Department of Automatic Control. His research interests are in adaptive control and sampled data control. He has authored two books and many papers. He is a fellow of IEEE.

The citation for the award reads:

The Prize is awarded 'for the major impact on the teaching and practice of control'.

Young Author Prize

The **Young Author Prize** is awarded for high technical quality and good presentation of papers by authors not exceeding the age limit of 35 years.

The Selection Committee was headed by Professor John B. Moore from Australia. From many nominations they selected five **finalists**

Lei, Guo:
The logarithm law of self-tuning regulations
Megretski, A.:
Power distribution approach in robust control
Gustafsson, K.:
Stepsize selection in implicit Runge-Kutta methods viewed as a control problem
Bernhardsson, B., K.H. Johansson:
On simultaneous H_2 optimization of several performance bounds
Halliwell, K., R.C. Williamson and I.M.Y. Mareels:
Learning nonlinearly parametrized decision regions

The **winning paper** is ***'The Logarithms Law of Self-Tuning Regulators', by Lei Guo (Institute of Systems Sciences, Beijing, China, P.R.)***

The prize is awarded for 'solving a long standing problem in control theory concerning convergence and convergence rate for the least squares based self-tuning regulator'.

GIORGIO QUAZZA MEDAL
Awarded to
Professor E. J. Davison

Edward J. Davison
Quazza medal winner 1993

The Giorgio Quazza Medal is the highest technical award of IFAC. It is presented at each IFAC Triennial International World Congress as a memorial to the late Giorgio Quazza, a leading Italian electrical and control engineer. Previous medal winners have been:

1981	Professor John F. Coales
1984	Professor Iakov Z. Tsypkin
1987	Professor Karl J. Åström
1990	Professor Petar Kokotovic

For the 12th World Congress held in Sydney, Australia, in 1993, the Quazza Medal was awarded to Dr. Edward J. Davison with the following quotation:

For his seminal contribution to linear systems theory and his work on industrial applications

Dr. Edward J. Davison is Professor of Electrical Engineering at the University of Toronto in Canada. He received the Ph.D. and the Sc.D. degrees from Cambridge University, England in 1964 and 1977 respectively. Dr. Davison is a Fellow of the IEEE, a Fellow of the Royal Society of Canada and an Honorary Professor of the Beijing Institute of Aeronautics and Astronautics.

Dr. Davison has been an Associate Editor of Automatica and several other journals. He has served on the IFAC Theory Committee from 1970. He was Vice-Chairman from 1978 to 1987 and Chairman from 1987 to 1990. He has been member of the IFAC Council since 1990 and continues to serve in this function for the current triennium. He has given plenary lectures at many IFAC events.

In more than 400 papers, Dr. Davison has made fundamental contributions to linear systems theory, multivariable robust control, and computer-aided control engineering. Two of his papers have received Outstanding Paper Awards from IEEE, and one of them is a *Current Contents Citation Classic*.

Dr. Davison has actively pursued important applications of control theory to chemical processes, power and traffic systems, nuclear reactors and spacecraft. He participated in the controller design for the CANDU nuclear reactor and for the „Space Arm". His large flexible space structure controller has been chosen by the Canadian Space Agency. His 'tuning regulator theory' has been tested and implemented in many chemical process control systems.

automatica

The Journal of IFAC the International Federation of Automatic Control

Papers From the Next Issue – November 1993

12th IFAC World Congress

Sydney, Australia, July 1993

Technical Evaluation

Excerpts from a speech given at the Closing Ceremony of the Congress:

Ladies and Gentlemen,

It has been an intense week.

By tradition, it is the past chairman of the Technical Board who has the duty to summarize the technical program of the Congress at the closing session.

I would like to start by giving some figures: There have been 1.256 participants from 53 different countries, and in addition some 250 accompanying persons. We have had the possibility to listen to about 1.200 scientific presentations - minus some 15% no-shows, I should add. In addition, there have been many committee meetings as well as many elections and appointments to prepare for the IFAC work of the next triennium.

Yes, it has been an intense week!

The scientific program of the Congress has shown some innovations. We have seen quite a different structure of the program, in that it has housed six mini-symposia, eight targeted areas and several invited sessions. In my opinion this structure has been highly successful. I have done some quite unscientific sampling of attendance at the various sessions, and it is quite clear that the attendance at the invited sessions and the sessions of the mini-symposia and targeted areas was much higher than at the regular sessions. It has been easier to locate interest areas and to display the scope of the Congress, and it is my hope that this experience will be used at the organization of future congresses.

During the week we have had the possibility to listen to two most interesting plenary presentations that dealt with status reports of control methodology. David Mayne and Lucien Polak gave a most useful lecture on optimization based design and control. Mitishiko Araki described today the fascinating treasures that may be obtained with multi rate sampling and hold.

We have also had the opportunity to welcome engineers and researchers in the automotive control field with an excellent program. The importance of this area was also manifested by the birth of a new Technical Committee on Automotive Control during the past triennium. Its founding chairman, Bill Powers, gave an outstanding plenary address where he emphasized that real control problems in the area of automotive control may be different from the traditional ones.

Similar conclusions were drawn in an excellent and thought-provoking address by the other industrial plenary speaker, Dr. Mike Brisk. The messages in these two plenaries from industry was loud and clear: Do not forget us. Do not widen the gap between academic research and industrial needs! Do not expect tomorrow's control problems to be simple variations of yesterday's!

Are we listening to these messages? Well, the IFAC Congress is no doubt the best place to detect trends in the interest of the control community. In my personal and somewhat random survey of session attendance, I think I have seen a very clear shift from traditional methodology areas to those that, hopefully, are better suited to industrial control needs. The applications sessions were generally well attended and the real time control mini symposia had to be moved to the auditorium due to the large audiences.

Let me also add two particular observations: The Discrete Event Dynamic Systems Target Area drew some five times the attendance of many sessions that dealt with some more conventional control design methods. Another observation is the following one: Which session drew about three times the audience than the second biggest one? That was the very well organized session on a benchmark control problem. I think that this shows that the control community should pay more attention to defining concrete control problems and evaluate various solutions. In many other scientific fields - such as numerical analysis - it is impossible to publish a new algorithm on a problem unless it has been tested on a number of generally agreed upon benchmark test cases.

All in all, I thus conclude that the control research community is responding to the needs of industry. I hope and think that it is true, as I picked up here during the Congress that "the gap between theory and practice is bigger in theory than in practice".

Finally, we all realize what tremendous work lies behind the scientific program of the Congress. Literally thousands of people have been involved in the preparations in hard and voluntary work. On behalf of all Congress participants I would like to thank all these persons, in particular those four that have led the different teams: Neville Rees, Chairman of the National Organizing Committee, Graham Goodwin and Rob Evans, the Co-Chairmen of the International Program Committee, and last but not least, Brian Anderson, President of IFAC for the 1990 - 1993 triennium.

Lennart Ljung
Past TB Chairman

Book Reviews

Discrete Random Signals and Statistical Signal Processing, by C.W. Therrien
(M. Vosvrda)
Modern Control System Theory and Design, by S.M. Shinners
(S. Tan)
Uncertain Models and Robust Control, by A. Weimann
(J. Böhm)
Identification of Linear Systems, A Practical Guide to Accurate Modelling, by J. Schoukens and R. Pintelon
(B. Wahlberg)
Concise Encyclopedia of Modelling and Simulation, by D.P. Atherton and P. Borne
(S.H. Starr)

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FORTHCOMING EVENTS

1993
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Title	1994	Place	Deadline	Further Information
IMACS/IFAC Symposium Mathematical Modelling '1. Mathmod Vienna'	Feb. 2 – 4	Vienna Austria	–	Prof. Dr. Inge Troch Techn. University of Vienna Wiedner Hauptstrasse 8 - 10 A-1040 Vienna, Austria FAX 43/1/568093 e-mail: itroch@email.tuwien.ac.at
IFAC/IFORS Workshop Man-Environment Integration	Feb. 7 – 9	Lisbon Portugal	15 Sep 1993	Seccao de Urbanizacao e Sistemas Instituto Superior Tecnico Edificio de Engenharia Civil Av. Rovisco Pais P-1096 Lisboa Codex, Portugal FAX 809884
TEKES/MET/IFAC Conference Machine Automation 'Mechatronics Spells Profitability'	Feb. 16 –18	Tampere Finland	–	ICMA'94 Secretary, Ms. Siekkinen Tampere University of Technology Edutech, POB 527, SF-33101 Tampere, Finland FAX +358/31/3162 164
Joint IEEE/IFAC Symposium Computer-Aided Control System	March 7 – 9	Tucson, AZ USA	–	Eng. Professional Development Univ.of Arizona, Box 9 Harvill Bldg. Rm 235, Second and Olive Streets Tucson, Arizona 85721 USA FAX 602/ 621-1443 e-mail: Baltes@BigDog, Engr.Arizona.Edu
IFAC/IMEKO Symposium (2nd) Modelling and Control in Biomedical Systems	March 27 – 30	Galveston,TX USA	1 Sept 1993	IFAC Biomedical Symposium U.T. Medical Branch, Box 55176 Galveston, TX 77555-5176, USA FAX 409/770-6825
IFAC Symposium Advanced Control of Chemical Processes - ADCHEM '94	May 25 – 27	Kyoto Japan	–	Dr. Shinji Hasebe Dept. of Chem. Engineering Kyoto University Kyoto 606-01, Japan FAX +81/75-752-9639 e-mail: A52165@jpnkudpc.bitnet
IFAC/IMEKO Symposium Intelligent Components and Instruments for Control Applications - SICICA '94	June 8 – 10	Budapest Hungary	–	SICICA '94 Secretariat Computer and Automation Institute HAS, POB 63, H-1518 Budapest, Hungary FAX +36/1/1869378, e-mail: h103hen@ella.hu
IFAC Workshop Computing in Economics and Finance	June 8 – 10	Amsterdam Netherlands	31 Jan. 1994	Mr. Hans M. Amman Dept. of Macroeconomics, Rm E1-911 Univ. of Amsterdam, Roeterstraat 11 NL-1018 WB Amsterdam, Netherlands FAX +31/20/525528, e-mail: amman@sara.nl
IFAC/IFIP/IFORS Workshop (2nd) Intelligent Manufacturing Systems	June 13 – 15	Vienna Austria	15 Feb. 1994	Dr. Martin Zauner Ö P W Z, Rockhgasse 6 A-1014 Vienna, Austria FAX +43/1/533 863621
IFAC Symposium Fault Detection, Supervision and Safety for Industrial Processes	June 13 – 16	Espoo Finland	–	Finnish Society of Automation Asemapäällikönkatu 12C SF-00520Helsinki, Finland FAX +358/0/146 1650
IFAC Workshop Integration of Process Design and Control	June 27 – 28	Baltimore, MD USA	15 Sept. 1993	Dr. T. McAvoy, Chem. Eng. Dept. University of Maryland College Park, MD 20742-2111, USA FAX 301/405-9126 e-mail: mcavoy@eng.umd.edu
1994 American Control Conference (in cooperation with IFAC)	June 29 July 1	Baltimore, MD USA	15 Sept. 1993	Prof. Hassan Khalil Electrical Eng. Dept., Michigan State Univ. East Lansing, MI 48824-1226, USA FAX 517-353-1980 e-mail: khalil@frith.egr.msu.edu
IFAC/IFORS Symposium (10th) Identification & System Parameter Estimation SYSID '94	July 4 – 6	Copenhagen Denmark	1 Sept. 1993	SYSID '94 Secretariat Danish Automation Society, Symbion Fruebjergvej 3 DK-2100 Copenhagen, Denmark FAX +45/3120 5521
IFAC/IFIP/IFORS Symposium Transportation Systems: Theory and Application of Advanced Technology	July 23 – 25	Tianjin PRC	–	Prof. G.G. He, TS'94 Institute of Systems Engg. Tianjin University Tianjin 300072, China, P.R. FAX +86/22-358329

FORTHCOMING EVENTS (ctd.)

Asian Control Conference (in cooperation with IFAC)	July 27 – 30	Tokyo Japan	31 Oct. 1993	Prof. Yasuchika Mori Dept. of Mechanical Engineering National Defense Academy 1-10-20 Hashirimizu, 239 Yokosuka Japan, FAX 468 42 6480
IFAC Symposium (3rd) Advances in Control Education	Aug. 1 – 2	Tokyo Japan	1 Sept. 1993	Prof. K. Furuta Tokyo Inst. of Technology Dept. of Control Engg. 2-12-1 Oh-Okayama Beguroku Tokyo 152, Japan FAX +81/ 3 /3720-5269 e-mail: furuta@ctrl.titech.ac.jp
IFAC Workshop Computer Software Structures Integrating AI/KBS	Aug. 10 – 12	Lund Sweden	15 Jan. 1994	Svenska IFAC kommitten POB 27 S-75103 Uppsala, Sweden FAX +46/18/503611
ISPE/IFAC Intl. Conference CAD/CAM: Robotics and Factories of the Future	Aug. 21 – 24	Ottawa, Ont CDN	30 Nov. 1993	Prof. M.B. Zaremba Ottawa Carleton Research Inst. Kanata, Ont., CDN, K2K 2E4 Canada FAX 819/773 1638 e-mail:zaremba@uqah.uquebec.ca
IFAC Workshop New Trends in Design of Control Systems	Sept. 8 – 10	Smolenice SK	31 Jan. 1994	IFAC Workshop '94 KASR-EF STU Ilkovicova 3 SK-81219 Bratislava, Slovakia FAX: +42/7/ 72 97 34
IFAC/ISHS Workshop (2nd) Mathematical and Control Applications in Agriculture and Horticulture	Sept. 12 – 16	Silsoe UK	1 July 1994	UKACC Executive Committee c/o Mrs. A. Stanfield, IEE, Savoy Place London, WC2R 0BL, UK FAX +44/71/497 3633
IFAC Symposium (13th) Automatic Control in Aerospace	Sept. 12 – 16	Palo Alto, CA USA	1 Feb. 1994	Dr. Kenneth Lorell Lockheed 92-30/250 3251 Hanover Street Palo Alto, CA 94304, USA FAX 415/424 3106
IFAC Symposium Robust Control Design	Sept. 14 – 16	Rio de Janeiro Brazil	15 Nov. 1993	Prof. P.M.G. Ferreira DEE, (PUC-RIO), C.P. 38063 22452 Rio de Janeiro, Brazil FAX +55/21/511 5154 e-mail: pedro@ele.puc-rio.br
IFAC Symposium Robot Control - SYROCO	Sept. 19 – 21	Capri Italy	15 Dec. 1993	Prof. S. Nicosia, SYROCO 94 Sci. Secr. DIE, Università degli Studi di Roma „Tor Vergata", Via della Ricerca Scientifica I-00133 Rome, Italy, FAX +39/6/2020519 e-mail: nicosia@tovvx1.ccd.utovrm.it
IFAC Conference Integrated Systems Engineering	Sept. 27 – 29	Baden-Baden Germany	14 Jan. 1994	Mr. H. Wiefels, VDI/VDE GMA POB 10 11 39 D-40002 Düsseldorf, Germany FAX +49/211/6214161
IFAC Workshop Distributed Computer Control Systems - DCCS 94	Sept. 28 – 30	Madrid Spain	1 March 1994	Prof. Juan de la Puente ETSI Telecommunicacion Universidad Politecnica de Madrid E-28040 Madrid, Spain FAX +34/1/543 2077 e-mail: jpuente@gic.tat.upm.es
IFAC/IFIP Symposium Artificial Intelligence in Real Time Control	Oct. 3 – 5	Valencia Spain	20 Dec. 1993	Prof. A. Crespo, Dept. Ingenieria Universidad Politecnica de Valencia POB 22012, E-46071 Valencia, Spain FAX +34/6/3877579 e-mail: acrespo@aii.upv.es
IFAC Workshop Trends in Hydraulic and Pneumatic Components and Systems	Nov. 15 – 16	Chicago, IL USA	–	Prof. David N. Wormley Dean of Engineering Pennsylvania State University University Park, PA 16802, USA FAX 814/863-4749 e-mail: dnw@oas.psu.edu

– Deadline past

*** Deadline not yet known**

The 1995 events will be published in the next issue of the IFAC Newsletter