Contents:

Renewal of Affiliate Membership Newsletter Survey
Deadline 30 June, 1993

The Survey published in the last issue of the IFAC newsletter has already brought back many replies and a host of useful information as well as suggestions which the Newsletter Editor is happy to take up.

Many Newsletter readers have for instance suggested that the list of Forthcoming Events, published in every second issue of the Newsletter should contain also fax- and/or e-mail numbers together with the contact addresses. Already this Newsletter takes up the suggestion and we hope to be thus able to serve the IFAC community better.

Some queries concerned the benefits derived from Affiliate membership. Becoming an Affiliate of IFAC is free of charge and among the benefits are e.g. a reduced subscription rate to the IFAC Journals *Automatica* and *Control Engineering Practice*. Another advantage of being included into the Affiliate data base is that, upon organizers' request, IFAC provides disks and/or labels of Affiliates who have indicated their interest in the subject area by marking the respective title on the Affiliate Registration Card. Thus, Affiliates have several possibilities of getting more information on events, i.e. by receiving Calls for Papers directly from organizers or by using the contact addresses and fax- and e-mail numbers given in the IFAC Newsletter. In due course, IFAC also plans to put its list of forthcoming events into an e-mail letter box, accessible to our subscribers.

Please be reminded that your Affiliate membership must be confirmed by June 30. Non-reply by that date will be considered discontinuation of membership.

Dr. Gusztáv Hencsey
Editor-in-Chief

Informal Meeting
of the
IFAC Officers
Laxenburg, Austria
6 - 8 May, 1993

As is by now a longstanding tradition, the Informal Meeting of the IFAC Officers took place on the premises of the IFAC Secretariat in Laxenburg. The meeting was chaired by the President of IFAC, Professor Brian D.O. Anderson. The other participants were: M. Mansour, the IFAC Treasurer, S. Kahne, President Elect, L. Ljung, Vice-President (Technical Board), Y.Z. Lu, Vice-President (Executive Board), B. Tamm, Past President, G. Hencsey, Secretary and W. Schaufelberger. Considerable time at this meeting was devoted to issues relating to the Sydney Congress, the forthcoming General Assembly and all other administrative meetings of our Federation.

Publications were again subject of discussion at this meeting. Mr. Michael Dawes of Pergamon and Professor Manfred Thoma, Chairman of the Publications Managing Board joined the meeting for an informal discussion on publications-related matters.

The IFAC Officers also had the opportunity to participate in an anniversary colloquy, organized by the IFAC Beirat in Austria (IFAC Advisory Board in Austria), on the occasion of its 10th anniversary. One highlight of this meeting was the establishment of a Fred Margulies Award, commemorating IFAC's Honorary Secretary from 1978 - 1984.

At the traditional annual dinner, the President was pleased to welcome representatives of the Ministry of Science and Research, the Academy of Sciences, the Austrian NMO, the IFAC Beirat as well as representatives from university and industry.

This time also, the Officers were invited to make a technical visit to the Austrian Research Centre in Seibersdorf. Originally established as a nuclear research centre, Seibersdorf meanwhile specializes in developing low cost applications custom-made for industry.

New National Member Organization of IFAC
The Automatic Control Society of Slovenia

The Automatic Control Society of Slovenia was founded in Ljubljana on 12 January, 1989. Its headquarters is at the Faculty of Electrical and Computer Engineering, University of Ljubljana, Trzaska 25, 6111 Ljubljana, Slovenia.

The aims and objectives of the Society are to contribute to the development and progress of automatic control, to further the scientific standard of its members, to encourage the education in the fields of automatic control, to promote the cooperation between scientific institutes, universities and experts, to research in the area of automation, and to support the edition of professional and scientific literature in this field.

The Society has organized several lectures with prominent Slovenian and international scientists. It co-organized the First Slovenian Electrotechnical and Computer Conference in 1992, presented itself at two international fairs in Ljubljana and organized three round table discussions. The subjects discussed there were: How to bridge the gap between automatic control education; and The perspectives of research work in Slovenia. The main discussion points were published in technical reviews.

Automatic Control in Aerospace
IFAC/IEA Symposium
Munich, Germany, 7 - 11 September, 1992

Discussions on new concepts and ideas during Story Board Sessions

The 12th IFAC Symposium on Automatic Control in Aerospace continued chronologically the series which started in 1965 in Stavanger, Norway. The Symposium was organized jointly by the IFAC Technical Committees for 'Aerospace Control' and 'Manufacturing Technology'. The co-sponsors were the 'Deutsche Gesellschaft für Luft- und Raumfahrt' (DGLR) and the 'American Institute of Aeronautics and Astronautics' (AIAA). The Symposium was organized by VDI/VDE-GMA with support of DASA/-MBB. Dr. E. Gottzein and Prof. D. DeBra were responsible for the technical program.

The 11 main sessions of the Symposium, each of which was introduced by a general overview, dealt with the subjects guidance, control and navigations of vehicles in the atmospheric and extra-atmospheric range, orbit and attitude control of spacecraft and spacevehicles, guidance and navigation of intelligent, autonomous vehicles, control of astronomical telescopes in space, orbit optimization and guidance of conventional and advanced carriers in ascent and re-entry as well as new methods and technologies in the area of components. Additional to the formal 70 technical presentations, another 58 contributions were presented, explained and discussed by the authors in so-called 'Story Board' sessions during two of the evenings. By this scheduling it was possible to avoid parallel sessions despite the variety of contributions, though a long working day was required. Here it turned out to be an 'adroit tactical organization aid' to serve an excellent buffet at each of the 'story-board' sessions. The working program was rounded off with technical visits at the resident space industry (IABG, MBB) and institutions (DLR, GSOC). The 170 experts participating in the congress came from more than 16 countries, mainly from Germany, the USA, France, Great Britain and Japan but also from China and Russia.

The essential results can be summarized as follows:

For complex structures and precision control, uncertainty still exists concerning the modelization and the real dynamic behaviour in orbit. Therefore it is recommended to plan operational in-orbit test- and calibration phases in critical cases.

To resist against serious failures (like unexpected loss of components, serious model failures, etc.) already the design should foresee the possibility of in-orbit code changes (e.g. by a corresponding structure of the operational system, modular structure of the operational system, modular structure of the operational modes, preparation of sufficient memory, efficiency of the TM/TC system, etc.). This statement was substantiated by a ROSAT presentation which illustrated the power of these techniques.

Test- and verification methods are still the central topic of an integrated development 'life cycle' including well adapted earth- and in-orbit verification methods for each development step. Corresponding test philosophies and a number of test installations were presented and discussed.

Modern methods, like adaptive control, knowledge based approaches, fuzzy logic, etc. are more and more on their way into aerospace development bringing out promising results in simulation and test; but an in-orbit realization is still the exception.

Robot- and manipulator applications cover a wide field of control activities: A series of laboratory based test equipments show good results in the application of modern procedures (adaptive and knowledge based control, autonomy augmentation by 'task planning' and 'path planning' etc.). However, until now the well known 'Shuttle Remote Manipulator System' has only been used in manual operation - despite a possibility of automatic control - because of the elasticity caused by lightweight construction.

In the range of trajectory optimization new methods were presented which could be successfully applied on horizontal launching carriers with airbreathing propulsion systems. For this kind of carrier systems modern guidance concepts bring out promising approaches under special consideration of generic optimization aspects.

Commercial and tested development tools for control system analysis and simulation including software development are widely available. Their successful application increases in aerospace development.

An interesting development was observed in the field of 'Smart Structures': It refers to small, intelligent structures which combine sensors, intelligent data processing and actuators. They are decentrally placed at appropriate points to damp or control elasto-mechanical qualities, e.g. of large structures and of telescopes.

The 'Hemispherical Resonator Gyro' seems to be another interesting new development in the sphere of components. It concerns a gyro without any rotating parts, in which the spacial phase shifting of a standing acoustical wave is analyzed during the rotation of a hemispherical resonance body. High resolution, low noise, high bandwidth and large mechanical stress capability at a long life time are presented as special advantages, but no flight experiences have been reported yet.

All in all, the participants can look back on a successful Symposium. Selected technical contributions will be published in the Symposium Proceedings, Automatica and Control Engineering Practice.

The 13th IFAC Symposium on Automatic Control in Aerospace, Aerospace Control '94 will be held in Palo Alto, CA, 12-16 September, 1994.

Sydney Congress
for the
Accompanying Persons

Australia is a land of great contrasts and you will be able to discover this in its wonderful coastline and beaches, its coral reefs, its rain forests, its mountains and its deserts before or after attending the IFAC Congress in Sydney in July.

As the wife of the President of IFAC, I have enjoyed working with the organizing committee to put together a program full of interest for the Accompanying Persons, and I would urge you all to plan your travel arrangements so that you arrive in time to attend the Opening Ceremony in our world famous Opera House on Sunday 18 July, at 2.00 p.m.

On Monday 19th July, the Accompanying Persons will be especially welcomed over coffee at the Darling Harbour Convention Centre. You will have a chance to get to know each other at the start of the Congress, before setting out on the daily tours. An Aboriginal will be our Special Guest and he will give a demonstration on how to play the didgeridoo and throw the boomerang. This should be very interesting.

I look forward to meeting you all on this splendid occasion.

(Mrs) Dianne Anderson

EPAC Dinner
Invitation

At the 1984 IFAC Congress, the Western European Professors of Automatic Control (WEPAC), a sub-committee of EDCOM, started the tradition of holding a dinner. Those who attended the meeting of WEPAC in Zurich last September, which included professors from Eastern Europe so that the name of the group has now been changed to EPAC, agreed to continue the tradition.

Arrangements are being made to hold the dinner on the evening of Friday, July 23rd, and the approximate cost is expected to be around 50 Australian dollars per person. As in the past, partners are also invited. Those wishing to attend should register and pay at the Congress registration desk, where full details will be available, no later than

Tuesday July 20th

To assist in the planning, it would be extremely helpful if those intending to attend would inform:

Professor D.P. Atherton

e-mail: atherton@uk.ac.sussex.eaps
fax: +44/273/678399

FORTHCOMING EVENTS (ctd.)

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

Title	1995	Place	Deadline	Further Information
1995 American Control Conference (in cooperation with IFAC)	June 21 – 23	Seattle, WA USA	15 Sept. 1994	Prof.M. Tomizuka, Dept. of ME, Univ. of Calif. Berkeley, CA 94720, USA FAX: 510/642-6163 email: tomizuka@euler.berkeley.edu
FAC Conference System Structure and Control	July. 5 – 7	Nantes France	1 August 1994	M. J.J. Loiseau, CNRS LAN-ECN 1, rue de la Noe F-44072 Nantes Cedex 03 France FAX +33/40/372522 e-mail: loiseau@lan01.ensm-nantes.fr
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
1995 European Control Conference (in cooperation with IFAC)	Sept. 5 – 8	Rome Italy	1 Oct. 1994	ECC 95 Secr., Prof. A. de Luca D I S, Univ. degli Studi di Roma Via Eudossiana 18 I-00184 Rome, Italy FAX 39/644 585367 e-mail: ecc95@irmunisa.ing.uniroma1.it

* Deadline not yet known
– Deadline past

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Preview

Papers from the IFAC Workshop on Distributed Computer Control Systems, August 1992

Preface to the Papers from the 11th IFAC Workshop on Distributed Computer Control Systems
(M.G. Rodd)
One View of the Future of Industrial Control
(T.J. Williams)
Performance Analysis of a Local Area Network Hybrid Protocol
(M.R. Lima and J.C.B. Leite)
A Communication Method for an Industrial Multiple-Microcontroller Distributed Control System
(R.G. Cameron and J. Zhao)
Predictable Parallel Real-Time Code Generation
(M.R. Webster, D.C. Levy, R.G. Harley, D.R. Woodward, L. Naidoo, M.VD. Westhuizen and B.S. Meyer)
A System for the Automation of Mining Machines
(K.W. Plessmann, B. Dickhaus and S. Scheytt)
A Fieldbus in Ironworks in China
(H. Chao and G.X. Wang)
A Distributed Computer Energy Management and Control Systems
(M. Wu, D.Y. Shen, L.C. Rao and W.H. Gui)
Developing a DCS to Suit Industrial Applications in China
(Chang-Li Wang)

Papers from the IFAC Workshop on Motion Control for Intelligent Automation, October 1992
(Guest Editor: A. De Carli)

Preface to the Papers from the IFAC Workshop on Motion Control for Intelligent Automation
(A .De Carli)

Motion Control: An Emergent Technology
(A. De Carli)
Active Position Control of a Dynamic Platform in the Face of Disturbances
(K. Bouazza-Marouf and J.R. Hewit)
High Performance Applications: Robot Motions in Complex Environments
(G. Schweitzer)
Model-Based Nonlinear Adaptive Control of a Pneumatic Activator
(H. Keller and R. Isermann)
Microcomputer Systems for Motion Control
(T. Ohmae and W. Watanabe)
Variable Structure Controllers in Motion Control Systems
(A. Sabanovic)
High Performance Control of Robot Manipulators without Using Inverse Dynamics
(Y. Hori)
Identification and Digital Control of Electrical Devices
(I.D. Landau and F. Rolland)

Abstracts

IFAC Symposium: On-Line Fault Detection and Supervision in the Chemical Process Industries, April 1992
IFAC Symposium: Control of Power Plants and Power Systems, March 1992
IFAC Symposium: Dynamics and Control of Chemical Reactors, Distillation Columns and Batch Processes, (DYCORD+'92), April 1992
IFAC Workshop: Distributed Computer Control Systems (DCCS'92), August 1992

Index of Abstracts
Book Reviews
Conference Calendar

Meeting Schedule
General Assembly
Council- and Related Meetings
Sydney, Australia, 15 - 24 July, 1993

In the framework of this year's World Congress, the General Assembly and all other bodies of IFAC will hold their administrative meetings. Below, find a survey over the most important meetings scheduled within that period

Date	Meeting	Time
16 July Friday	Executive Board (Outgoing)	14.00 - 18.00
	Technical Board (Outgoing)	14.00 - 18.00
17 July Saturday	Technical Board (Outgoing) ctd.	09.00 - 12.00
	Council (Outgoing)	14.00 - 17.00
18 July Sunday	Council (Outgoing) ctd. Congress Opening	09.00 - 12.00 14.00
20 July Tuesday	General Assembly Council (Inaugural meeting)	14.30 - 17.30 17.30 - 18.00
24 July Saturday	Executive Board (Incoming)	09.00 - 12.00
	Technical Board (Incoming)	09.00 - 12.00
	Council (Incoming)	14.00 - 18.00

In this period also all Executive Committees and Technical Committees as well as most Working Groups and some IPCs will hold meetings. For a detailed schedule, please write, fax or e-mail your request to the IFAC Secretariat.

Papers From the Next Issue – July 1993

Special Section on Fault Detection, Supervision and Safety for Technical Processes

Introduction
(G.S. Axelby)
Preface
(R. Isermann, B. Freyermuth)

Tutorial Paper

Fault Diagnosis of Machines via Parameter
Estimation and Knowledge Processing
(R. Isermann)

Brief Papers

Optimal Unknown Input Distribution Matrix
Selection in Robust Fault Diagnosis
(R.J. Patton, J. Chen)
Application of Artificial Neural Networks in Process
Fault Diagnosis
(T. Sorsa, H.N. Koivo)

Papers

Adaptive Mould Level Control for Continuous
Steel Slab Casting
(T. Hesketh, D.J. Clements, R. Williams)
Tuning a Dynamic Positioning System
(J. Sekäinaho)
An Adaptive Tracking Problem with a Control
Input Constraint
(D.E. Miller, E.J. Davison)
Robust Eigenstructure Assignment for the Extended
Medium Range Air to Air Missile
(W. Yu, J.E. Piou, K.M. Sobel)
Modeling and Feedback Control of a Flexible Arm
of a Robot for Prescribed Frequency-Domain
Tolerances
(M. Keleman, A. Bagchi)
Predictive Self-Tuning Control by Parameter
Bounding and Worst-Case Design
(S.M. Veres, J.P. Norton)
Pseudo-Burst Phenomenon in Ideal Adaptive Sy-
stems
(M. Bodson)
Capabilities and Limitations of Multirate Control
Schemes
(K.L. Moore, S.P. Bhattacharyya, M. Dahleh)
An Expert System for Multivariable Controller
Design
(J. Lieslehto, J.T. Tanttu, H.N. Koivo)
Single Input-Single Output H∞ Control with Time
Domain Constraints
(A. Sideris, H. Rotstein)
Robust Control of Nonlinear Uncertain Systems
Under Generalized Matching Conditions
(Z. Qu)
Linear Feedback Stabilization of Nonlinear Systems
with an Uncontrollable Critical Mode
(J.-H. Fu, E.H. Abed)
Recursive Prediction Error Identification Using the
Nonlinear Wiener Model
(T. Wigren)
Application of a Subspace Model Identification
Technique to Identify LTI Systems Operating in
Closed Loop
(M. Verhaegen)
Simultaneous Parameter Tracking and State
Estimation in a Linear System
(V. Havlena)
Set Inversion via Interval Analysis for Nonlinear

Bounded-Error Estimation
(L. Jaulin, E. Walter)
System Identifiability from Finite Time Series
(C. Heij)
Uncertainty in the Weighted Gap Metric: A
Geometric Approach
(J.A. Sefton, R.J. Ober)

Brief Papers

A Pneumatic Model-following Control System
Using a Fuzzy Adaptive Controller
(C.-L. Chen, P.-C. Chen, C.-K. Chen)
Implementation of a Knowledge-Based PID Auto-
Tuner
(T.H. Lee, C.C. Hang, W.K. Ho, P.K. Yue)
Performance Monitoring and Fault Prediction Using
Linear Predictive Coding Algorithm
(R. Doraiswami)
On the Finite Transmission Zero Assignment
Problem
(V.L. Syrmos)
Parametrization of Multivariable Systems Using
Output Injections: Alpha Canonical Forms
(V. Eldem, A. Duyar)
Robust Control of Discrete Time Uncertain
Dynamical Systems
(L. Xie, C.E. de Souza, Y. Wang)
General Analytical Structure of Typical Fuzzy
Controllers and Their Limiting Structure Theorems
(H. Ying)

Book Reviews

The H∞Control Problem, A Statespace Approach,
by A. Stoorvogel
(J. Stoustrup)
Applied Robotic Analysis, by R.E. Parkin
(P. Kopacek)
Fundamentals of Manipulator Calibration, by B.W.
Mooring, Z.S. Roth and M.R. Driels
(D. Stanton)

Low Cost Automation
LCA '92
IFAC Symposium (3rd)
Vienna, Austria, 9 - 11 September, 1992

After Valencia and Milan, this third symposium
was organized by the Austrian NMO, i.e. the
Austrian Centre for Productivity and Efficency, in
cooperation with the Institute of 'Handling Devices
and Robotics' at the Technical University of Vienna.
The International Program Committee, chaired by
P. Albertos (Spain) had the difficult task to select
94 papers from 155 submitted abstracts. These 94
technical papers were arranged in 21 sessions. In
addition, five plenary papers were given and one
round table session was held.

According to the scope, the main reason of the
Symposium was to bring together end-users and
control system specialists to evaluate the
possibilities of technique, design procedures,
components and instruments to get easy-to-apply
Low Cost Automation not only considering all
economic aspects but also improvements in
productivity, reliability, flexibility. Special
emphasis should be placed on small and medium
sized enterprises. Therefore the plenary papers
should give an overview over this field. They were

New Techniques to Improve Performance of Simple
Control Loops, by R. Ortega (France)

Low Cost PLC Design and Applications, by
H.P. Jörgl and G. Höld (Austria)

Neuro-Fuzzy Controllers, by F. Gomide, A. Rocha
(Brazil) and P. Albertos (Spain)

Using Low Cost PLC Electric Ultrasonic Sensors
for 3-D-Measurement in Robots, by G. Lindstedt
and G. Olson (Sweden)

The technical session dealt with topics from process

automation as well as from manufacturing
automation. From the side of the automation of
continuous processes, two sessions were given on
other adaptive controllers, two sessions on process
control applications, two sessions on drives and
one session on power engineering application and
signal processing. In the field of the automation of
discontinuous processes - manufacturing
automation, two sessions dealt with modelling and
CAD, robotics, computer systems and one session
with intelligent control. A round table discussion
organized by P. Albertos (Spain) concerned itself
with problems of Low Cost Automation in former
Eastern European countries.

The Symposium was attended by 135 participants.
All accepted papers were published in a preprints
volume. As the Symposium met with great interest
and the papers were of excellent quality, it was
decided to continue this Symposium series in three
years, i.e. in Buenos Aires, Argentina from 13-15
September, 1995 (cf. list of Forthcoming Events).

P. Kopacek, NOC Chairman
P. Albertos, IPC Chairman

A Cost Effective Use of Computer Aided Technologies and Integration Methods in Small and Medium Sized Companies CIM '92
IFAC Workshop
Vienna, Austria, September 7 - 8, 1992

Approximately two years ago, the MANTECH
committee discussed the possibility to hold a
symposium with the main emphasis on Computer
Integrated Manufacturing for small and medium
sized companies in the framework of IFAC. As a
result of these discussions, this first Workshop was
held at the Technical University of Vienna,
organized by the Austrian Centre for Productivity
and Efficiency (the Austrian NMO of IFAC) as
well as by the Institute of Robotics of the Techical
University of Vienna. 57 abstracts were submitted
and reviewed by a small International Program
Committee with the result that forty full papers
were accepted and included in the final program. In
addition, two plenary papers were given and one
panel discussion was held.

The Workshop was held just before the IFAC
Symposium on Low Cost Automation. The reason
was that, according to the subtitle - small and
medium sized companies - special emphasis of the
contributions should be on low cost approaches or
solutions appropriate for small and medium sized
companies. Therefore, this Workshop can be seen
as a subset of the Low Cost Automation Symposium.

Most of the technical papers dealt with low cost
approaches for the classical CIM components like
Computer Aided Design (CAD), Computer Aided
Planning (CAP), Computer Aided Manufacturing
(CAM) and Computer Aided Quality Control
(CAQ). Other topics of interest were robotics,
software design, networks and CIM management.
Approximately 50 % of the papers were real
application papers. From these some described a
new approach for low cost CIM systems, based on
low cost PCs connected by a network and supervised
by a network server.

The plenary papers were:
- CIM for Small and Medium Sized Companies,
  by P. Kopacek (Austria)
- The GRAI Integrated Method: A Technico-
  Economical Methodology to Design
  Manufacturing Systems, by B. Vallespir, C. Merle
  and G. Doumeingts (France).

The panel discussion dealt with problems of low
cost Computer Integrated Manufacturing mainly in
former Eastern European countries.

P. Kopacek, IPC Chairman

FORTHCOMING EVENTS (ctd.)

Event	Date	Place	Deadline	Further Information
IFAC/IFIP/IFORS Workshop (2nd) Intelligent Manufacturing Systems	June 22 – 24	Vienna Austria	15 Feb. 1994	Dr. Martin Zauner, ÖPWZ, Rockhgasse 6 A-1014 Vienna, Austria FAX +43/1/533 863621
IFAC Workshop Integration of Process Design and Control	June 27 – 28	Baltimore MD, USA	15 Sept. 1993	Prof. T. McAvoy, Chem. Eng. Dept., Univ. MD College Park, MD 20742, USA FAX 301/405-9126, email: mcavoy@eng.umd.edu
1994 American Control Conference (in cooperation with IFAC)	June 29 July 1	Baltimore, MD USA	15 Sep. 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	Sept. 1993	SYSID '94 Secretariat Danish Automation Society, Bygn. 343 Danish Technical University DK-2800 Lyngby, Denmark FAX +45/3120 5521
IFAC/IFIP/IFORS Symposium Transportation Systems: Theory and Application of Advanced Technology	July 23 – 25	Tianjin PRC	10 July 1993	Prof. G.G. He, TS'94 Institute of Systems Engg., Tianjin University Tianjin 300072, China, P.R. FAX +86/22-358329
Asian Control Conference (in cooperation with IFAC)	July 27 – 30	Tokyo Japan	31 Oct. 1993	Prof. Y. Mori, Dept. of Mech. Engineering National Defense Academy 1-10-20 Hashirimizu, 239 Yokosuka, Japan Fax: 468426480
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/ISHS Workshop (2nd) Mathematical and Control Applications in Agriculture and Horticulture	Sept. 12 – 16	Silsoe UK	1 July 1994	Dr. W. Day, Silsoe Research Inst. Wrest Park, Silsoe, MK45 4HS, UK
IFAC Symposium (13th) Automatic Control in Aerospace	Sept. 12 – 16	Palo Alto CA, USA	1 Feb. 1994	Dr. K. Lorell, Lockheed 92-30/250 3251 Hanover Str., Palo Alto, CA 94304-2746 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, R. Marques de Sao DEE, (PUC-RIO) 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

Title	1993	Place	Deadline	Further Information
IFAC WORLD CONGRESS	**JULY 19 – 23**	**SYDNEY AUSTRALIA**	–	**The General Manager, IFAC CONGRESS AE Conventions Pty Ltd. Engineering House, 11 National Circuit Barton, ACT 2600, Australia FAX +61 6 273 2012**
IFAC/IFIP/IFORS/IEEE/ACM /AAAI Workshop AI in Economics and Management	August 25 – 27	Portland, OR USA		AIEM3, Att. Prof. Kuan-Pin Lim, Portland State University, POB 751 Portland, OR 97207-0751, USA FAX 503/725-5850 e-mail: aiem3@psuorvm.bitnet
IFAC/IFIP/EWICS Conference Safety of Computer Control Systems - SAFECOMP '93	October 27 – 29	Gdansk Poland	–	Dr. Janusz Gorski Technical University of Gdansk PL-80952 Gdansk, Poland FAX +48/58 471971
IFIP/IFAC Workshop The Design of Information Infrastructure Systems for Manufacturing	Nov. 8 – 10	Tokyo Japan	1 June 1993	DIISM 93, c/o Yoshikawa Lab. The University of Tokyo, Dept. of Prec. Machinery Engineering 7-3-1 Hongo, Bunkyo-ku, Tokyo 113, Japan FAX +81-3-3812-8849 e-mail: jago@zzz.pe.u-tokyo.ac.jp

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: +43/222/568093 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 Insituto 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	31 July 1993	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	1 July 1993	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 Instr. for Control Applications - SICICA '94	June 8 – 10	Budapest Hungary	31 July 1993	SICICA '94 Secretariat Computer and Automation Research 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 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