## | IFAC

## International Federation of Automatic Control

Secretariat: Schlossplatz 12, A-2361 Laxenburg, Austria - Phone (+43 2236) 71 4 47, Fax (+43 2236) 72 8 59, e-mail ifaca @serv.univie.ac.at

1995 No. 1 Feb

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Control Engineering Practice Volume 3, No 1, January 1995 & No 2, February 1995

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Multilingual Dictionary of Automatic Control Technology Editors: H.A. Prime & A. Work

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.

## Call for Papers



## 13th World Congress

## International Federation of Automatic Control San Francisco, California, USA

Hosted by the American Automatic Control Council

#### An Invitation to the International Control Community

It gives us great pleasure to invite you to participate in the 13th World Congress of IFAC to be held in San Francisco, California, USA, from June 30 - July 5, 1996. As this Call for Papers suggests, there will be a spectrum of categories for technical presentations, including plenary lectures, survey papers, regular papers of both lecture and poster session types, panel discussions, and case studies. Immediately preceding the formal opening of the Congress, tutorials are being offered to provide participants an opportunity to learn new principles, methodologies, technologies, and applications that have been developed in recent years.

This IFAC World Congress is the major control conference in the world for 1996. It will be the second of the triennial series of IFAC Congresses to be held in the United States. The first one was in Boston, Massachusetts, in 1975.

San Francisco and the Bay Area afford numerous tourist attraction for the participants and their guests.

We look forward to seeing you in San Francisco in 1996!

Jose B. Cruz, Jr. Chairman, IPC Harold W. Sorenson General Chairman, NOC

Congress dates: June 30 - July 5, 1996

Opening Ceremony: Technical Program: Pre-Congress Tutorials:

Sunday, June 30 Monday - Friday, July 1 - 5 Saturday - Sunday, June 29 - 30

Congress venue:

The San Francisco Marriott Hotel San Francisco, California, USA

The Call for Papers, including the comprehensive information and details on the program as well as the Draft Paper Submission Form was mailed to all Newsletter recipients by the organizers of the Congress.

Should the Call for Papers not have reached you for whatever reason, please request it from the organizers at the address given overleaf. An electronic version of the Call for Papers is also available on the IFAC Electronic Information Server via: gopher gopher.eunet.es or via: mosaic gopher://gopher.eunet.es

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## **Technical Program**

The technical program of the Congress will feature:

- · Plenary lectures
- Regular Paper Sessions
  - · contributed and invited sessions
  - · sessions in lecture and poster format
- Special Sessions and Lectures
  - · survey papers
  - · case studies
  - · benchmark sessions
  - · panel discussion sessions

In addition to the usual lecture sessions, the Congress will feature poster sessions. Accepted papers will be assigned to lecture or poster sessions according to the kind of presentation that fits the nature of work better; no value ranking is implied. Authors will also be asked to indicate their preference. Poster and lecture papers will be allowed the same number of pages in the Congress Preprints/Proceedings.

An invited session is a set of papers on a well-defined subject of current interest; in case of lecture presentation, it normally contains 5 papers.

A survey paper summarizes the state of the art in a technical area of special interest; it is to be presented in a lecture session of contributed or invited papers where it usually takes the slots of two regular papers (about 40 minutes).

A case study describes a particularly important application in some depth; its length may be an hour.

A benchmark session compares several methods using a previously defined example; its length may be an hour.

A panel discussion is a discussion session on a subject of current interest, usually with a strong industrial emphasis, with the participation of the audience and several recognized experts on the 'panel'. Its length is usually an hour.

Congress Symposia and Technical Areas

All technical activities of the Congress, with the exception of the Plenary Lectures, will be organized in the form of Congress Symposia, each one covering a coherent subfield within automatic control. The program of each Symposium will be further subdivided into Technical Areas, following the Technical Committee structure of IFAC. All material submitted or proposed for presentation at the Congress will be reviewed by subcommittees of the International Program Committee (IPC), set up according to the Congress Symposium-Technical Area structure.

It is assumed that authors submit their papers in good faith, that is, they do intend to attend the Congress and there is a reasonable chance they will be able to. Acting otherwise would be professionally unethical; an unpresented paper takes away a slot from another author and creates a hole in the lecture session, which can cause serious inconvenience to the audience and the organizers.

Limited funds are expected to be available to assist a small number of authors from developing countries who would not otherwise be able to attend the Congress. The exact conditions and procedures have yet to be worked out. Prospective authors wishing to obtain more information should contact:

Professor Peter Luh, Financial Aid Coordinator

Department of Electrical and Systems Engineering

University of Connecticut

Storrs, CT 06269-3157, USA

Phone +1/203/486-4821

Fax +1/203/486-2447 E-mail: luh@farside.ese.uconn.edu

#### **IFAC Congress Prizes**

The International Program Committee is announcing the following prizes awarded to authors for Congress contributions:

IFAC Congress Applications Paper Prize for the best applications paper.

IFAC Congress Young Author Prize for the best paper by an author (or authors) younger than 35 years at the time of the Congress.

Best Educational Video Prize for the best videotape on control laboratory experiments. The tapes should be no longer than seven minutes, should sufficiently explain the relevant theory, and must be self-standing. For further information on the educational video competition, contact:

> Professor Karl Heinz Fasol Fakultät für Maschinenbau Ruhr-Universität Bochum D-44780 Bochum, Germany Fax +49/234/709-4155

The first two Congress awards carry a certificate and a prize of sfr 1.500,00; the winners are selected by a committee appointed by the IFAC Council. The Educational Video Award consists of a certificate; the winner is selected by the Technical Committee on Control Education. All prizes will be awarded at the Closing Ceremony of the Congress.

Draft contributed papers and special session and lecture proposals must reach the IPC by June 30, 1995, Papers and proposals arriving late cannot be considered. Detailed submission rules, together with the submission address and the Draft Paper Submission Form, are provided in the full Call for Papers,

A printed copy of the Call for Papers may be obtained from

IFAC '96 POB 111

Mabelton, GA, 30059, USA +1/708/491-3641

+1/708/491-4455 Fax

## A Message from the Editor-in-Chief of

## **Control Engineering Practice**

The first issue of 1995 marks an exciting new development in the life of Control Engineering Practice. Only two years after the journal's inception, we are moving to monthly publication, and increasing our page budget by 50 % in order to accommodate the volume of excellent applications-related material which we are receiving. I see this as a tremendous vote of confidence by the control engineering community, and I am grateful to our publishers for supporting us in taking this step so early in the life of our journal.

We will continue to publish Special Sections (mostly, but not exclusively, based on papers originating from IFAC events) in most issues, but the additional page space will allow us to do this without delaying the publication of directly submitted papers.

The strong Book Review Section, ably coordinated by Janusz Zalewski, will continue, as will the Conference Calendar, although the latter will appear in a more compact (and, we hope, user-friendly) format.

When Control Engineering Practice was first envisaged, a decision was taken to include the abstracts of all papers presented at IFAC events. This, it was felt, would provide a means of publicising the papers contained in the IFAC Postprint Volumes published by Elsevier, and provide our readers with an invaluable reference source.

Now it has become necessary to re-assess the situation. The large numbers of excellent highquality application papers which we are receiving, as well as the flow of Special Sections, have led us to reconsider how we can best address the needs of our readers within the constraints of the page budget -increased though this may be.

The abstract section appears to be occupying a disproportionate amount of space (equivalent, in fact, to almost two papers per issue). It has therefore been decided (in consultation with IFAC, and with the publishers) that the best way forward is to publish the title, authors and keywords of all presented papers, rather than their abstracts. This will still achieve the initial objectives of this section of the journal, but without the current inordinate expenditure of time and page space. In choosing a suitable cut-off point for the change, it was felt that, having started publishing the abstracts of the 1993 World Congress, we should finish those in the first issue of 1994, and then move to the new system. The invaluable cumulative index to the IFAC papers will continue. In this way, I feel, we can best serve the needs of all our readers and authors, and provide an on-going archive of IFAC's technical activities.

Thank you for your support in the past; we look forward to an even brighter future!

Mike Rodd Editor in Chief Control Engineering Practice

### **Control Engineering Practice**

Volume 3, No 1, Jan. 1995

#### Preview and and admitted

Processing Back EMF Signals of Hybrid Step

(R.M. Lofthus, S.A. Schweid, J.E. McInroy and (, Ota)

Parallel Implementation of a Genetic Algorithm (R. Davies and T. Clarke)
Identification of Cross Directional Behaviour in

Web Production: Techniques and Experience (A.P. Kjaer, W.P. Heath and P.E. Wellstead) Fuzzy-Neural-Net-Based Inferential Control for a High-Purity Distillation Column (R.F. Luo, H.H. Shao and Z.J. Zhang)

Special Section on the Impact of Models for Management and Control in Manufacturing (Guest Editor: A. Villa)

Preface to the Special Section on the Impact of Models for Management and Control in Manufacturing

(A. Villa) Enterprise Modelling for Competitive Manufacturing

(A. Rolstadas) How to Evaluate Integration Between Operations Management and Organizational Structures in CIM

(M. Lucertini, F. Nicolo, S. Rossetto, D. Telmon, W. Ukovich and A. Villa)

A Proposal for an Integrated Model of a Manufacturing System: Application to the Re-engineering of an Assembly Shop
(G. Doumeingts, B. Vallespir, and F. Marcotte)

Line Balancing Using a Genetic Evolution Model (T. Watanabe, Y. Hashimoto, I. Nishikawa and H. Tokumaru)

An Information Systems Based Paradigm for Decisions in Rapidly Changing Industries (K.N. McKay, F.R. Safayeni and J.A. Buzacott) The ALSYS Adaptable Control System for

Flexible Production (G. Pritschow and J. Uhl)

An Integrated Approach to Software Systems Planning and Selection Based on CIMOSA Models (G. Naeger and U. Rembold)

The Impact of Simulation in Manufacturing Decision Making (B.W. Hollocks)

Practical Applications of Models and Their Benefits (S. Bansal)

#### Abstracts

12th Triennial World Congress on Automatic Control (Volume 5), July 1993, Sydney, Australia

Index of Abstracts **Book Reviews** Conference Calendar

## **Control Engineering** Practice Volume 3, No 2, Feb. 1995

#### Preview

Generating Feasible Cyclic Schedules (A. Burns, N. Hayes and M.F. Richardson) Experimental Verification of Transfer Functions for a Slewing Piezoelectric Laminate Beam (T.E. Alberts, T.V. DuBois and H.R. Pota) Digital Sampling Rate Reduction - A Guide for Practising Control and Instrumentation Engineers (R.E. Lurie and I.M. MacLeod) Adaptive Control with Parameter Estimation for Induction Motor Drives (A. Bellini and G. Figalli) Force-Controlled Fuzzy-Logic-Based Robotic Deburring (M.-H. Liu)

Special Section on the Analysis, Design and Evaluation of Man-Machine Systems

(Guest Editor; K. Kawai) Preface to the Special Section on the Analysis, Design and Evaluation of Man-Machine Systems (K. Kawai)

Teleoperation, Telerobotics and Telepresence: A Progress Report

Improved Force Perception Through Sensory Substitution

(M.J. Massimino) Aiding the Operator in the Manual Control of a

Space Manipulator (J.F.T Bos, H.G. Stassen and A.van Lunteren)
An Ecological Interface for Supervisory Control

of BWR Nuclear Power Plants (J. Itoh, A. Sakuma and K. Monta)

Multi-Media Interfaces for Process Control: Matching Media to Tasks

(J.L., Alty and M. Bergan) Implementation of User-Adaptive Assistants with Neural Operator Models (1990) (1991) (1991)

(K.F. Kraiss)
An Integrated Simulation Approach for the Analysis of Pilot-Aeroplane Interaction (P.C. Cacciabue and G. Cojazzi)

Knowledge-Based Design of Human-Machine

Interfaces (G. Johannsen)

Development of a Real-Time Cognitive State Estimator (M. Takahashi, M. Kitamura and H. Yoshikawa)

IFAC Meeting Papers Book Reviews Conference Calendar

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 Zürich und ist nach Schweizer Recht als gemeinnütziger Verein angemeldet. Sie verfolgt weder wirtschaftliche noch praktische 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, Dipl.Ing.Dr, Gusztáv Hencsey. Die Zeitschrift dient der Information über die Aktivitäten der IFAC. Sie wird kostenlos an Abonnenten in 50 Ländern versandt. Die Kosten werden von der IFAC aus Beiträgen

der derzeit 45 Mitgliedsländer getragen. Präsident der IFAC ist für 1993/96 Dr. Stephen Kahne (USA), Vizepräsidenten sind Prof. Vladimir Kucera (CZ) und Prof. Pedro Albertos (E). 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.)

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The Journal of IFAC the International Federation of Automatic Control

Papers From the March 1995 Issue

#### Editorial

Obituary for Y. Sunahara (H. Kwakernaak)

#### Papers

Optimum Realizations of Sampled-Data Controllers for FWL Sensitivity Minimization

(A.G. Madievski, B.D.O. Anderson, M. Gevers) Convergence and Logarithm Laws of Self-Tuning Regulators

(Lei Guo)

Gain Scheduling Dynamic Linear Controllers for a Nonlinear Plant

(D.A. Lawrence, W.J. Rugh)

Algorithms for Global Total Least Squares Modelling of Finite Multivariable Time Series (B. Roorda)

Trajectory Encoding for Systems with Irregular Observations

(L.E. Holloway)

Discrete-Time Nonlinear H-infinity Control with Measurement Feedback

(W. Lin, C.I. Byrnes)

Non-Quadratic Lyapunov Functions for Robust Control

(F. Blanchini)

#### **Brief Papers**

Robust Performance for Systems with Component-Bounded Signals

(J-Y. Wong, D.P. Looze)

Automatic Tuning of Finite Spectrum Assignment Controllers for Delay Systems

(Qing-Gua Wang, Tong Heng Lee, Kok Kiong Tan)

An Exact Treatment of the Achievable Closed-Loop H2 Performance of Sampled-Data Controllers: From Continuous-Time to Open-Loop

(S.L. Osburn, D.S. Bernstein)

Combined Adaptive and Variable Structure Control for Constrained Robots

(Chun-Yi Su, Y. Stepanenko, T-P. Leung)

Generating Directional Residuals with Dynamic Parity Relations

(J.J. Gertler, R. Monajemy)

On Optimal(infinity) to I(infinity) Filtering (P. Voulgaris)

(P. voulgans)

Simultaneous Finite and Infinite Zero Assignments of Linear Systems

(Ben M. Chen, Da-Zhong Zheng)

Worst-Case and Average H2 Performance Analysis against Real Constant Parameter Uncertainty (J- Friedman, P. Kamamba, P.P. Khargonekar)

Tuning of PID Controllers Based on Gain and Phase Margins Specification

(W.K. Ho, C.C. Hang, L.S. Cao)

Worst-Case Identification of Nonlinear Fading Memory Systems

(M.A. Dahleh, E.D. Sontag, D.N.C. Tse, J.N. Tsitsiklis)

#### **Book Reviews**

Digital Control and Implementation: Finite Wordlength Considerations, by G. Franklin (D. Williamson)

#### Papers from the April 1995 Issue

A Neural Network Measuring the Intersection of m-Dimensional Convex Polyhedra (Jing Yuan)

Simultaneous Stabilization Using Stable System Inversion

(Hong-Bin Chen, J.H. Chow, M.A. Kale, K.D. Minto)

Quantification of Uncertainty in Transfer Function Estimation: A Mixed Probabilistic - Worst Case Approach

(D.K. de Vries, P.M.J. van den Hof)

Integrated Probabilistic Data Association - Finite Resolution

(D. Musicki, R. Evans)

Adaptive System Stability Robustness via Burst Recovery

(D.A. Lawrence)

A Canonical Parametrization of the Kronecker Form of a Matrix Pencil

(J.M. Berg, H.G. Kwatny)

The Role of Signal Processing Methods in the Robust Design of Predictive Control

(R. Banerjee, S.L. Shah)
Output Feedback Variable Structure Control
Design

(R.A. DeCarlo)

Adaptive Control on Hot-Dip Galvanizing (D.S. Chen)

Nonlinear Model-Based Control Using Second Order Volterra Models

(F.J. Doyle III, B.A. Ogunnaike, R.K. Pearson) Comparison of Linear, Nonlinear and Neural Network-Based Adaptive Controllers for a Class of Fed-Batch Fermentation Processes

(J.D. Boskovic, K.S. Narendra)

Nonlinear Controller for an Inverted Pendulum Having Restricted Travel

(Q.F. Wei, W.P. Dayawansa, W.S. Levine) Bifurcation Control of a Chaotic System

(H.O. Wang, E.H. Abed) Nonlinear Control of a Swinging Pendulum (C.C. Chung J. Hauser)

#### **Brief Papers**

Absolute Stability of Systems Under Block Diagonal Memoryless Uncertainties

(Keqin Gu)

Adaptive Control of Flexible Joint Manipulators: Comments on Two Papers

(M.W. Spong)

Multirate LQG Control of Continuous-Time Stochastic Systems

(P. Colaneri, G. de Nicolao)

Frequency Domain Criterion for Robust Stability of Interval Time-Delay Systems

(J. Kogan, A. Leizarowitz)

Multivariable Model Reference Adaptive Control without Constraints of the High-Frequency Gain Matrix

(M. de Mathelin, M. Bodson)

FIFO Stable Control Systems

(V. Kucera, F.J. Kraus)

H-infinity-Control with Regional Stability Constraints

(R.K. Yedavalli, Yong Liu)

Why Do Stabilizing Controllers Stabilize? (M. Kuijper)

Frequency Domain Adaptive Control: Band-Wise Compensation

(Yu Tang, E.F. Camacho, J.J. Flores)

Fault Isolation in Industrial Processes by Dynamic Table of States Method

(J.M. Koscielny)

#### **Book Review**

Recent Advances in Computer-Aided Control Systems Engineering, edited by M. Jamshidi and C.J. Hergot (N. Munro)

## IFAC Control Engineering Textbook Prize Call for Nominations Reminder

The Textbook Award Committee of the Education Committee (EDCOM) of IFAC calls for nominations for the triennial Textbook Award. The award is to author(s) of that control engineering textbook judged to have most contributed to the education of control engineers. The book, written in one of the official IFAC languages, must have been published between August 1987 and June 1993. The prize, consisting of a monetary award and a certificate, will be presented at the closing awards ceremony of the 1996 IFAC Congress in San Francisco.

A nomination letter must include the full title, name and address of the author(s), date of publication and name and address of the publisher. The selection committee will take into account any additional information submitted with the nomination including book reviews, letters of support, publisher's data, list of adoptions, etc. Any further information will be appreciated.

Please send nomination material to:
Professor Dr. Karl Heinz Fasol
Regelungssysteme und Steuerungstechnik, IB3
Ruhr Universität Bochum
D-44780 Bochum
Germany

Your cooperation will be greatly appreciated. Please respond as soon as possible. To be considered, nominations must be received by June 30, 1995 at the latest. The winner(s) will be notified in due time so that advance plans can be made to attend the award ceremony.

#### Multilingual Dictionary of Automatic Control Technology

English-French, German, Spanish, Italian, Japanese, Chinese & Russian

Edited by:

H.A. Prime, Barnt Green, Birmingham, UK and A. Work, University of Tallinn, Estonia

This extensive work is the first glossary in the field of automatic control to cover the technical terms of the field in these eight languages. It will certainly prove itself a valuable aid to all control engineers and systems scientists and will undoubtedly become the recognized standard for the technical terms in this field.

Engineers and scientists will also find it a great help when writing research papers for publication in English language journals and when preparing oral presentations at scientific conferences. This unique dictionary contains over 1600 terms covering the entire field of control and automation, derived from the technical committees of IFAC and the conferences that it organizes.

To facilitate its use in all eight languages, the Glossary is divided into two main sections. Firstly, the 1600 technical terms are arranged alphabetically in English with their equivalents in the other languages listed along the page. The second section consists of alphabetical listings in the other seven languages with each term numbered to correspond to the English term in the first section. The Chinese, Japanese, and Russian entries all appear in their own script along with roman transliterations to enable wider use.

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For pricing information and details about a 25 % discount available to IFAC affiliates, please contact; p.mestecky@elsevier.co.uk



## FORTHCOMING EVENTS

No. 1 Power Plants and Power Plants and

Title	1995*	Place	Deadline	Further Information
1995 European Control Conference (in cooperation with IFAC)	5 - 8	Rome Italy		ECC 95 Secretariat D I S, Univ. degli Studi di Roma 'La Sapienza', Via Eudossiana 18 I-00184 Rome, Italy FAX 39/6/44 585367 e-mail: ecc95@itcaspur.caspur.it
IFAC Workshop Control Education and Technology Transfer Issues	XA Sept. 11-12		24 March 1995	CETTI '95 Secretariat Centro Federal de Educacao Tecnologica do Paraná , Av. 7 de Setembro 3165 80230-901 Curitiba, Paraná, Brazil FAX +55/41/224-5170
	Sept. 13-15	Buenos Aires Argentina	California	e-mail: CETTI95@cefet.anpr.br  IFAC LCA 95, Eng. A. T. Casucci AADECA, Av. Callao 220 10B 1022 Buenos Aires, Argentina
	huff er	illbseQ		FAX +54/1/374 3780
IFAC Workshop Human-Oriented Design of Advanced Robotics Systems (1995) A Normal Robotics Systems (1995) A Normal Robotics Systems (1995) A Normal Robotics Systems (1995) A		Vienna Austria	1 April 1995 Holman	Prof. P. Kopacek Technical University /E 318 Floragasse 7 a, A-1040 Vienna, Austria FAX +43/1/504 18 359 e-mail: kopacek@ihrtl.ihrt.tuwien.ac.at
IFAC Symposium Automated Systems Based on Human Skills - Joint Design of Technology and Organization	25 - 28	Berlin Germany	10 Feb. 1995	VDI/VDE GMA Graf Recke Strasse 84 D-40239 Düsseldorf, Germany FAX +49/211/6214-161
IFAC Workshop (13th) Distributed Computer Control Systems - DCCS 95		Toulouse France	1 March 1995	Prof. A.E.K. Sahraoui, LAAS-CNRS 7, Avenue Colonel Roche F-31077 Toulouse, France FAX +33/61553577 e-mail: dccs95@laas.fr
IFAC Conference Supplementary Ways for Increasing International Stability - SWIIS	EVBI	Vienna Austria	1 April 1995	Dr. Alois Frotschnig Technical University, IHRT Floragasse 7 a, A-1040 Vienna, Austria FAX +43/1/504 18 359 e-mail: alois@ihrtl.ihrt.tuwien.ac.at
IFAC Workshop Motion Control		Munich Germany	31 Jan. 1995	Prof. Dr.Ing. F. Pfeiffer Lehrstuhl B f. Mechanik, TU Munich D-80290 Munich, Germany FAX +49/89/2105 3209, e-mail: ifacmoco@lbm.mw.tu-muenchen.de
IFAC/IFORS/IMACS/ISPE Symposium Information Control Problems in Manufacturing - INCOM 95	Oct. 11-13	Beijing China, P.R.	"Fokortika Japan	INCOM '95 Secretariat Institute of Manufacturing Systems /720 Beijing University of Aero-Astro, POB 85 Beijing 100083, China, P.R. FAX +86/1/201 5347
IFAC Workshop Intelligent Manufacturing Systems - IMS 95		Bucharest Romania	15 May 1995	University Politehnica Bucharest Faculty of Control & Computers IMS'95, corp. ED Automatica Spl. Independentei 313, sector 6 R-77206 Bucharest, Romania FAX +40/1/3126 335 e-mail: borangiu@ulise.cs.pub.ro
IFAC Workshop Intelligent Components for Auto- nomous and Semi-Autonomous Vehicles	Oct. 25-26	Toulouse France	1 May 1995	Dr. Pierre Bidan, LAAS de CNRS 7, Ave. du Colonel Roche F-31077 Toulouse, France FAX +33/61 553577 e-mail: bidan@laas.laas.fr
IFAC Workshop Real Time Programming	Nov. 6-10	Miami, FL USA	1 July 1995	Dr. Phil Laplante Dept. Math and Computer Science Fairleigh Dickinson University 285 Madison Avenue Madison, NJ 07940, USA FAX +1/201 593 8886 e-maii: laplante@fdu.edu
IFAC Workshop Artificial Intelligence in Real-Time Control	Nov. 29 - Dec. 1			Dr. Jus Kocijan Faculty of El. & Computer Engg. Univ. of Ljubljana, Trzaska 25, SL-61000 Ljubljana, Slovenia FAX 386/61/264 991

## FORTHCOMING EVENTS (ctd.)

IFAC Symposium Control of Power Plants and Power Systems

Cancun Mexico

Dr. Roberto Canales/SIPOWER'95 Instituto de Investigaciones Electricas AP 475, Cuernavaca, Mor. 62000, Mexico FAX +52/73/189 535 e-mail: Sifac@iievms1.iiecuer.unam.mx

Title	enned an 00 1996	Place	Deadline	Further Information of hasomed age	
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IFAC Workshop (4th) Artificial Intelligence in Economics and Management	amon la roc January 8 - 10	Tel-Aviv Israel	1 March 1995	Prof. Phillip Ein-Dor Faculty of Management Tel-Aviv University Tel-Aviv 69978, Israel	
ratarist I de Educacao Tecnologica 7 de Beternbro 3168				FAX +972/3/6409560 ST e-mail: eindor@taunivm.bitnet oub Floring	
IFAC WORLD CONGRESS		SAN FRANCISCO California USA	30 June 1995	IFAC '96 POB 111 Mabelton, GA 30059, USA Phone +1/708/491-3641	
Fing. A. T. Casucci Ceffac 220 to8	VA ADECIA AV	Busnos Aires Argentina		+1/708/491-4455	

Title 98 (5 FVE) 490	1997	Place	Deadline	Further Information
P. Kopacek	Prof.	IngA I	shtauA	FAC Workshop Furnan-Orlanded Design of 19 - 20
IFAC Symposium (3rd) Modelling and Control for Bio- medical Systems	March XA23 - 26	Warwick UK	Sept. 1996	Prof. K. Godfrey Dept. of Engineering University of Warwick Coventry CV4 7AL, UK
/DE GMA Recke Strasse 84		10 Feb.	Berlin Germany	fg=FAX +44/2035/418922 muleadrive DAT
IFAC/IEEE Symposium Computer-Aided Control Systems Design - CACSD 97	April XA28 - 30	Ghent Belgium	1 Oct. 1996 eaudud 1	Prof. Luc Boullart University of Ghent, Campus Ardoyen Technologiepark - Zwijnaarde, 9 B-9052 Zwijnaarde, Belgium FAX +32/9/264 5839 e-mail: boullart@autoctrl.rug.ac.be
1997 American Control Conference	June	Albuquerque, NI		Prof. A. Haddad
inic Protection with IFAC)  Inicorporation with IFAC)  Inicorporation with IFAC  Inicorporation with Inicorporation with IFAC  Inicorporation with I		USA	1996 cMNUA	AACC Secretariat, Dept. of EECS Northwestern University 2145 Sheridan Road Evanston, IL 60208-3118, USA FAX +1/708/491-4455 e-mail: ahaddad@chair.eecs.new.edu
1997 European Control Conference (in cooperation with IFAC)		Brussels Belgium	1. Sept. 1996	Prof. M. Gevers, CESAME, Bat. Euler B-1348 Louvain la Neuve, Belgium FAX +32/10/472180 e-mail: gevers@auto.ucl.ac.be
IFAC/(IFORS) Symposium (11th) System Identification - SYSID '97		Fukuoka Japan	1 Sept. 1996	Prof. N. Suda Dept. of Systems Engineering Osaka University 1-3 Machikaneyama-cho, Toyonaka 560 Japan FAX +81/6/857 7664
IFAC Symposium (4th) Advances in Control Education ACE 97	15-16	Istanbul Turkey	31 Aug. 1996	Prof. A. Talha Dinibütün Istanbul Technical University Mech. Engg. Faculty Gümüssuyu 80191, Istanbul Turkey FAX +90/212-245 0795 e-mail: mkdnib@tritu.bitnet
1997 Asian Control Conference (in cooperation with IFAC)	22-25	Seoul Korea, Rep.	1 Sept. 1996	Prof. Dong-il Cho 1997 ASCC Secretariat Automation and Systems Res. Institute Seoul National University, Bldg. 133 Kwanak-ku, Shinrim-dong, San 56-1
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IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes - SAFEPROCESS	Sept. 7 - 10.	York UK	30 Sept. 1996	Dr. Ron Patton Dept. of Electronics, Univ. of York Heslington, York YO1 5DD, UK FAX +44/904/43 23335
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<sup>\*</sup>For reasons of space the 1995 events are only published as of September. A complete list of the events taking place in 1995 was published in the IFAC Newsletter No 5/1994 and is also available on the IFAC's electronic information server which is accessible via: gopher gopher.eunet.es or via: mosaic gopher://gopher.eunet.es