



1996
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Latin American Control Conference (7th)

in cooperation with IFAC

Buenos Aires, Argentina, 9 - 13 September, 1996

The 7th Latin American Control Conference LACC was convened at the Buenos Aires Sheraton Hotel in the week starting on 9 September, 1996. As part of the AADECA '96 Automation Week it was officially opened with the participation of Professor Yong-Zai Lu, President of IFAC and Dr. Martin Redrado, the Argentine Secretary of Technological Education.

Three plenary sessions were given. The first one by Professor Lu on „Developing Knowledge Base and Reasoning with Working Data“, the second one by Professor Dr. Unbehauen on „Distributed Supervisory Industrial Control Systems and their Problems for Embedding Advanced Control Strategies“ and the third one by Eng. Jorge Mentrut on „Environmental Control, Legal Situation in Argentina, Past, Present and Future“.

260 abstracts were received, from which the International Program Committee chaired by Professor Koppel selected 211. Final papers, published in two volumes of 1200 pages, included 205 final papers received.

275 participants followed the presentations with great interest. The No-Show percentage was less than 10 per cent, which is extremely low considering

the difficulty for Latin American professors in getting the necessary financial support.

The average quality of the presentations was better than expected and met international standards.

Two special sessions were devoted to a subject which is considered to be extremely important, i.e. „Open Discussion on Control Engineering Education“ with the enthusiastic participation of professors and researchers from Latin American countries. Professor Unbehauen started the same by presenting an overview of this subject in Europe. It was agreed to pursue this type of encounters in the forthcoming Latin American Congresses.

The meeting of the Latin American IFAC-NMOs, chaired by Eng. J.P. Weisz took place in the presence of IFAC President Professor Yong-Zai Lu. On that occasion, the venues of the forthcoming Latin American Control Conferences were decided upon. They will take place in Chile in 1998 and in Colombia in the year 2000.

It may be stated that the AADECA '96 - Automation Week has positively contributed towards the knowledge and expertise of professionals in this area in Latin America.

IFAC www homepage

As a new step towards increasing IFAC visibility among the members of the Automatic Control community all over the world, a new World Wide Web (www) information server has been set up. The URL (uniform resource locator) of the IFAC homepage is:

<http://www.dit.upm.es/~ifac>

In order to access the IFAC information all you need is a computer connected to the Internet and a www browser program (e.g. Mosaic=AE, Netscape=AE or Microsoft Explorer=AE). If your institution or your personal computer is not connected to the Internet, you can get information on how to do it from any Internet Service Provider company.

IFAC National Member Organizations, Coordinating and Technical Committees and event organizers are encouraged to set up their own www pages and send the URLs by e-mail to the IFAC Secretariat at ifaca@serv.univie.ac.at

or secr@ifac.co.at
or directly to the web manager at ifac@dit.upm.es

You can look at some examples which are linked to the IFAC pages.

The IFAC www server is managed by Juan A. de la Puente, Abraham Haddad and the IFAC Secretariat. The computer and communications infrastructure is supported by the Department of Telematic Systems Engineering of the Technical University of Madrid.

Juan A. de la Puente

Renewal of Affiliate Membership

As every three years, IFAC is asking you to renew your IFAC Affiliate membership to make sure, the IFAC Newsletter reaches all interested persons.

Below follows a brief summary of the benefits of Affiliate membership: Being an Affiliate of IFAC is free of charge and entitles the Affiliate to a free subscription to the IFAC Newsletter and a reduced subscription to the IFAC Journals Automatica and Control Engineering Practice as well as to the IFAC Affiliated Journals. A further and very important benefit is that the Affiliate can inform us of his/her fields of interest. This information is included in the database and made available to organizers of IFAC events. It helps them to reach the right people for their events and on the other hand the Affiliate can use the contact addresses of IFAC events given in the List of Events which is published in every second issue of the IFAC Newsletter.

Papers of the IFAC Newsletter will forthwith also be available on the IFAC Homepage, including also the List of Events, with links to Homepages of forthcoming IFAC events whenever available.

We would therefore ask you to cut out the 'Confirmation of Affiliate Membership' form in this Newsletter on pages five and six and return it to the IFAC Secretariat by December 15. We would also appreciate if you indicate your field(s) of interest.

IFAC AWARDS

Applications Paper Prize

The Applications Paper Prize is awarded for outstanding technical contributions in the area of control applications. The winner is determined from among several finalists and is based both on the written paper and on its presentation during the Congress. An important criterion is that the techniques presented have been demonstrated to be beneficial in an operational industrial environment. The Selection Committee comprised both academic and industrial experts and was chaired by Professor Michael G. Rodd from the UK. Professor Rodd is at the same time Editor-in-Chief of the IFAC Journal Control Engineering Practice.

The finalists and their papers were:

Tung Hai Chin, Ichiro Miyashita and Takashi Koga, Sensorless Induction Motor Drive: An Innovative Component for Advanced Motion Control

Y. Okamura and I. Hoshino, State Feedback Control of the Strip Steering for Aluminum Hot Rolling Mills

P. O'Reilly, G.W. Irwin, G. Lightbody, K. Kelly and J. McCormick, On-line Neural Inferential Prediction of Viscosity

John E. Seem, A New Pattern Recognition Adaptive Controller

The winning paper was

A New Pattern Recognition Adaptive Controller, by John E. Seem
Control Research
Johnson Controls Inc

Automatica Paper Prize

Since 1979, prizes have been awarded to authors of a few selected papers. These prizes are awarded at each of the IFAC Congresses and cover the triennium before the Congress. Traditionally, three papers are selected each time, one theory/methodology oriented, one applications oriented and one survey papers.

For the triennium 1993-1996, the IFAC Council appointed a committee chaired by Lennart Ljung to select the winning papers. They worked together closely with the Automatica Editors and selected three excellent papers. The prizes were awarded at the closing ceremony of the 13th IFAC Congress in San Francisco.

The following authors and their papers received the award:

A.J. Sorenson and O. Egeland, Design of Ride Control System for Surface Effect Ships, Using Dissipative Control. *Automatica* 31(2), 183-200 (February, 1995)

With an excellent blend of theory and practice, innovative methods are developed for an important application. The paper covers the whole range of in-depth analysis, design and full-scale implementation, and is thus a model for control research.

P. van Overschee and B. De Moor, N4SID: Subspace Algorithms for the Identification of Combined Deterministic-Stochastic Systems, *Automatica* 30(1), 75-94 (January, 1994)

With deep insight, this paper develops a most useful and efficient method for multivariable system identification. The presentation covers numerical, statistical and implementation issues, and has had an immediate impact on best practice in identification applications.

R. David and H. Alla, Petri Nets for Modeling of Dynamic Systems - A Survey, *Automatica* 30(2), 175-202 (February, 1994)

This is a most useful survey that in a very pedagogical way gives valuable insight into the basic features of Petri nets and also puts discrete systems clearly on the control theory map.

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.

For the 1996 World Congress, the Young Author Prize Selection Committee was chaired by Professor Masayoshi Tomizuka (USA). There were 34 entries to the YAP competition. Each of the 34 papers was reviewed by three members of the YAP Selection Committee. In addition to the review by the Committee, review results by the Program Committee were used as additional information. Based on the results, the YAP Selection Committee selected five finalist papers from among which the winner was determined at the Congress based also on the oral presentation.

The finalists and their papers were:

Xiaoping Liu, Disturbance Decoupling of Affine Nonlinear Singular Control Systems

L. Pao, Input Shaping Design for Flexible Systems with Multiple Actuators

K.H. Johansson and A. Rantzer, Global Analysis of Third-order Relay Feedback Systems

N. Kapoor, A.R. Teel and P. Daoutidis, On Anti-integrator-windup and Global Asymptotic Stability

A. Abrishamchian, Nonconservative and Non-iterative Solution to the Robust Stabilization Problem for Classes of Systems with Real Parametric Uncertainties

The winning paper was

Input Shaping Design for Flexible Systems with Multiple Actuators, by Prof. Lucy Pao
University of Colorado at Boulder

Control Engineering Practice Paper Prize

The first CEP Paper Prize was awarded at the San Francisco World Congress for the best paper published in issues 1(1) - 4(5) inclusive.

The following authors and their paper received the award:

N.G. Walker and G.F. Wyatt-Mair, Sensor Signal Validation, Using Analytical Redundancy for an Aluminum Cold Rolling Mill. *CEP* 3(6), pp. 753 - 760

In this theoretically advanced and industrially relevant paper, analytical redundancy is exploited to provide sensor signal validation on a high-speed, single-stand aluminum cold rolling mill. Several unique features of the application are used to advantage to facilitate real-time operation. Algorithm characteristics are demonstrated, using actual process data.

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Control Engineering Textbook Prize

The recipients of the Control Engineering Prize are authors of a control engineering textbook in one of the official languages of IFAC. The recipient(s) are authors judged to have most contributed to the education of control engineers.

At the 1996 World Congress, the following author received the award:

J.M. Maciejowski

for the outstanding textbook

Multivariable Feedback Design
published by Addison-Wesley

The well readable and wide ranging book excellently presents clear applications to real world problems and clearly states what graduate students should be able to do.

Poster Paper Prize

The Poster Paper Prize was for the first time awarded at the IFAC World Congress in San Francisco by the organizers of the Congress

The finalists and their papers were:

Timothy N. Chang, Zhiming Ji, Michael Shimanovich and Reggie J. Caudill (New Jersey Institute of Technology), Vibration control of contactless drive system using passband shaping
C. Califano, Salvatore Monaco (Universita di Roma) and **D. Normand-Cyrot** (Ecole Superieure D'Electricite), Essential orders and nonlinear discrete-time decoupling

Cem Hatipoglu, Umit Ozguner and Konur Alp Unyelioğlu (Ohio State University), Advanced automatic lateral control schemes for vehicles on highways

C. Benthack, B. Srinivasan and Dominique Bonvin (Ecole Poly. Fed. de Lausanne) Optimal operation modes for a fixed-bed bioreactor used in wastewater treatment

Richard Colgren (Lockheed Martin Shunk Works) and **M. Jackson** (Honeywell Tech. Center) Structured singular value synthesis applied to the F-117A

Fredrik Gustafsson (Linköping Univ.) Identification of sparse linear regressions

Takashi Yamaguchi, Kazuhisa Shishida, Souichi Tohyama, Yoshio Soyama, Haruhiko Hosokawa, Hirotori Ohsawa, Hidehiko Numasato, Tsuyoshi Arai, Katsuhiko Tsuneta and Hiromu Hirai (Hitachi Ltd.), Design of mode switching controller with initial value compensation and its application to disk drive

Yoichi Hori (Univ. of Tokyo), A review of torsional vibration control methods and a proposal of disturbance observer-based new techniques

The winning papers were

Identification of Sparse Linear Regressions, by Fredrik Gustafsson
Linköping University

and

Optimal Operation Modes for a Fixed-Bed Bioreactor Used in Wastewater Treatment, by C. Benthack, B. Srinivasan and D. Bonvin
Ecole Polytechnique Federal de Lausanne

Message from the Editor-in-Chief of Control Engineering Practice Excerpts from the Editorial Volume 4 Number 8

I am happy to state that the circulation of CEP is growing and that the move to 12 issues per year has been successfully made. The target of 1800 pages for 1995 was met, and we are on track to do the same in 1996.

The number of directly submitted papers (and their quality) continues to rise, as the journal becomes better known. The citing of our papers by various abstracting services is one reason for this. The balance between academic and industrial papers is a critical one: approximately a third of papers have an industrial author or co-author. We are encouraging the submission of collaborative industrial/academic papers, and this has proved fruitful. We are maintaining a swift turnaround of papers; strong, industrially based papers are given preference.

A decision was taken at last year's Board Meeting that up to a third of the membership of the Editorial Board should change at the end of this first three-year term, to allow us to tailor the composition of the board to reflect the spread of papers being received and to make room for rising members of the profession. Thus, some fairly sweeping changes are under way: The most important of these is the appointment of Professor George Irwin of Queen's University, Belfast as the new Deputy Editor-in-Chief. Professor Irwin has served as an Associate Editor for the past three years and has a very clear understanding of both the control engineering field and the needs and direction of CEP.

The changes to the Editorial Board will bring in additional new members from the USA, and some major players in the control applications field are now on the team. Professor Ted Williams of Purdue University, Dr. Edoardo Camacho of the University of Seville, Dr. Davor Hrovat of Ford and Dr. Janusz Zalewski of Embry-Riddle Aeronautical University are to become full Editors; Dr. David Russell of Penn State University replaces Janusz Zalewski as Book Review Editor.

The Reviewer Training Session which took place on July 3, 1996 is an interesting innovation, which I am sure will be beneficial in the long term to authors as well as reviewers and editors.

The review form is now available electronically. We are hoping that an increased amount of processing of camera-ready material will be possible centrally from author's disks, to cut down on the efforts required from authors, as well as the number of iterations of any one paper.

To the editors, associate editors and reviewers past and future, again I say 'thank you' for the many hours of voluntary work they put into the journal, their help is invaluable, and is greatly appreciated.

Michael G. Rodd, Editor-in-Chief

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.

Control Engineering Practice Volume 4 Number 9 September 1996

Preview

Knowledge Engineering in Power-Plant Control and Operation (K. Kawai)

Experimental Comparison of some Compensation Techniques for the Control of Manipulators with Stick-Slip Friction (P.D. Tatary, N. Sepehri and D. Strong)

Learning Feedforward Controller for a Mobile Robot Vehicle (J.G. Starrenburg, W.T.C. van Luenen, W. Oelen and J. Van Amerongen)

Direct Tracking Control using Time-Optimal Trajectories (Kiyhwan Park, Jung-Hyun Lee, Soo-Hyun Kim and Yoon Keun Kwak)

Elimination of Position-Dependent Disturbances in Constant-Speed-Rotation Control Systems (M. Nakano, J.-H. She, Y. Mastuo and T. Hino)

A Mathematical Model of Discrete Manufacturing Process Control (T. Miluczynski and Z. Samsonowicz)

A Wind Turbine Emulator Based on a Dual DSP Processor System (P.E. Battaio, R.J. Mantz and P.F. Puleston)

Papers from the IFAC Workshop on On-Line Fault Detection and Supervision in the Chemical Process Industries (Guest Editor: A.J. Morris)

Preface to the IFAC Workshop on On-Line Fault Detection and Supervision in the Chemical Process Industries (A.J. Morris)

A Neural-Network Approach for Acoustic Leak Monitoring in Pressurized Plants with Complicated Topologies (G. Hessel, W. Schmitt and F.-P. Weiss)

Integrated Control and Diagnosis of Sequential Processes (K.E. Arzén)

Supervision of Bioprocesses using a Dynamic Time Warping Algorithm (K. Gollmer and C. Posten)

Plant-Wide Feedback Control Performance Assessment using an Expert-System Framework (T.J. Harris, C.T. Seppala, P.J. Jofriet and B.W. Surgenor)

Consistent Design of Dependable Control Systems (M. Blanke)
Model-Based Validation of a DOx Sensor (D.W. Clarke and P.M.A. Fraher)

Control Engineering Practice Volume 4 Number 10 October 1996

Preview

Programmable Hardware Architectures for Sensor Validation (M.P. Henry, N. Archer, M.R.A. Atia, J. Bowles, D.W. Clarke, P.M.A. Fraher, I. Page, G. Randall and J.C.-Y. Yang)

Control Design for Generalized Normal Mode Operation of Bias Momentum Satellites (W. Fichter, M. Surauer and P. Zentgraf)

Fault Detection Based on Adaptive Parity Equations and Single-Parameter Tracking (T. Höfling and R. Isermann)

Applying a Sequential Look-Closure Method to Power System Stabilizer Design (T.C. Yang)

Model-Specific Autotuning of Classical Regulators: A Neural Approach to Structural Identification (A. Leva and L. Piroddi)

Dynamic Modeling and Optimal Control of Cone-Shaped Active Magnetic Bearing Systems (C.-W. Lee and H.-S. Jeong)

Modelling the Volumetric Efficiency of IC Engines: Parametric, Non-Parametric and Neural Techniques (G. de Nicolao, R. Scattolini and C. Siviero)

Papers from the 1995 IFAC Workshop on Real-Time Programming (Guest Editors: P. Laplante and W. Halang)

Preface to the Papers from the 1995 IFAC Workshop on Real-Time Programming (P. Laplante and W. Halang)

Applicative Object Interconnection in a Graphical Design for Real-Time Applications (J.J. Schwarz, M. Maranzana, J. Skubick and Y. Martinez)

Language and Compiler Supported Timing Analysis in Real-Time Control (D. Verber, M. Colnaric and W.A. Halang)
The Use of Cache Memory in Real-Time Systems (M.K.J. Milligan and H.G. Cragon)

Confirmation of Affiliate Membership

By returning this questionnaire, your Affiliate Membership and thus all related benefits such as free subscription to the IFAC Newsletter will be confirmed.

We therefore ask you to fill in this form, complete with all your particulars, and return it to

IFAC Secretariat
Schlossplatz 12
A-2361 Laxenburg
Austria

We will also appreciate if you mark the fields of your interest overleaf.

Non reply by December 15, 1996 will be considered discontinuation of Affiliate Membership

Please print

Title: _____ First Name: _____ Surname: _____

Mailing Address: _____

Telephone: _____ Fax: _____

e-mail: _____ http:// _____

Date: _____ Signature: _____

Papers From the September 1996 Issue

Papers

Sliding Observer-based Feedback Control for Flexible Joints Manipulators (J. Hernandez, J.P. Barbot)
 Harmonic Balance Analysis of Period-doubling Bifurcations with Implications for Control of Nonlinear Dynamics (A. Tesi, E.H. Abed, R. Genesio, H.O. Wang)
 Control of Rational Systems using Linear-fractional Representations and Linear Matrix Inequalities (L. El Ghaoui, G. Scorletti)
 Nonlinear Model Predictive Control of a Simulated Multivariable Polymerization Reactor Using Second-order Volterra Models (B.R. Maner, F.J. Doyle III, B.A. Ogunnaike)

Brief Papers

Two Time Scaled Parameter Identification by Coordination of Local Identifiers (F. Chaplais, K. Alaoui)
 Probabilistic Data Association for Systems with Multiple Simultaneous Measurements (G.W. Pulford, R.J. Evans)
 Guaranteeing Parameter Estimation with Anomalous Measurement Errors (A. Matasov, V. Samokhvalov)
 Effect of Unmodeled Actuator Dynamics on Output Feedback Stabilization of Nonlinear Systems (R.W. Aldhaferi, H.K. Khalil)

Technical Communiques

Controller-Observers for Set-point Tracking of Flexible-joint Robots Including Coriolis and Centripetal Effects in Motor Dynamics (A. Ailon, R. Lozano)
 On Least-degree Unit Interpolation in RH^∞ (V.V. Patel)
 Robust Control for Parameter Uncertain Delay Systems in State and Control Input (J.H. Kim, E.T. Jeung, H.B. Park)

Book Review

Foundations of Game Theory: Noncooperative Games, by N.N. Vorob'ev (G. van Olsder)

Papers From the October 1996 Issue

Papers

A Parametrization for the Closed-loop Identification of Nonlinear Time-varying Systems (S. Dasgupta, B.D.O. Anderson)
 Robust Constrained Model Predictive Control using Linear Matrix Inequalities (M.V. Kothare, V. Balakrishnan, M. Morari)
 Robust Stability under Mixed Time-varying, Time-invariant and Parametric Uncertainty (F. Paganini)
 Indirect Field-oriented Control of Induction Motors is Robustly Globally Stable (P.S. De Wit, R. Ortega, I. Mareels)
 On Duality of Regularized Exponential and Linear Forgetting (R. Kulhavy, F.J. Kraus)
 Induced \mathcal{L}_2 Norm Model Reduction of Polytopic Uncertain Linear Systems (Fen Wu)

Brief Papers

Recursive Identification of Time-varying Systems via Incremental Estimation (Quan-Gen Zhou, W.R. Cluett)
 Flatness Based Control of a Nonlinear Chemical Reactor Model (R. Rothfuss, J. Rudolph, M. Zeitz)
 A Priori Stability Conditions for an Arbitrary Number of Unstable Poles (B. Kouvaritakis, J.R. Grossner, J.A. Rossiter)
 Robustness Bounds for Systems with Parametric Uncertainty (C. Marsh, Hao Wie)
 Output Controllers Based on Iterative Schemes for Set-point Regulation of Uncertain Flexible-joint Robot Model (A. Ailon)
 Locally Optimal Adaptive Control without Persistent Excitation (M.M. Kogan, J.I. Neimark)
 An Approach to H^∞ Control of a Class of Nonlinear Systems (G. Feng, S.G. Cao, N.W. Rees)

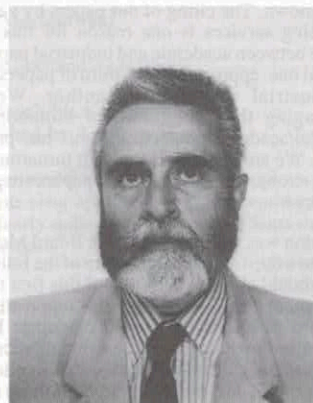
Technical Communique

Robust Predictive Control of Systems with Uncertain Impulse Response (G. de Nicolao, L. Magni, R. Scattolini)

Book Review

Identification of Multivariable Industrial Processes, for Simulation, Diagnosis and Control, by Y. Zhu and T. Backx (H. Kashiwagi)

WHO IS WHO IN IFAC



Professor Edoardo Mosca, Council Member

Professor Edoardo Mosca received the Dr. Eng. degree in electrical engineering from the University of Rome, Italy in 1963 and the teaching qualification ('libera docenza') for the Italian university system in 1971. From 1964 to 1968 he was in industry and on the technical staff of Selenia S.p.A., Rome, Italy, where he was involved in research on statistical communication theory as applied to radar signal synthesis, detection and processing, as well as in the development of electronically steered phased-array radars.

From 1968 to 1972 he was associated with the Institute of Science and Technology, University of Michigan, Ann Arbor, USA, where he worked on target field estimation, nonparametric system identification problems mainly of ill-posed type, and stochastic dynamic systems. During that period, he held visiting positions at McMaster University, Ontario, and the University of Naples, Italy.

From 1972 to 1975, he was an Associate Professor at the University of Florence, Florence, Italy, where, since 1975, he has been Professor of Control Engineering and from 1980 to 1987, Chairman of the Dipartimento di Sistemi e Informatica. There he has been heading the Adaptive Systems Laboratory, whose major activities have been academic research as well as industry-driven development projects in adaptive predictive control based on reduced-complexity models.

From 1984 to 1987 he was responsible for coordinating a national research project on system and control engineering. He is currently a member of the Administration Council of the European Union Control Association (EUCA) and since 1995 has been the President of the Italian Automatic Control Research Center.

His current research interest are generally in adaptive filtering and control, predictive control, and nonlinear control under constraints.

He is the author of Optimal, Predictive and Adaptive Control (Prentice Hall, 1995) and an editor of the International Journal of Adaptive Control and Signal Processing and of the IEE Proceedings - Control Theory and Applications.

Professor Mosca currently is the Italian NMO representative in IFAC. In July 1996 he was elected Ordinary Member of the IFAC Council.

Keywords:

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|---|--|
| 1 <input type="checkbox"/> Adaptive Control and Systems | 15 <input type="checkbox"/> Education |
| 2 <input type="checkbox"/> Aerospace | 16 <input type="checkbox"/> Electric Power Systems |
| 3 <input type="checkbox"/> Agriculture | 17 <input type="checkbox"/> Identification & Parameter Estimation |
| 4 <input type="checkbox"/> Artificial Intelligence | 18 <input type="checkbox"/> Large-Scale Systems |
| 5 <input type="checkbox"/> Biomedical Engineering and Control | 19 <input type="checkbox"/> Man-Machine Systems |
| 6 <input type="checkbox"/> Biotechnology | 20 <input type="checkbox"/> Manufacturing Technology |
| 7 <input type="checkbox"/> Chemical Process Control | 21 <input type="checkbox"/> Marine Control |
| 8 <input type="checkbox"/> Components and Instruments | 22 <input type="checkbox"/> Metallurgy, Mining and Mineral Processing |
| 9 <input type="checkbox"/> Computer Aided Design | 23 <input type="checkbox"/> Modelling and Control of Non-Technical Systems |
| 10 <input type="checkbox"/> Computers in Control | 24 <input type="checkbox"/> Nonlinear Systems |
| 11 <input type="checkbox"/> Control Design | 25 <input type="checkbox"/> Social Effects of Automation |
| 12 <input type="checkbox"/> Distributed Parameter Systems | 26 <input type="checkbox"/> Other Fields of Interest |
| 13 <input type="checkbox"/> Distributed Systems | 27 <input type="checkbox"/> Automotive Control |
| 14 <input type="checkbox"/> Economic and Management Systems | |



FORTHCOMING EVENTS

(b) (3) STATEMENTS OF WORKING EVENTS (c) (b) 1996
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Title	1997	Place	Deadline	Further Information
IFAC/IFIP/IFORS Workshop Manufacturing Systems Modelling Management and Control	Feb. 3 - 5	Vienna Austria	-	Prof. Peter Kopacek Technical University of Vienna Floragasse 7 a, A-1040 Vienna, Austria FAX +43/1/504 18359 e-mail: mim@ihrt1.ihrt.tuwien.ac.at
IMACS/IFAC Symposium (2nd) Mathematical Modelling MATHMOD '2	Feb. 5 - 7	Vienna Austria	-	Prof. I. Troch Technical University of Vienna (E114/5) Wiedner Hauptstrasse 8 - 10 A-1040 Vienna, Austria FAX +43/1/586 8093 e-mail: itroch@email.tuwien.ac.at
IFAC Symposium (3rd) Modelling and Control of Biomedical Systems including Biological Systems	March 23 - 26	Warwick UK	-	Prof. K. Godfrey, Dept. of Engg, Univ. of Warwick, Coventry CV4 7AL, UK FAX +44/1/203/418922 krg@eng.warwick.ac.uk
IFAC Workshop Algorithms and Architectures for Real-Time Control	April 9 - 11	Vilamoura Portugal	15 Sept. 1996	Prof. A.E. de Barros Ruano Unidade de Ciencias Exactas e Humanas Universidade do Algarve Campus de Gambelas, P-8000 Faro, Portugal FAX +351/89/818560 e-mail: aruano@mozart.si.ualg.pt
IFAC/IEEE Symposium Computer-Aided Control Systems Design - CACSD 97	April 28-30	Ghent Belgium	1 Oct. 1996	Prof. Luc Boullart University of Ghent, Campus Ardoyen Technologiepark - Zwijnaarde, 9 B-9052 Zwijnaarde, Belgium FAX +32/9/264 5605 e-mail: CACSD97@autoctrl.rug.ac.be www.autoctrl.rug.ac.be/cacsd97.html
IFAC Conference Control of Industrial Systems	May 20 - 22	Belfort France	-	Dr. Michel Ferney ENIB, BP 525, F-90016 Belfort, France FAX +33/84582342
IFAC Workshop Computer Software Structures Integrating AI/KBS Systems in Process Control	May 22 - 23	Budapest Hungary	15 Nov. 1996	Prof. K.M. Hangos Computer and Automation Institute POB 63, H-1518 Budapest, Hungary FAX +361 166 7503
IMEKO/IFAC Congress New Measurements - Challenges and Visions	June 1 - 6	Tampere Finland	-	XIV IMEKO Secretariat Finnish Society of Automation Asemapäällikönkatu 12 C SF-00520 Helsinki, Finland FAX +358 9 1461 650 e-mail: atufin@ibm.net
1997 American Control Conference (in cooperation with IFAC)	June 4 - 6	Albuquerque NM, USA	15 Sept. 1996	Prof. A. Haddad AACC Secretariat, Dept. of ECE Northwestern University, 2145 Sheridan Road Evanston, IL 60208-3118, USA FAX +1/708/491-4455 e-mail: ahaddad@ece.nwu.edu
IFAC Symposium (3rd) Intelligent Components and Instruments for Control Applications - SICICA '97	June 9 - 11	Annecy France	-	Prof. Laurent Foulloy LAMI/CESALP, BP 806, F-74016 Annecy, F FAX +33/50 66 60 63 e-mail: foulloy@univ-savoie.fr
IFAC Symposium Advanced Control in Chemical Processes - ADCHEM 97	June 9 - 11	Banff Canada	-	Prof. Sirish L. Shah Dept. of Chemical Engg. Univ. of Alberta, Edmonton, Alberta, T6G 2G6, Canada FAX +1/403/492-2881 e-mail: Sirish.Shah@UAlberta.Ca
IFAC/(IFIP/IFORS) Symposium (8th) Transportation Systems	June 16-18	Chania Crete, Greece	-	Prof. Markos Papageorgiou Dynamic Systems and Sim. Lab. Technical University of Crete GR-73100 Chania, Greece FAX +30/821 69410 e-mail: ts97@dssl.tuc.gr
Intl. Conference Transition to Advanced Market Institutions and Economies: Systems and Operations Research Challenges	June 18 - 21	Warsaw Poland	-	Prof. Roman Kulikowski Systems Research Inst., Polska Akademia Nauk ul. Newelska 6, PL-01-447 Warsaw, Poland FAX: +48/22/372772 e-mail: ibs@ibspan.waw.pl
IFAC Symposium Robust Control Design	June 25-27	Budapest Hungary	30 Sept. 1996	Ms. Csilla Banyasz Computer and Automation Res. Inst. POB 63, H-1518 Budapest, Hungary FAX +361/1667 503 e-mail: h10kev@sztaki.hu

FORTHCOMING EVENTS (ctd.)

Title	1997	Place	Deadline	Further Information
1997 European Control Conference (in cooperation with IFAC)	July 1 - 4	Brussels Belgium	-	M. Gevers/G. Bastin, CESAME, Batiment Euler B-1348 Louvain la Neuve, Belgium FAX +32/10/472 180 e-mail: gevers@auto.ucl.ac.be
IFAC Workshop Singular Solutions and Perturbations 7 - 11 in Control Systems	July	Pereslavl- Zalessky Russia	1 January 1997	Prof. Michael G. Dmitriev Program Systems Inst. of R A S. Botik 152140 Pereslavl-Zalessky, Russia FAX 08535/20593 e-mail: dmitriev@spoc.botik.yaroslavl.su
IFAC/(IFORS) Symposium (11th) System Identification - SYSID '97	July 8 - 11	Fukuoka Japan	-	SYSID'97 Secretariat: Mrs. Y. Hayashi Fukuoka Institute of Technology 3-30-1 Wajiro-higashi, Higashi-ku Fukuoka 811-02, Japan FAX +81/92-606 1342 e-mail: y-hayashi@dw.ee.fit.ac.jp
IFAC Symposium (4th) Advances in Control Education ACE 97	July 14-16	Istanbul Turkey	15 Oct. 1996	Prof. A. Talha Dinibütin Istanbul Technical Univ., Mech. Engg. Faculty Gümüssuyu 80191, Istanbul, Turkey FAX +90/212-245 0795 e-mail: mkdmb@tritu.bitnet
IFAC Workshop Intelligent Manufacturing Systems	July 21 - 23	Seoul Korea	30 Nov. 1996	Prof. Hyung Suck Cho Dept. of Mechanical Engineering Korea Advanced Inst. of Science & Technology 373-1, Kusong-dong, Yusung-gu Taejon 305-701, Korea FAX +82/42 869 3210 e-mail: hscho@lca.kaist.ac.kr
1997 Asian Control Conference (in cooperation with IFAC)	July 22-25	Seoul Korea	-	Prof. Dong-il Cho, 1997 ASCC Secret. Automation and Systems Res. Institute Seoul National University, Bldg. 133 Kwanak-ku, Shinrim-dong, San 56- Seoul 151-742, Korea, Rep. FAX +82/2/889-4239 e-mail: ascc@asri.snu.ac.kr
IFAC Workshop Distributed Computer Control Systems	July 28 - 30	Seoul Korea	30 Nov. 1996	Prof. Wook Hyun Kwon Dept. of Control & Instrumentation Engg. Seoul National University San 56-1, Shillim-dong, Kwanak-gu Seoul 151-742, Korea FAX +82/2/ 888 4182 e-mail: whkwon@cisl.snu.ac.kr
IFAC/CIGRE Symposium Control of Power Plants and Power Systems	August 18 - 21	Beijing China, P.R.	15 Nov. 1996	Prof. Zeng Qingyu Chinese Soc. for Electrical Engg. No 1, Lane, Baiguang Rd. Beijing, 100761, China, P.R. FAX +86 10 6341 4319 e-mail: qyzeng@public3.bta.net.cn
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes - SAFEPROCESS '97	August 26 - 28	Hull UK	15 Oct. 1996	Prof. Ron Patton, Dept. of El. Engg. The University of Hull Cottingham Rd., Hull HU6 7RX, UK FAX +44/1482/466006 e-mail: r.j.patton@e-eng.hull.ac.uk
IFAC/IFIP Conference Management and Control of Production and Logistics	Aug. 31 - Sept. 3	Campinas Brazil	15 Jan. 1997	Mr. Roberto de Oliveira CTI, Rodovia D. Pedro I (SP-65) km 143.6, Caixa Postal 6162 13081-970 Campinas, SP, Brazil FAX +55 19 240 20 29 e-mail: MCPL97@ia.cti.br http://mcpl97.ensieg.fr
IFAC Symposium Robot Control	Sept. 3 - 5	Nantes France	15. Dec. 1996	Prof. W. Khalil LAN - Ecole Centrale de Nantes F-44072 Nantes Cedex, France FAX +33 40 74 74 06 e-mail: Khalil@lan.ec-nantes.fr http://www.ec-nantes.fr
IFAC Workshop New Trends in Design of Control Systems	Sept. 7 - 10	Smolenice Slovakia	31 Jan. 1997	IFAC Workshop '97 Ms. Alena Kozakova, Fac. of El. Engg. Ilkovicova 3, SK-81219 Bratislava, Slovakia FAX +42/7/ 72 97 34 e-mail: ntcds@kasr.elf.stuba.sk
IFAC Conference Manoeuvring and Control of Marine Craft - MCMC'97	Sept. 10 - 12	Brijuni Croatia	1 Feb. 1997	Prof. Z. Vukic, University of Zagreb Fac. of El. Engg. and Computing Unska 3, HR-1000 Zagreb, Croatia FAX +385/1/6129809 e-mail: zoran.vukic@fer.hr
IFAC Symposium (6th) Automated Systems Based on Human Skill - Joint Design of Technology and Organization	Sept. 17 - 19	Kranjska Gora Slovenia	25 Sept. 1996	Dr. Janko Cernetic J. Stefan Institute, POB 3000, Jamova 39 SLO-1001 Ljubljana, Slovenia FAX +386/61/219 385 e-mail: janko.cernetic@ijs.si

The list of events will be continued in the next issue of the IFAC Newsletter, and is also available on the IFAC homepage under <http://www.dit.upm.es/~ifacc>