



# 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: [secr@ifac.co.at](mailto:secr@ifac.co.at) - URL: <http://www.ifac-control.org>

2000  
No. 5  
October

# Newsletter

## IFAC Technical Committees and their Scopes

The Technical Board of IFAC is composed of nine Coordinating Committees, each of which has several Technical Committees under its wings. In this issue of the Newsletter and in the ones to come, we are going to introduce the Technical Committees, their chairs and their scopes to our readers. In this issue we present the Coordinating Committee on Systems and Signals.

### Coordinating Committee on Systems and Signals

Chair: R. Ortega France  
[ortega@iss.supelec.fr](mailto:ortega@iss.supelec.fr)



controllers, control design based on iterative schemes, supervised switching control, randomized algorithms for control design, safety critical implementations, adaptive techniques for fault detection and isolation, full range of industrial, aerospace and marine applications.

### Technical Committee on Discrete Event Dynamic Systems

Chair: X.R. Cao  
Hong Kong,  
China, P.R.  
[cecao@ust.hk](mailto:cecao@ust.hk)



### Technical Committee on Modelling, Identification, and Signal Processing

Chair: L. Guo  
China, P.R.  
[lguo@iss03.iss.ac.cn](mailto:lguo@iss03.iss.ac.cn)



Focuses on the analysis and control of hybrid systems and discrete event dynamic systems (DEDS) characterized by (countably) finite state spaces with evolution by "jumps" (discrete events) from one state to another. Almost human-made systems with a finite number of resources shared by several users. Dynamic interactions characterized by (a)synchronization, concurrency, and conflicts. Considers both timed relationships based on algebraic approaches (queuing theory, perturbation analysis, etc.) and logical relationships based on formal languages (Petri nets, etc.). Applications include manufacturing systems, computer and communications networks, and traffic control.

Addresses all aspects of system modeling and identification, from theoretical and methodological developments to practical applications. Considers model selection, model fitting, identification methods, robust estimation, tracking and adaptation, measures of model fit, model validation, fault detection, linear/nonlinear models, experiment design, and automatic identification methods. Includes nonparametric, state-space, and frequency domain methods as well as distributed parameter models. Promotes interactions among modeling, control and signal processing.

### Technical Committee on Adaptive Control and Learning

[www.elet.polimi.it/IFAC-TC-ACL/](http://www.elet.polimi.it/IFAC-TC-ACL/)

Chair:  
S. Bittanti  
Italy  
[bittanti@elet.polimi.it](mailto:bittanti@elet.polimi.it)



Fosters continuous and discontinuous adaptation rules for prediction, filtering and control. Includes model-based and data-based adaptive control, learning of functional relationships for adaptive control, plugging intelligence into adaptive systems, gain scheduling techniques like LPV methodologies. Considers autotuning of

### Technical Committee on Stochastic Systems

Chair:  
T. Katayama  
Japan  
[katayama@kuamp.kyoto-u.ac.jp](mailto:katayama@kuamp.kyoto-u.ac.jp)



Promotes probabilistic and statistical methods of modeling, identification, estimation, and control of uncertain systems. Classical stochastic control and dynamic estimation theory including modeling, realization, and structural properties of both linear and nonlinear stochastic systems. Modeling, realization, identification, and control of discrete stochastic systems (especially Hidden Markov Models). Statistical methods in analysis/simulation of complex dynamic systems and identification of stochastic systems (especially methodological and conceptual aspects of identification).

### Technical Committee on Fuzzy and Neural Systems

[iccl.snu.ac.kr/ifac\\_fns/](http://iccl.snu.ac.kr/ifac_fns/)

Chair:  
P.J. Antsaklis  
USA  
[antsaklis.1@nd.edu](mailto:antsaklis.1@nd.edu)



Fosters all aspects of fuzzy and neural systems relevant to control theory and applications: modeling, identification, control design, adaptation, stability analysis, implementation, and evaluation. Definition of operating constraints and multiple performance objectives; motivation for development of theoretical foundations; awareness of computational issues and software support. Promotes information exchange among practicing industrial engineers and the academic community to articulate industrial state-of-the-art applications.

### Contents:

IFAC Technical Committees and their Scopes - CC on Systems and Signals

\*

Fault Detection, Supervision and Safety for Technical Processes - SAFEPROCESS 2000 IFAC Symposium  
Hungary, June 2000

\*

Control Engineering Practice  
Volume 8, Nos 8, 9 & 10

\*

Forthcoming Events

\*

Control Systems Design - CSD 2000  
IFAC Conference  
Slovak Republic, June 2000

\*

Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing - AgriControl 2000  
IFAC Conference  
The Netherlands, July 2000

\*

Papers from Automatica, No 11, 2000

\*

Annual Reviews of Control  
Contents

\*

Who is Who in IFAC  
Romeo Ortega, Member of the Technical Board, CC Chair, Systems and Signals

# Fault Detection, Supervision and Safety For Technical Processes SAFEPROCESS 2000 4<sup>th</sup> IFAC Symposium

Budapest, Hungary, 14 – 16 June 2000

The 4<sup>th</sup> IFAC Symposium on Fault Detection, Supervision and Safety for Technical Processes (SAFEPROCESS) was held from 14 to 16 June 2000 at the Hotel Agro, Budapest, Hungary. The Symposium was sponsored by the IFAC Technical Committee on Fault Detection, Supervision and Safety of Technical Processes and co-sponsored by the TCs on Automotive Control, Transportation Systems, Algorithms and Architectures for Real-Time Control and Social Impact of Automation. It was organized by the Computer and Automation Research Institute, Hungarian Academy of Sciences, Budapest, Hungary, on behalf of the Hungarian IFAC National Member Organization (NMO) and was supported by local sponsors, namely, the Ministry of Education, Knorr-Bremse Budapest, and Nuclear Power Plant Co. Paks, Hungary. The theme of the symposium was reliability, availability and safety of technical processes and their control systems. The goal of the meeting was to bring together experts from different fields and applications, with the common interest of supervision, safety and fault tolerance of process control and other technical systems.

At the opening ceremony delegates were welcomed by Dr. András Edelmayer chairman of the National Organizing Committee (NOC). Addresses were given by Professor József Bokor, chairman of the International Programme Committee (IPC) and, on behalf of IFAC, by Professor Rolf Isermann, Vice-President.

The Budapest symposium had a distinctive character. It lent a special significance to this meeting that it took place at the turn of the millennium. This, certainly, inspired the experts, coming together from all corners of the world (altogether from 28 countries), to take a critical look at the development of the field during the century ending now, and to chart its future development for the one to start. SAFEPROCESS 2000 provided an important forum for assessing how research in this field of systems science has affected practical engineering and what needs to be done for it to really penetrate our everyday lives.

The technical program reflected the rapid growth of and strong interest in the field of the theory and application of safety related systems. The 36 technical sessions of the program were compiled from 217 carefully selected invited and regular papers, in 5 parallel sessions. These comprised 6 plenary overviews covering the fields of diagnosis in process control and automotive engineering, state-of-the-art reviews and surveys, contributed papers describing the latest results, and 9 specially organized invited sessions striking a good balance between application and theory. The papers were published in symposium preprints and finally included into the Proceedings excluding the papers of no-show authors (there were 12 papers whose authors did not show up at the symposium).

Each of the three days featured plenary lecture sessions followed by morning, midday and afternoon technical sessions of two hours (max. 6 papers each). The programme was strong both in applications such as automotive engineering and process control and in theoretical areas such as robust estimation and detection filters, fault tolerant control, neural networks and fuzzy reasoning. The selected papers, to the extent feasible, had been organized by the Program Committee into parallel tracks each of which featured a particular theme. Virtually, these tracks covered all the established and emerging aspects of safety intensive systems.

The organizers were honoured to have 6 good quality plenary presentations. The series of plenary lectures was led by Prof. Rolf Isermann (Darmstadt University of Technology, Germany) speaking about some concepts and realization of fault tolerant drive-by-wire systems. Other

invited plenary speakers and their topics were as follows: – Current developments in the theory of fault detection and isolation methodology, issues of diagnosis for quantised systems and some basics of fault tolerant control were discussed by Prof. Paul M. Frank (Gerhard-Mercator University, Duisburg, Germany), Prof. Jan Lunze (Technical University of Hamburg-Harburg, Germany) and Prof. Mogens Blanke (Technical University of Denmark, Lyngby, Denmark), respectively. Prof. János J. Gertler (George Mason University, Fairfax, USA), presented some interesting features of the extendability of conventional linear methods to the treatment of nonlinear problems. An interesting review of the past and present and outlook on the future of model based fault detection was given by Dr. Rami S. Mangoubi (Draper Laboratory, Cambridge, USA).

The highlight of the symposium were two technical tours. They were organized to two leading companies in Hungary involved in the application of safety related systems solutions. In the Nuclear Power Plant, Paks, the participants could take a close look at the safety related I&C systems solutions recently applied and developed by the Plant. In Knorr-Bremse, Budapest, latest results of vehicle control systems and intelligent braking systems were presented to the visitors.

During the symposium period, meetings of the SAFEPROCESS Technical Committee (TC) and the IPC were held. One of the basic subjects of the TC meeting was the debate on the possible location of the forthcoming SAFEPROCESS meetings. In the course of previous TC meetings it was agreed that SAFEPROCESS 2003 would be held outside Europe. In Budapest two verbal proposals were made regarding the place, time and date of SAFEPROCESS 2003. The proposals were presented by Marios Polycarpou and János J. Gertler, both on behalf of the IFAC NMO of the USA. As the TC members had not had sufficient time to study the two proposals exhaustively, no decision on the possible location was made in Budapest. Prospective contributors will be informed about the location of SAFEPROCESS 2003 in due time.

The organizers want to express their gratitude to all contributors. We hope that the SAFEPROCESS 2000 symposium was useful and rewarding to all participants. For more information with respect to the contents of the technical program of the symposium, please, turn to the official Web site of the SAFEPROCESS 2000, which will be available for a longer time at the address <http://www.sztaki.hu/conferences/safeprocess2000>.

Dr. András Edelmayer  
Chairman of the NOC

## Control Engineering Practice

A Journal of IFAC the International  
Federation of Automatic Control

Papers from the August 2000 Issue

A Partitioned Integrated Flight and Propulsion Control System with Engine Safety Limiting (S.L. Gatley, D.G. Bates, I. Postlethwaite)  
Sliding Mode Control of a Large Flexible Space Structure (M. Allen, B. Bernelli-Zazzera, R. Scattolini)  
Design of Fuzzy Logic Controller for a Jet Engine Fuel System (A. Zilouchian, M. Juliano, T. Healy, J. Davis)

Some Control Strategies for a High-angle-of-attack Missile Autopilot (E. Devaud, H. Siguierdijane, S. Font)  
Multivariate Statistical Process Control of an Industrial Fluidised-bed Reactor (A. Simoglou, E.B. Martin, A.J. Morris)  
Control of an LDPE Reactive Extrusion Process (S.A. Nield, H.M. Budman, C. Tzoganakis)  
Nonlinear Control of U-tube Steam Generators via H-infinite Control (A.G. Parlos, O.T. Rais)  
Nonlinear Modelling and Adaptive Predictive Control of a Solar Power Plant (R. Pichhardt)  
Controller Gain Tuning of a Simultaneous Multi-axis PID Control System using the Taguchi Method (K. Lee, J. Kim)  
**IFAC Meeting Papers – Keyword Listing**  
Motion Control, Grenoble, France, September 1998  
**Index of IFAC Meeting Papers**  
**Conference Calendar**

Papers from the September 2000 Issue

H-infinite Control of a Gravity Gradient Stabilised Satellite (A. Skullestad, J.M. Gilbert)  
Parameter Identification for Inflight Detection and Characterization of Aircraft Icing (J.W. Melody, T. Basar, W.R. Perkins, P.G. Voulgaris)  
An Adaptive Control Approach to the Attitude Control of a Flexible Rocket (H.-D. Choi, H. Bang)  
Gain-scheduled Control of a Solar Power Plant (T.A. Johansen, K.J. Hunt, I. Petersen)  
Maneuverability and Smoke Emission Constraints in Marine Diesel Propulsion (A. Stefanopoulou, R. Smith)  
Lane Changing with Look-down Reference Systems on Automated Highways (H.-S. Tan, J. Guldner, C. Chen, S. Patwardhan, B. Bougler)  
Optimal-tuning Nonlinear PID Control of Hydraulic Systems (G.P. Liu, S. Daley)  
Dual-target Predictive Control and Application in Food Extrusion (Y. Wang, J. Tan)  
State-space Neural Network for Modelling, Prediction and Control (J.M. Zamarrano, P. Vega, L.D. Garcia, M. Francisco)  
**IFAC Meeting Papers – Keyword Listing**  
Nonlinear Control Systems Design, Enschede, The Netherlands, June 1998  
**Index of IFAC Meeting Papers**  
**Conference Calendar**

Papers from the October 2000 Issue

Supervision of Nonlinear Adaptive Controllers Based on Fuzzy Models (A. Fink, M. Fischer, Nelles, R. Isermann)  
An Identification-for-control Procedure with Robust Performance (U. Holmberg, S. Valentiniotti, D. Bonvin)  
A Generic Natural Language Interface for Task Planning – Application to a Mobile Robot (J.M.G. Romano, E.F. Camacho, J.G. Ortega, M.T. Bonilla)  
Wheel Slip Control for Antispin Acceleration via Dynamic Spark Advance (I. Haskara, Ü. Özgüner, J. Winkelmann)  
Identification of Linear Models for the Dynamics of a Photodetector (M. Lovera, F. Previdi)  
Effects of Hoisting on the Input Shaping Control of Gantry Cranes (W. Singhose, L. Porter, M. Kenison, E. Krikkku)  
Experimental Evaluation of an Augmented IMC for Nonlinear Systems (Q. Hu, P. Saha, G.P. Rangaiah)  
Optimal Control of a Water Distribution Network in a Supervisory Control System (G. Cembrano, G. Wells, J. Quevedo, R. Pérez, R. Argelaguer)  
A Land Vehicle Tracking Algorithm Using Stand-alone GPS (J.-H. Kim, J.-H. Oh)  
**IFAC Meeting Papers – Keyword Listing**  
Low Cost Automation, Shenyang, China, September 1998  
**Index of IFAC Meeting Papers**  
**Conference Calendar**

**Control Systems Design (CSD2000)**  
**IFAC Conference**  
**Bratislava, Slovak Republic**  
**18 – 20 June, 2000**



The IFAC Conference "Control Systems Design" (CSD2000) sponsored by the IFAC Technical Committee on Control Design, was convened in Bratislava, Slovak Republic, from June 18-20, 2000. The Conference was organized by the Faculty of Electrical Engineering and Information Technology of the Slovak University of Technology in Bratislava, Slovak Republic, on behalf of the Slovak Society of Cybernetics and Informatics, which is the Slovak IFAC National Member Organization. From the organisational point of view it was one of the triple of subsequent "Central-European" IFAC events organized in June (SAFEPROCESS – Budapest, Hungary, CSD – Bratislava, Slovak Republic, ROCOND – Prague, Czech Republic). The IFAC Conference CSD2000 has been considered a direct continuation of the two preceding IFAC Workshops "New Trends in Design of Control Systems" held in 1994 and 1997 respectively at Smolenice, Slovak Republic.

The aim of the IFAC Conference "Control Systems Design" was to bring together researchers and practitioners dealing with theoretical and applied areas of Control Engineering to report on latest theoretical developments as well as applications in a variety of practical problems. The Conference was specific by its interdisciplinary character reflected by a wide range of addressed topics (Linear and Non-linear Control, Adaptive and Self-Tuning Control, Robust Control, Discrete Event Dynamic Systems Control, Predictive Control, Intelligent Control and Manufacturing). A large number of scientists and researchers from world-wide leading research institutions and universities of more than 25 countries participated in the Conference and presented 110 papers organised within one plenary, six regular, two invited and four poster sessions covering the following fields:

- Linear and Non-linear Control Systems Design
- Predictive Control Systems Design
- Discrete Event Dynamic Systems Design
- Robust Control Systems Design
- Intelligent Control Systems Design
- Control Systems Design Applications

A Round -Table Discussion with the title "Quo Vadis, Control Systems Design ?" allowed the attendees to join a broad discussion on the acceptance of new control methods in practice in individual countries. It is not an exaggeration

to say that the IFAC Conference "Control Systems Design" had a high professional level and has contributed to outline the directions for further development of advanced control methods and their applications in practice.

All papers accepted for presentation and duly submitted in the camera-ready version were published in the Preprints of the Conference and distributed to the participants. The presented papers will be available as Proceedings published by Elsevier Science Ltd., Oxford, UK and those papers which have been recommended by the IPC and chairmen of pertinent sessions, are being screened for a possible publication in IFAC journals *Automatica* and *Control Engineering Practice*.

Štefan Kozák, IPC Chair  
 Mikuláš Huba, NOC Chair

**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.**

Impressum:

Medieninhaber und Herausgeber:  
 International Federation of Automatic Control (IFAC),  
 Zurich  
 Schlossplatz 12, A-2361 Laxenburg, Austria

Verlagsort und Redaktion:  
 Dipl.Ing. Dr. Gusztáv Hencsey  
 Schlossplatz 12, A-2361 Laxenburg

Hersteller:  
 Artur Scheffzik & Sohn  
 August-Reuss-Gasse, A-1130 Wien

Editor: Gusztáv Hencsey  
 Layout: Ernestine Rudas  
 published bimonthly

**Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing – AgriControl2000 IFAC Conference Wageningen, The Netherlands, 10 – 12 July, 2000**

Over 100 participants from 28 countries participated in the first international IFAC Conference on agricultural applications of control. The conference was a natural follow-up of a series of successful workshops in the past years. Four plenary keynote addresses and two parallel streams of altogether 10 presentation sessions, as well as a poster session showed that agricultural and horticultural production and post-harvest processing have become high-tech sectors, where ideas from the world of systems dynamics and control can be applied with profit.

A keynote address by K.C. Ting from Rutgers University (presently Ohio State University) presented an inside view in the challenges of production for advanced life support systems in space, from which much can be learned for advanced on-earth production as well. Successful sessions on climate control, protected cultivation and animal production showed that production can be controlled and optimized in an economic and environmental sense by applying modern control theory, while assuring human and animal welfare.

A. Munack from Germany gave an interesting overview over expected developments in agricultural production, in the frame of the needs of the growing world population. The challenge is to assure sustainability while increasing production and production quality. It is clear that precision agriculture, harvesting robots, and modern information technology, for instance, will play a key role. The methodology also requires advanced sensors and image processing techniques. This was the subject of an overview given by H. Murase from Japan, who coined the term Biomechatronics, and of an interesting session on this subject.

Production must be followed by storage and processing. Several sessions were devoted to these issues. J. van Impe (Belgium) showed how optimization techniques could be used to optimize identification experiments as well as to improve the performance of bio-processes at the same time. And W. Jongen from The Netherlands discussed how research and development could be guided by the notion that production is part of a chain.

The best paper award was granted to R. Linker from Israel, while the best poster reward went to Mrs. P. Barreiro (from Spain, working in Belgium). The Conference allowed the participants to re-strengthen old friendships, and establish new contacts in a friendly atmosphere. The convenor, G. van Straten and the chairman of the local organizing committee, J. Bontsema, received the outstanding contribution award. There were also awards for the chairman of the CC on Life Support Systems, Y. Hashimoto, and the Chairmen of the TC on Modelling and Control in Agricultural Processes, I. Farkas and the TC on Intelligent Control in Agricultural Automation, H. Murase, for their continuous efforts to put the field of agricultural control on the IFAC agenda.

Several participants took the opportunity to familiarize themselves with the progress in this area in The Netherlands by taking part in the post-conference excursions to the co-organising IMAG and ATO, two outstanding research institutes in Wageningen.

G. van Straten, IPC Chair

## Survey Paper

### Automatic Control in Microelectronics Manufacturing: Practices, Challenges and Possibilities

(T.F. Edgar, S.W. Butler, W.J. Campbell, C. Pfeiffer, C. Bode, S.B. Hwang, K.S. Balakrishnan, J. Hahn)

## Papers

### Bootstrap-based Estimates of Uncertainty in Subspace Identification Methods

(S. Bittanti, M. Lovera)  
Computation of Lyapunov Functions for Smooth Nonlinear Systems Using Convex Optimization  
(T.A. Johansen)

### New Developments in State Estimation for Nonlinear Systems

(M. Norgaard, N.K. Poulsen, O. Ravn)  
Recursive Subspace Identification of Linear and Non-linear Weiner State-space Models  
(M. Lovera, T. Gustafsson, M. Verhaegen)

## Brief Papers

### Obtaining Controller Parameters for a New Smith Predictor Using Autotuning

(S. Majhi, D.P. Atherton)  
Adaptive Controllers Using Filter Banks to Reject Multi-sinusoidal Disturbance  
(P. Micheau, P. Coirault)  
Optimal Control of Crop Spacing in a Plant Factory  
(I. Ioslovich, P.-O. Gutman)

### On Aizerman-Myshkis Problem for Systems with Delay

(M.I. Gil)  
On the Strong Stabilization and Stable H-infinite Controller Design Problems for MIMO Systems  
(M. Zeren, H. Özbay)  
Robustness in H-infinite Identification  
(P.M. Mäkilä, J.R. Partington)

### BIBO Stability Integral (1-infinite-gain) for Second-order Systems with Numerator Dynamics

(K.H. You, E.B. Lee)  
On QFT Tuning of Multivariable  $\mu$  Controllers  
(J.W. Lee, Y. Chait, M. Steinbuch)

### Stabilization of Invariant Sets for Nonlinear Non-affine Systems

(A.S. Shiriaev, A.L. Fradkov)  
Solutions to Disturbance Decoupling Problem with Constant Measurement Feedback for Linear Systems  
(B.M. Chen, I.M.Y. Mareels, Yu-Fan Zheng, Ci-Shen Zhang)

### A Directional Forgetting Algorithm Based on the Decomposition of the Information Matrix

(L. Cao, H. Schwartz)  
Fast Spline Smoothing via Spectral Factorization Concepts  
(G. De Nicolao, G. Ferrari-Trecate, G. Sparacino)

### Global Exponential Setpoint Control of Wheeled Mobile Robots: A Lyapunov Approach

(W.E. Dixon, Z.P. Jiang, D.M. Dawson)  
Robust Fault Detection in Uncertain Dynamic Systems  
(F. Hamelin, D. Sauter)

### Technical Communiques

### More on the Applications of the Contraction Mapping Method in Robotics

(Wun-Seok Choi, B.-H. Ahn)  
Descriptor Wiener State Estimators  
(Z.-L. Deng, Y. Xu)  
Control Refigurability of Linear Time-invariant Systems  
(N.W. Wu, K. Zhou, G. Salomon)

## Book Reviews

### Autotuning of PID Controllers: Relay Feedback Approach, by Chen-Ching Yu (V.M. Becerra)

Stability and Stabilization of Infinite Dimensional Systems with Applications, by Z.H. Luo, B.Z. Go & O. Margul (K. Gu)

## Annual Reviews of Control

A Journal of IFAC the International  
Federation of Automatic Control

Annual Reviews of Control is the third journal of IFAC, after Automatica and Control Engineering Practice, published once a year. It carries review articles covering various aspects of the theory, tools, applications and implications of automatic control. At present, these papers are drawn from the material of the most recent IFAC symposia, conferences and workshops. Plans of the near future call for the inclusion of more extensive review articles written especially for the journal, and for an increase of frequency to two or perhaps four per year. Annual Reviews is published by Elsevier Science Ltd.; in addition to the present institutional subscriptions, a reduced personal rate is under consideration.

## CONTENTS

### SOCIO-ECONOMIC ISSUES

Functional investigation concerning a sustainable social economic evolution of the globalized industrial society  
E. WELFONDER

Decision support methods and applications: The cross-sections of economics and engineering or environmental issues  
A. P. WIERZBICKI

### AIR-TRAFFIC CONTROL

Research issues in the transition to free flight  
S. KAHNE

### PROCESS SUPERVISION

A survey on interval model simulators and their properties related to fault detection  
J. ARMENGOL, L. TRAVE-MASSUYES, J. VEHI, J. L. DE LA ROSA

Process supervision by means of qualitative models  
J. LUNZE

Predicting the performance of soft sensors as a route to low cost automation  
G.C. GOODWIN

### SYSTEMS IDENTIFICATION

System identification strategies applied to aircraft gas turbine engines  
V. ARKOV, D. C. EVAN, P. J. FLEMING, D. C. HILL, J. P. NORTON, I. PRATT, D. REES and K. RODRIGUEZ-VAZQUEZ

Parameter estimation in stochastic differential equations: An overview  
J. N. NIELSEN, H. MADSEN and P. C. YOUNG

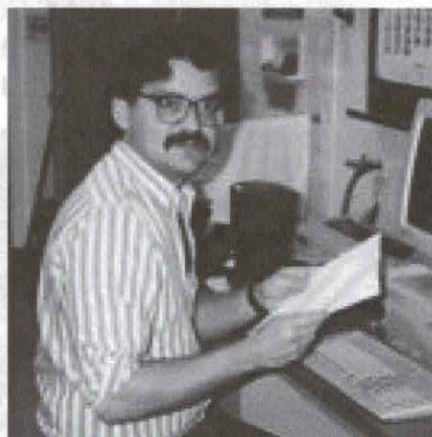
### CONTROL OF NETWORK SYSTEMS

Control of dynamic systems in spatial networks: Application, results, and challenges  
J. L. SPEYER

### CONTROL THEORY

Control zeros and nonminimum phase LTI MIMO systems  
K. LATAWIEC, S. BANKA and J. TOKARZEWSKI

## WHO IS WHO IN IFAC



Prof. Romeo Ortega  
Member of the Technical Board

Romeo Ortega was born in Mexico. He obtained his BSc in Electrical and Mechanical Engineering from the National University of Mexico, Master of Engineering from Polytechnical Institute of Leningrad, USSR, and the Docteur D'Etat from the Polytechnical Institute of Grenoble, France in 1974, 1978 and 1984 respectively.

He then joined the National University of Mexico, where he worked until 1989. He was a Visiting Professor at the University of Illinois in 1987-88 and at the McGill University in 1991-1992, and a Fellow of the Japan Society for Promotion of Science in 1990-1991. He has been a member of the French National Researcher Council (CNRS) since June 1992. Currently he is in the Laboratoire de Signaux et Systemes (SUPELEC) in Paris. His research interests are in the fields of nonlinear and adaptive control, with special emphasis on applications.

Dr. Ortega is a Fellow Member of the IEEE. He was the Chairman of the IEEE Working Group on Adaptive Control and Systems Identification, of the IFAC Technical Committee on Adaptive Control and Tuning and of the Automatica Paper Prize Award Committee. He is currently a member of the IFAC Technical Board and chairman of the IFAC Coordinating Committee on Systems and Signals. He is an Associate Editor of Systems and Control Letters, International Journal of Adaptive Control and Signal Processing, European Journal of Control and IEEE Transactions on Control Systems Technology.

Systems over rings: Geometric theory and applications  
G. CONTE, A. M. PERDON

Finite spectrum property and predictors  
A.W. OLBROT

Algebraic tools for the control and stabilization of time-delay systems  
J. J. LOISEAU

Laboratory experiments for control theory courses: A survey  
P. HORACEK

### SOFTWARE ARCHITECTURES

Framework-based software architectures for process automation systems  
F. BUSCHMANN, A. GEISLER, T. HEIMKE and C. SCHUDERER

A comparison of CAN and TTP  
H. KOPETZ

### MOTION CONTROL

Control for simulated human and animal motion  
M. VAN DE PANNE

Control of self-optimizing exercise machines  
R. HOROWITZ, P. Y. LI and J. SHIELDS



## FORTHCOMING EVENTS

2000  
No. 5  
Oct.

As of this Newsletter Issue, the list of Forthcoming Events does not give mailing addresses, but lists e-mail addresses and homepage links to the event homepages wherever available. The list of events and all links are also given on the IFAC homepage at <http://www.ifac-control.org>  
In the unlikely event that you do not have access to e-mail or the internet, please contact the IFAC Secretariat.

Title	2000	Place	Deadline	Further Information
IFAC Symposium Artificial Intelligence in Real-Time Control - AIRTC 2000	Oct. 2 - 4	Budapest Hungary	-	<a href="http://www.banki.hu/airtc2000/">http://www.banki.hu/airtc2000/</a> e-mail: <a href="mailto:rudas@zeus.banki.hu">rudas@zeus.banki.hu</a>
Latin American Control Conference (in cooperation with IFAC)	Nov. 1 - 3	Cali Colombia	-	<a href="http://www.control-automatico.net/aca/congreso.htm">http://www.control-automatico.net/aca/congreso.htm</a> e-mail: <a href="mailto:fnaranjo@cuaa.edu.co">fnaranjo@cuaa.edu.co</a>
IFAC Workshop Bio-Robotics, Information Technology and Intelligent Control for Bio-production Systems BIO-ROBOTICS II	Nov. 25 - 26	Osaka area Japan	-	e-mail: <a href="mailto:nkondo@cc.okayama-u.ac.jp">nkondo@cc.okayama-u.ac.jp</a>
IFAC Workshop Distributed Computer Control Systems DCCS 2000	Nov. 29 Dec. 1	Sydney Australia	-	<a href="http://www.cse.unsw.edu.au/~dccc2000/">http://www.cse.unsw.edu.au/~dccc2000/</a> e-mail: <a href="mailto:sowmya@cse.unsw.edu.au">sowmya@cse.unsw.edu.au</a>
IFAC/IEEE Symposium 5 <sup>th</sup> Advances in Control Education ACE - 2000	Dec. 17 - 19	Gold Coast Australia	-	<a href="http://www.gu.edu.au/centre/icsl/ace2000/">http://www.gu.edu.au/centre/icsl/ace2000/</a> e-mail: <a href="mailto:ace2000@me.gu.edu.au">ace2000@me.gu.edu.au</a>
Title	2001	Place	Deadline	Further Information
IFAC Workshop Advances in Automotive Control	March 28 - 30	Karlsruhe Germany	-	e-mail: <a href="mailto:kiencke@iit.etec.uni-karlsruhe.de">kiencke@iit.etec.uni-karlsruhe.de</a>
IFAC Workshop Intelligent Manufacturing Systems - IMS 2001	April 24 - 26	Poznan Poland	31 Oct. 2000	<a href="http://www.put.poznan.pl/events/ims2001">http://www.put.poznan.pl/events/ims2001</a> e-mail: <a href="mailto:ims2001@put.poznan.pl">ims2001@put.poznan.pl</a>
IFAC Workshop Mobile Robot Technology	May 21 - 22	Cheju Korea	15 Jan. 2001	e-mail: <a href="mailto:ilsuh@email.hanyang.ac.kr">ilsuh@email.hanyang.ac.kr</a>
IFAC Workshop Automatic Systems for Building Infra- Structure in Developing Countries	May 21 - 23	Lake Ohrid Macedonia (former Rep. of Yu)	31 Dec. 2000	e-mail: <a href="mailto:georgi@regpro.mechatronik.uni-linz.ac.at">georgi@regpro.mechatronik.uni-linz.ac.at</a>
IFAC/CIGR Workshop Artificial Intelligence in Agriculture	June 4 - 6	Budapest Hungary	15 Nov. 2000	<a href="http://fft.gau.hu">http://fft.gau.hu</a> e-mail: <a href="mailto:ifarkas@fft.gau.hu">ifarkas@fft.gau.hu</a>
IFAC Symposium 6 <sup>th</sup> Dynamics and Control of Process Systems - DYCOPS 6	June 4 - 6	Chejudo Island Korea, Rep.	15 Oct. 2000	<a href="http://pslab.snu.ac.kr/dycops6">http://pslab.snu.ac.kr/dycops6</a> <a href="http://atom.ecn.purdue.edu/~dycops6/">http://atom.ecn.purdue.edu/~dycops6/</a> e-mail: <a href="mailto:dycops6@pslab.ac.kr">dycops6@pslab.ac.kr</a>
IFAC Workshop 4 <sup>th</sup> On-Line Fault Detection and Supervision in the Chemical Process Industries	June 8 - 9	Seoul Korea, Rep.	1 Nov. 2000	<a href="http://pslab.snu.ac.kr/supercpi4">http://pslab.snu.ac.kr/supercpi4</a> e-mail: <a href="mailto:supercpi4@pslab.snu.ac.kr">supercpi4@pslab.snu.ac.kr</a>
IFIP/CIRP/IEEE/IFAC Conference Feature Modelling and Advanced Design- For-The-Life-Cycle-Systems FEATS2001	June 12 - 14	Valenciennes France	-	<a href="http://www.univ-valenciennes.fr/LGIL/FEATS2001/welcome.htm">http://www.univ-valenciennes.fr/LGIL/FEATS2001/welcome.htm</a> e-mail: <a href="mailto:feats2001@univ-valenciennes.fr">feats2001@univ-valenciennes.fr</a>
IMACS/IFAC Symposium Mathematical Modeling and Simulation in Agricultural and Bio-Industries	June 12 - 14	Haifa Israel	20 Nov. 2000	<a href="http://www.technion.ac.il/technion/agr/m2sabi01.html">http://www.technion.ac.il/technion/agr/m2sabi01.html</a> e-mail: <a href="mailto:peo@tx.technion.ac.il">peo@tx.technion.ac.il</a>
IFAC Conference Computer Applications in Biotechnology - CAB 8	June 24 - 27	Quebec City Canada	-	<a href="http://www.gch.polymtl.ca/cab8">http://www.gch.polymtl.ca/cab8</a> e-mail: <a href="mailto:Michel.Perrier@urpc.polymtl.ca">Michel.Perrier@urpc.polymtl.ca</a>
American Control Conference- ACC01 (in co-operation with IFAC)	June 25 - 27	Arlington Virginia, USA	-	<a href="http://acc2001.che.ufl.edu">http://acc2001.che.ufl.edu</a> e-mail: <a href="mailto:krogh@ece.cmu.edu">krogh@ece.cmu.edu</a>
IFAC Symposium Nonlinear Control Systems - NOLCOS 2001	July 4 - 6	St. Petersburg Russia	15 Nov. 2000	<a href="http://www.ipme.ru/nolcos.html">http://www.ipme.ru/nolcos.html</a> e-mail: <a href="mailto:nolcos@ccs.ipme.ru">nolcos@ccs.ipme.ru</a>
IEEE/ASME Intl. Conference Advanced Intelligent Mechatronics (AIM'01) - in cooperation with IFAC	July 8 - 11	Como Italy	1 Nov. 2000	<a href="http://www.AIM01.unina.it">http://www.AIM01.unina.it</a> e-mail: <a href="mailto:siciliano@unina.it">siciliano@unina.it</a>
IFAC Conference Control Applications in Marine Systems - CAMS 2001	July 17 - 20	Glasgow UK	January 2001	<a href="http://www.icc.strath.ac.uk/~cams2001">http://www.icc.strath.ac.uk/~cams2001</a> e-mail: <a href="mailto:system@icu.strath.ac.uk">system@icu.strath.ac.uk</a>
IFAC Symposium Large Scale Systems LSS 2001	July 18 - 20	Bucharest Romania	-	<a href="http://www.ici.ro/lss2001">http://www.ici.ro/lss2001</a> e-mail: <a href="mailto:florinf@ici.ro">florinf@ici.ro</a>
IFAC Conference Telematics Applications in Automation and Robotics	July 24 - 26	Weingarten Germany	2 Oct. 2000	<a href="http://www.ars.fh-weingarten.de/ta2001">http://www.ars.fh-weingarten.de/ta2001</a> e-mail: <a href="mailto:ta2001@ars.fh-weingarten.de">ta2001@ars.fh-weingarten.de</a>

## FORTHCOMING EVENTS (ctd.)

Title	2001	Place	Deadline	Further Information
IFAC Workshop Modelling and Control in Environmental Issues	August 22 – 23	Yokohama Japan	15 Feb. 2001	e-mail: nishioka@sfc.keio.ac.jp
IFAC Workshop Intelligent Control for Agriculture Applications	August 22 – 24	Bali Indonesia	1 Nov. 2000	e-mail: tpphp@indo.net.id
IFAC Workshop Periodic Control Systems	August 27 – 28	Como Italy	1 Feb. 2001	http://www.elet.polimi.it/PSYCO e-mail: bittanti@elet.polimi.it
IFAC Workshop Adaptation and Learning in Control and Signal Processing	August 29 – 31	Como Italy	15 Jan. 2001	http://www.elet.polimi.it/ALCOSP e-mail: bittanti@elet.polimi.it
IFAC Symposium System Structure and Control	August 29 – 31	Prague CZ	31 October 2000	http://www.sssc01.cz e-mail: zagalak@utia.cas.cz
IFAC Symposium Automatic Control in Aerospace	Sept. 2 – 7	Bologna/Forli Italy	1 October 2000	http://ars-sun1.ars.fh-weingarten.de/ifac/events.html e-mail: bofo2001@deis.unibo.it
European Control Conference – ECC 2001 (in cooperation with IFAC)	Sept. 4 – 7	Porto Portugal	1 October 2000	http://www.fe.up.pt/ecc2001/ e-mail: chairecc@fe.up.pt
IFAC Symposium 10 <sup>th</sup> Automation in Mining, Mineral and Metal Processing – MMM 2001	Sept. 4 – 6	Tokyo Japan	15 October 2000	http://www.isij.or.jp/ifac-mmm2001 e-mail: kuchida@uchi.elec.waseda.ac.jp
IFAC Symposium 4 <sup>th</sup> Intelligent Autonomous Vehicles – IAV	Sept. 5 – 7	Sapporo Japan	31 December 2000	http://junji.complex.eng.hokudai.ac.jp/~iav01 e-mail: iav01@complex.eng.hokudai.ac.jp
IFAC Symposium Modelling & Control of Economic Systems	Sept. 6 – 8	Klagenfurt Austria	1 March 2001	http://www.econ.uni-klu.ac.at/sme2001 e-mail: sme2001@econ.uni-klu.ac.at
IFAC/IFIP/IFORS/IEA Symposium Analysis, Design, and Evaluation of Human-Machine Systems HMS'2001	Sept. 18 – 20	Kassel Germany	10 Nov. 2000	http://www.imat.maschinenbau.uni-kassel.de/ hms2001/index.html e-mail: HMS2001@imat.maschinenbau.uni-kassel.de
IFAC/IFIP/IFORS/IFR Symposium Information Control Problems in Manufacturing Technologies – INCOM 2001	Sept. 20 – 22	Vienna Austria	31 January 2001	e-mail: nemetz@ihrtl.ihrt.tuwien.ac.at
IFAC Conference Social Stability: The Challenge of Technology Development	Sept. 27-29	Vienna Austria	15 January 2001	http://www.ihrt.tuwien.ac.at/swiis01/default.htm e-mail: swiis01@ihrt.tuwien.ac.at
IFAC Workshop Control Applications in Post-harvest and Processing Technology – CAPPT 2001	Oct. 3 – 5	Tokyo Japan	31 March 2001	e-mail: ase0@mail.ecc.u-tokyo.ac.jp
IFAC Symposium 6 <sup>th</sup> Cost Oriented Automation (LCA2001)	Oct. 8 – 10	Düsseldorf Germany	2 January 2001	e-mail: rosenzweig@vdi.de
IFAC Workshop Singular Solutions and Perturbations	Oct. 18 – 20	Bucharest Romania	1 Dec. 2000	e-mail: nandrei@u3.ici.ro
IFAC Workshop Computation in Economic, Financial and Engineering-Economic Systems	Oct. 22 – 24	Tianjin China	15 Nov. 2000	e-mail: ifaccef.chinaexporter.org
IFAC Workshop Intelligent Assembly and Disassembly – IAD 2001	Nov. 5 – 7	Gramado Brazil	30 March 2001	e-mail: cpereira@iee.ufrgs.br
IFAC Conference New Technologies for Computer Control	Nov. 19 – 22	Hong Kong China	15 December 2000	e-mail: mechan@hkucc.hku.hk
Title	2002	Place	Deadline	Further Information
American Control Conference (in co-operation with IFAC)	May 8 – 10	Anchorage Alaska, USA	15 September 2001	http://www.ent.ohiou.edu/~acc2002 e-mail: rrrr@gibbs.cheng.okstate.edu
<b>IFAC WORLD CONGRESS 15<sup>th</sup></b>	<b>July 21 – 26</b>	<b>Barcelona Spain</b>	<b>15 June 2001 (paper support) 15 Sept. 2001 (internet- submission)</b>	<b>b'02 Secretariat Internat. Center for Numerical Methods in Engineering Universitat Polytechnica de Catalunya Campus Nord Gran Capita, s/n – Edificio C1 E-08034 Barcelona, Spain http://www.ifac2002.org e-mail: secretariatnoc@b02.ifac2002.org</b>
Title	2003	Place	Deadline	Further Information
IFAC Symposium 6 <sup>th</sup> Advances in Control Education – ACE 2003	June 16 – 18	Oulu Finland	Nov. 2002	http://ntsats oulu.fi/ace e-mail: leena.yliniemi@oulu.fi
IFAC Symposium 4 <sup>th</sup> Robust Control Design ROCOND 2003	June 25 – 27	Milan Italy	Nov. 2002	e-mail: colaneri@elet.polimi.it