# IFAC International Federation of Automatic Control

# Newsletter

1994
No. 1
Feb.

## Contents:

## New Structure of IFAC's Technical Board

In the preceding triennium, lasting from 1990 - 1993 there have been discussions, reflections and considerations on the subject of making the Technical Board, with its particular responsibility of planning and organizing IFAC events, even more efficient and thus to increase IFAC's ability to react flexibly to the ongoing developments and changes occurring in the field of automatic control in general and in the many specialities in particular. The idea for a change took concrete shape in the proposal made by a Council Task Force. The Task Force then submitted the proposal to the Council. Forthwith, the Working Groups will be elevated to Technical Committee status. This proposal provides for one Technical Board Chairman, one Technical Board Vice-Chairman and a flexible number of Technical Board Members. The Members of the Technical Board have a very strong coordinating function, each of them being responsible for a certain number of Technical Committees. One Member of the Technical Board will act as liaison person to publications.

The proposal, as outlined above, required certain amendments to the IFAC Constitution and By-Laws. All this was discussed in great depth at the General Assembly Meeting in Sydney. Following the request to do some finetuning, a postal ballot among IFAC's National Member Organizations was conducted, resulting in an approval of the amendments to the Constitution.

As a consequence, the structure of the Technical Board and the persons responsible for the individual functions are given below. Names of the Coordinating Committees will be published in due course.

| | |
|---|---|
| **Chairman** | **Vladimir Kucera** CZ |
| **Vice Chairman** | **Michael Rabins** USA |
| **Members** | **Derek Atherton** UK |
| **and Coordinating Committee Chairmen** | |

Coordinating Committee Chairmen and Technical Committees and Chairmen in their competence:

| | | | |
|---|---|---|---|
| **I.** | **Luis Basanez (E)** | | |
| | Manufacturing Modelling, Management and Control | A. Villa | I |
| | Robotics | F. Nicolo | I |
| | Architectures for Enterprise Integration | T.J. Williams | USA |
| | Components and Instruments | A. Ollero | E |
| | Low Cost Automation | J. Paiuk | ARG |
| | Advanced Manufacturing Technology | N.N. | |
| **II.** | **Robert Bitmead (AUS)** | | |
| | Control Design | F.J. Kraus | CH |
| | Nonlinear Systems | A. Isidori | I |
| | Optimizations Methods | N.N. | |
| | Robust Control | I. Petersen | AUS |
| **III.** | **Han Fu Chen (PRC)** | | |
| | Modelling, Identification and Signal Processing | B. Wahlberg | S |
| | Adaptive Control and Tuning | M.J. Grimble | UK |
| | Discrete Event Dynamic Systems | G. Olsder | NL |
| | Stochastic Systems | G. Picci | I |
| **IV.** | **Katsuhisa Furuta (J)** | | |
| | Control in Agriculture | Y. Hashimoto | J |
| | Modelling and Control of Biomedical Systems | C. Cobelli | I |
| | Control Education | K.H. Fasol | D |
| | Control Terminology | P.M. Larsen | DK |
| | Natural Resource Systems | L. Tavares | P |
| | Automation in Developing Countries | A. Kaya | USA |
| **V.** | **Gunnar Johannsen (D)** | | |
| | Large Scale Systems | J. Bernussou | F |
| | Man-Machine Systems | H.K. Stassen | NL |
| | Computer Aided Control Systems Design | J.O. Gray | UK |
| | Business and Management Techniques | M. Deistler | A |
| | Modelling and Control of National Economies | B. Rustem | UK |
| | Supplemental Ways of Improving International Stability - SWIIS | P. Kopacek | A |
| **VI.** | **Thomas Martin (D)** | | |
| | Social Impact of Automation | D. Brandt | D |
| | Cultural Aspects of Automation | J. Forslin | S |
| **VII.** | **Mogens Kümmel (DK)** | | |
| | Chemical Process Control | T. McAvoy | USA |
| | Mining, Mineral and Metal Processing | A. Niemi | SF |
| | Control of Pulp and Paper Processes | M. Perrier | CDN |
| | Power Plants and Power Systems | E. Welfonder | D |
| | Control of Biotechnological Processes | A. Munack | D |
| | Fault Detection, Supervision and Safety of Technical Processes SAFEPROCESS | R. Isermann | D |
| **VIII** | **Michael K. Masten (USA)** | | |
| | Aerospace | S.M. Seltzer | USA |
| | Automotive Control | U. Kiencke | D |
| | Marine Systems | M. Blanke | DK |
| | Air Traffic Control Automation | S.C. Mohleji | USA |
| | Transportation Systems | J.P. Perrin | F |
| | Intelligent Autonomous Vehicles | A. Halme | SF |
| **IX.** | **Leo Motus (EE)** | | |
| | Distributed Computer Control Systems | I. MacLeod | RSA |
| | Real-Time Software Engineering | J. de la Puente | E |
| | AI in Real-Time Control | H.B. Verbruggen | NL |
| | Algorithms and Architectures for Real-Time Control | P. Fleming | UK |
| | Safety of Computer Control Systems | G.J. Suski | USA |
| | Distributed Intelligence Systems | H.A. Nour Eldin | D |

# Control Engineering Practice
## Volume 2, Number 1
## February 1994

## Preview

A Message from the President of IFAC
(Stephen Kahne)
Crushing Mill for Sugar Cane - A Robust,
Nonadaptive LQG/LTR Strategy
(A.G. Partanen, R.D. Peirce and R.R. Bitmead)
Modelling and Automatic Control of Color Picture
Tube Adjustment Process
(Sung Rak Kim, Tai Shin Chung and Zeungnam
Bien)
Neural Networks for Job-Shop Scheduling
(T.M. Willems and J.E. Rooda)
An Experimental Study on the Position Control of
an Electrohydraulic Servo System Using Time
Delay Control
(Sung-Mu Chin, Chung-Oh Lee and Pyung H.
Chang)
A Robust Navigation System for Autonomous
Vehicles Using Ultrasonics
(F. Figueroa and A. Mahajan)
Observing the State of Hydraulic Drives via Bilinear
Approximated Models
(H. Schwarz and R. Ingenbleek)
Control of an Industrial Spray Drying Unit
(R. Govaerts, A. Johnson, R. Crezee, G. Reyman
and P.L.S. Swinkels)

**Papers from the IEEE Workshop on Neuro-
Fuzzy Control: Instrumentation and Control
Applications**

Preface to the papers from the IEEE Workshop on
Neuro-Fuzzy Control: Instrumentation and Control
Applications
(A. de Carli)
Artificial Neural Networks in Fault Diagnosis and
Control
(H.N. Koivo)
Coordination in Evolutionary Multi-Agent-Robotic
System Using Fuzzy and Genetic Algorithm
(T. Shibata and T. Fukuda)
Neural Networks and Fuzzy Logic in Power
Electronics
(Bor-Ren Lin and R.G. Hoft)
AMI/AMIMADO, a Design Environment for
Neural Networks, and its Applications
(H. Takada, K. Hamada and K. Kaya)
Fuzzy-Neuro Control Using Associative Memories,
and its Applications
(H. Ushida, T. Yamaguchi, K. Gotob and T. Takagi)
A Fuzzy-PI Control Strategy
(A. De Carli, P. Liguori and A. Marroni)

## Abstracts

IFAC Workshop: Intelligent Autonomous Vehicles,
Southampton, UK, April 1993
IFAC Symposium: Large Scale Systems: Theory
and Applications, Beijing, PRC, August 1992
IFAC Workshop: A Cost Effective Use of Compu-
ter Aided Technologies and Integration Methods in
Small and Medium Sized Companies, Vienna,
Austria, September 1992

**Index of Abstracts**
**Book Reviews**
**Conference Calendar**

# Production Control in Process Industry
## IFAC Workshop
### Düsseldorf, Germany
### 29 – 31 March, 1993

This Workshop was the second technical meeting
on the issue after the first one held in Japan in 1989.
It was sponsored by the IFAC TC on Applications
with its Working Group on Chemical Processes,
the TC on Systems Engineering and the TC on
Economic and Management Systems. In total, 92
participants attended this workshop, about 50 %
from the host country and 50 % from 13 other
countries. 85 participants came from industry and
only seven from universities.

The opening session was chaired by Dr. J. König,
the chairman of the IPC, who pointed out the
importance of the workshop objectives within IFAC.
He emphasized the necessity to integrate production
scheduling and process control systems, as well as
maintenance and quality systems.

The meeting was run in six sessions, three of them
dealing with development and solutions for
Production Information Systems, the other three
covering the topics Maintenance and Quality
Assurance, Plant Operation and Plant Optimization.
Beyond the latest developments, most contributions
highlighted application-oriented results.

In an invited lecture on Future Aspects of Plant
Operation, Professor E. O'Shima gave an outlook
and presented his ideas on the future 'Production
Centre'

# Knowledge Based Hybrid Systems in Engineering and Manufacturing
## IFIP/IFAC Conference
### Budapest, Hungary,
### April 20 – 22, 1993

Knowledge Based Systems have emerged as an
efficient solution of complex problems in many
areas. A balanced mixture of casual and heuristic
processing modules can offer a comprehensive
approach in complex cases, which is often called a
'knowledge based hybrid system'. The Working
Conference (sponsored by IFIP/TC5/WG 5.3, co-
sponsored by the IFAC Manufacturing Technology
Committee) wanted to provide a forum for
presenting interesting results obtained by using this
approach.

Eighty percent of the submitted session papers
were accepted. Three keynote and 17 session papers
were presented, and 4 mini-symposia with
demonstrations and discussions were held in the
afternoons. Altogether 25 authors from 12 countries
presented their papers, and 15 (mainly local
Hungarian) visitors attended the conference. The
official language of the conference was English.

The keynote speakers were highly respected experts:
Professors Andrew Kusiak, Axel Lehmann, Tibor
Vámos. They gave a good introduction for each
day. Prof. Vámos talked about the current problems
of artificial intelligence research. He stressed the
importance of man-machine symbiotic systems
which promise better knowledge representation
and decision support. Prof. Lehmann gave an
overview and analysis of methodological
approaches and techniques often used for
representing and processing information in
knowledge based systems and made a comparison
between AI and conventional programming
techniques. Finally, different approaches to
knowledge based hybrid systems and their tools

were discussed with application examples. Prof.
Kusiak concentrated on the concurrent engineering
approach in the design of products and
manufacturing systems, and outlined application
possibilities for knowledge based hybrid systems.

The submitted papers were presented in seven
sessions, each covering a separate topic. Most of
the papers referred to both industrial applications
and theoretical work. The level of presentations
was high.

The four mini-symposia based on demonstrations
offered very good opportunities for detailed, high-
level discussions in the afternoons. Each symposium
concentrated on a different problem of hybrid
systems. Those problems were: Design of CIM
system software architecture design, feature-based
product redesign, facilities layout design, and
evaluation of manufacturing system throughput. A
major benefit of the conference was that it brought
together researchers of the same field. This was
brilliantly demonstrated when some research groups
realized that others were also working on the same
or similar subjects.

The conference activities were conducted smoothly,
the flexible and open organization encouraged
detailed discussions and contacts between
researchers. At the panel sessions the participants
agreed on the following conclusions:
– hybrid system development and evaluation need
  special methodologies
– hybrid systems offer solutions for problems
  without the need of basic simplifications
– a distinction has to be made between hybrid and
  integrated systems.

The participants showed enthusiasm in taking part
in another workshop on the same topic after active
preliminary consultations via e-mail among
potential participants. Prof. L.M. Camarinha-Matos
(Universidade Nova Lisboa) expressed his
willingness to organize the next workshop in Lisbon,
Portugal.

Dr. István Mezgár, Dr. Péter Bertók

| Title | 1994 | Place | Deadline | Further Information |
|---|---|---|---|---|
| Joint IEEE/IFAC Symposium Computer-Aided Control System Design | March 7 – 9 | Tucson, AZ USA | – | Eng. Professional Development Univ. of Arizona, Box 9 Harvill Bldg. Rm 235, Second and Olive Streets, Tucson, Arizona 85721, USA FAX 602/ 621-1443 e-mail: Baltes@BigDog, Engr.Arizona.Edu |
| IFAC/IMEKO Symposium (2nd) Modelling and Control in Biomedical Systems | March 27 – 30 | Galveston, TX USA | – | IFAC Biomedical Symposium U.T. Medical Branch, Box 55176 Galveston, TX 77555-5176, USA FAX 409/770-6825 |
| IFAC Symposium Advanced Control of Chemical Processes - ADCHEM '94 | May 25 – 27 | Kyoto Japan | – | Dr. Shinji Hasebe Dept. of Chem. Engineering Kyoto University Kyoto 606-01, Japan FAX +81/75-752-9639 e-mail: A52165@jpnkudpc.bitnet |
| IFAC/IMEKO Symposium Intelligent Components and Instr. for Control Applications - SICICA '94 | June 8 – 10 | Budapest Hungary | – | SICICA '94 Secretariat Computer and Automation Institute HAS, POB 63, H-1518 Budapest, Hungary FAX +36/1/1869378 e-mail: h103hen@ella.hu |
| IFAC Workshop Computing in Economics and Finance | June 8 – 10 | Amsterdam Netherlands | 31 Jan. 1994 | Mr. Hans M. Amman Dept. of Macroeconomics, Rm E1-911 Univ. of Amsterdam, Roeterstraat 11 NL-1018 WB Amsterdam, Netherlands FAX +31/20/525528 e-mail: amman@sara.nl |
| IFAC/IFIP/IFORS Workshop (2nd) Intelligent Manufacturing Systems | June 13 – 15 | Vienna Austria | 14 Feb. 1994 | Dr. Martin Zauner Ö P W Z, Rockhgasse 6 A-1014 Vienna, Austria FAX +43/1/533 863673 |
| IFAC Symposium Fault Detection, Supervision and Safety for Industrial Processes | June 13 – 16 | Espoo Finland | – | Finnish Society of Automation Asemapäällikönkatu 12C SF-00520Helsinki, Finland FAX +358/0/146 1650 |
| IFAC/IFIP Workshop (19th) Real Time Programming | June 22 – 24 | Reichenau Germany | – | Prof. Wolfgang Halang Fern-Universität Hagen D-58084 Hagen, Germany FAX +49/2331/987-375 e-mail: wolfgang.halang@fernuni-hagen.de |
| IFAC Workshop Integration of Process Design and Control | June 27 – 28 | Baltimore, MD USA | – | Dr. T. McAvoy, Chem. Eng. Dept. University of Maryland College Park, MD 20742-2111, USA FAX 301/405-9126 e-mail: mcavoy@eng.umd.edu |
| 1994 American Control Conference (in cooperation with IFAC) | June 29 – July 1 | Baltimore, MD USA | – | Prof. Hassan Khalil Electrical Eng. Dept., Michigan State Univ. East Lansing, MI 48824-1226, USA FAX 517-353-1980 e-mail: khalil@frith.egr.msu.edu |
| IFAC/IFORS Symposium (10th) Identification & System Parameter Estimation SYSID '94 | July 4 – 6 | Copenhagen Denmark | – | SYSID '94 Secretariat Danish Automation Society, Symbion Fruebjergvej 3 DK-2100 Copenhagen, Denmark FAX +45/3120 5521 |
| Asian Control Conference (in cooperation with IFAC) | July 27 – 30 | Tokyo Japan | – | Prof. Yasuchika Mori Dept. of Mechanical Engineering National Defense Academy 1-10-20 Hashirimizu, 239 Yokosuka, Japan FAX 468 42 6480 |
| IFAC Symposium (3rd) Advances in Control Education | Aug. 1 – 2 | Tokyo Japan | – | Prof. K. Furuta Tokyo Inst. of Technology Dept. of Control Engg. 2-12-1 Oh-Okayama Beguroku Tokyo 152, Japan FAX +81/ 3 /3720-5269 e-mail: furuta@ctrl.titech.ac.jp |
| IFAC Workshop Computer Software Structures Integrating AI/KBS | Aug. 10 – 12 | Lund Sweden | 15 Jan. 1994 | Svenska IFAC kommitten POB 27 S-75103 Uppsala, Sweden FAX +46/18/503611 |

# FORTHCOMING EVENTS (ctd.)

| Title | 1994 | Place | Deadline | Further Information |
|---|---|---|---|---|
| ISPE/IFAC Intl. Conference CAD/CAM: Robotics and Factories of the Future | Aug. 21 – 24 | Ottawa, Ont. Canada | – | Prof. M.B. Zaremba Ottawa Carleton Research Inst. Kanata, Ont., CDN, K2K 2E4, Canada FAX 819/773 1638 e-mail:zaremba@uqah.uquebec.ca |
| IFAC/IFIP/IFORS Symposium Transportation Systems: Theory and Application of Advanced Technology | Aug. 24 – 26 | Tianjin China, P.R. | – | Prof. G.G. He, TS'94 Institute of Systems Engg. Tianjin University Tianjin 300072, China, P.R. FAX +86/22-358329 |
| IEE/IFAC/TUHH Conference Intelligent Systems Engineering | Sept. 5 – 8 | Hamburg Germany | 25 Feb. 1994 | Ms. Jane Chopping ISE 94 Secretariat, Conference Serv. Institution of El. Engineers Savoy Place, London WC2R OBL, UK FAX +44/71 497 3633 |
| International Conference Manoeuvring and Control of Marine Craft | Sept. 7 – 9 | Southampton UK | 1 March 1994 | Dr. G.N. Roberts Control Engg. Dept Royal Naval Inst. College, Manadon Plymouth PL5 3AQ, UK FAX +44/752/769039 e-mail: cegr@uk.ac.manadon |
| IFAC Workshop New Trends in Design of Control Systems | Sept. 8 – 10 | Smolenice Slovakia | 31 Jan. 1994 | IFAC Workshop '94 Ms. Alena Kozakova, Fac. of El.Engg. Ilkovicova 3 SK-81219 Bratislava, Slovakia FAX: +42/7/ 72 97 34 |
| IFAC/ISHS Workshop (2nd) Mathematical and Control Applications in Agriculture and Horticulture | Sept. 12 – 15 | Silsoe UK | – | Prof. W. Day Silsoe Research Institute Wrest Park, Silsoe MK45 4HS, UK FAX +44/525/860156 |
| IFAC Symposium (13th) Automatic Control in Aerospace | Sept. 12 – 16 | Palo Alto, CA USA | 1 Feb. 1994 | Dr. Kenneth Lorell Lockheed 92-30/250, 3251 Hanover Street Palo Alto, CA 94304, USA FAX 415/424 3106 |
| IFAC Symposium Robust Control Design | Sept. 14 – 16 | Rio de Janeiro Brazil | – | Prof. P.M.G. Ferreira DEE, (PUC-RIO), C.P. 38063 22452 Rio de Janeiro, Brazil FAX +55/21/511 5154 e-mail: pedro@ele.puc-rio.br |
| IFAC Symposium Robot Control - SYROCO | Sept. 19 – 21 | Capri Italy | – | Prof. S. Nicosia, SYROCO 94 Sci. Secr. DIE, Università degli Studi di Roma „Tor Vergata", Via della Ricerca Scientifica I-00133 Rome, Italy, FAX +39/6/2020519 e-mail: nicosia@tovvx1.ccd.utovrm.it |
| IFAC Conference Integrated Systems Engineering | Sept. 27 – 29 | Baden-Baden Germany | 14 Jan. 1994 | Mr. H. Wiefels, VDI/VDE GMA POB 10 11 39 D-40002 Düsseldorf, Germany FAX +49/211/6214-161 |
| IFAC Workshop Distributed Computer Control Systems - DCCS 94 | Sept. 28 – 30 | Toledo Spain | 1 March 1994 | DCCS'94 Secretariat Fundación Universidad Empresa Serrano Jover, 5/7 E-28015 Madrid, Spain FAX +34/1/547 0652 e-mail: dccs94@gic.tat.upm.es |
| IFAC/IFIP Symposium Artificial Intelligence in Real Time Control | Oct. 3 – 5 | Valencia Spain | – | Prof. A. Crespo, Dept. Ingenieria Universidad Politecnica de Valencia POB 22012, E-46071 Valencia, Spain FAX +34/6/3877579 e-mail: acrespo@aii.upv.es |
| International Symposium Advanced Vehicle Control for Active Safety and Ride Comfort | Oct. 24 – 28 | Tsukuba Japan | 1 Jan. 1994 | AVEC'94, Technical Activity Div., Society of Automotive Eng. of Japan Inc., 10-2 Goban-cho Chiyoda-ku, Tokyo 102, Japan FAX: +81/3/3261-2204 |
| IFAC Workshop Trends in Hydraulic and Pneumatic Components and Systems | Nov. 15 – 16 | Chicago, IL USA | 15 May 1994 | Prof. David N. Wormley Dean of Engineering Pennsylvania State University University Park, PA 16802, USA FAX 814/863-4749 e-mail: dnw@oas.psu.edu |
| IFAC Workshop Safety, Reliability and Applications of Emerging Intelligent Control Technologies | Dec. 12 – 14 | Hong Kong | 1 May 1994 | Dr. C.W. Chan Dept. of Mech. Engg., Univ. of Hong Kong Pokfulam Road, Hong Kong FAX +852/859 7906 |

# FORTHCOMING EVENTS (ctd.)

| Title | 1995 | Place | Deadline | Further Information |
|-------|------|-------|----------|---------------------|
| IFAC Workshop<br>Control Applications in Marine<br>Systems - CAMS 95 | May<br>10 – 13 | Trondheim<br>Norway | 1 Nov.<br>1994 | A. Prof. Thor I. Fossen, CAMS-95 Secr.<br>Dept. of Engg. Cybernetics<br>Norwegian Institute of Technology<br>N-7034 Trondheim, Norway<br>FAX +47 /73594399<br>e-mail: tif@itk.unit.no |
| International Conference<br>Computer Applications in<br>Biotechnology | May<br>14 – 17 | Garmisch-<br>Partenkirchen<br>Germany | 31 Aug.<br>1994 | Prof. Axel Munack<br>Federal Agricultural Res. Center<br>Inst. of Biosystems Engg. - FAL<br>Bundesallee 50, D-3300 Braunschweig<br>Germany<br>FAX +49/531 596 309 |
| IFAC Workshop<br>Algorithms and Architectures for<br>Real-Time Control | May 31 –<br>June 2 | Ostend<br>Belgium | 31 Oct.<br>1994 | BIRA, Desguinlei 214, B-2018 Antwerp<br>Belgium, Tel:+32/32160996, Fax:+32/32160689 |
| IFAC Conference<br>Dynamics and Control of Chemical<br>Reactors, Distillation Columns and<br>Batch Processes - DYCORD '95 | June<br>7 – 9 | Copenhagen<br>Denmark | 31 Aug.<br>1994 | Danish Automation Society<br>Symbion Science Park Copenhagen<br>Fruebjergvej 3, DK-2100 Copenhagen<br>Denmark<br>FAX +45/3120 5521 |
| IFAC Conference<br>Intelligent Autonomous Vehicles | June<br>12 – 14 | Espoo<br>Finland | 30 Sept.<br>1994 | Finnish Society of Automation<br>Asemapäällikönkatu 12 C<br>SF-00520 Helsinki<br>Finland<br>FAX +358/0/1461 650 |
| 1995 American Control Conference<br>(in cooperation with IFAC) | June<br>21 – 23 | Seattle, WA<br>USA | 15 Sept.<br>1994 | Prof. M. Tomizuka, Dept. of M.E.<br>University of California<br>Berkeley, CA 94720, USA<br>FAX 510/642 6163<br>e-mail: tomizuka@euler.berkeley.edu |
| IFAC Conference<br>System Structure and Control | July<br>5 – 7 | Nantes<br>France | 1 Aug<br>1994 | Mr. J.J. Loiseau, CNRS<br>LAN-ECN 1, rue de la Noe<br>F-44072 Nantes Cedex 03<br>France<br>FAX +33/40/372522<br>e-mail: loiseau@lan01.ensm-nantes.fr |
| IFAC Symposium (7th)<br>Large Scale Systems: Theory<br>and Applications | July<br>11 – 13 | London<br>UK | 15 Sept.<br>1994 | Prof. P.D. Roberts<br>Control Engineering Research Centre<br>City University<br>Northampton Square<br>London EC1V 0HB,UK<br>FAX +44/71/477 8568 |
| IFAC Conference<br>Youth Automation IYA '95 | Aug.<br>8 – 10 | Beijing<br>China. P.R. | 30 Nov.<br>1994 | Dr. Li Sun, IYA '95<br>CAST Industrial Engg. Co<br>22 Baiwanzhung Street Xichengqu<br>Beijing 100037. China, P.R.<br>FAX |
| IFAC Symposium (8th)<br>Automation in Mining, Mineral<br>and Metal Processing | Aug.<br>29 – 31 | Sun City<br>South Africa | 1 Sept.<br>1994 | SACAC<br>Private Bag 34, Auckland Park 2006<br>Transvaal, RSA<br>FAX +27/11 638 4435 |
| 1995 European Control Conference<br>(in cooperation with IFAC) | Sept.<br>5 – 8 | Rome<br>Italy | 1 Oct.<br>1994 | ECC 95 Secretariat<br>D I S, Univ. degli Studi di Roma<br>Via Eudossiana 18<br>I-00184 Rome, Italy<br>FAX 39/6/44 585367<br>e-mail: ecc95@itcaspur.caspur.it |
| IFAC Symposium<br>Low Cost Automation | Sept.<br>13 – 15 | Buenos Aires<br>Argentina | 15 Nov.<br>1994 | IFAC-LCA '95 Secr., AADECA, Eng. Casucci<br>Av. Callao 220 1B<br>1022 Buenos Aires, Argentina<br>FAX +54/1/463780 |
| IFAC Workshop<br>Motion Control | Oct.<br>9 – 11 | Munich<br>Germany | 31 Jan.<br>1995 | VDI/VDE GMA<br>Graf Recke Strasse 84<br>D-40239 Düsseldorf, Germany<br>FAX: +49/211/6214-575 |
| IFAC Symposium<br>Control of Power Plants and Power<br>Systems | Dec.<br>4 – 6 | Cancun<br>Mexico | Nov.<br>1994 | Symposium Secretariat<br>Instituto de Investigaciones Electricas<br>AP 475 , Cuernavaca, Mor. 62000, Mexico<br>FAX +52/73/189854<br>e-mail: Sifac@iievms1.iiecuer.unam.mx |

**– deadline past**

## Preview

### Papers From the March 1994 Issue

**Regular Papers**

Towards Symbolic Process Control
(L. Foulloy, B. Zavidovique)
On-Line Estimation of Probabilities for Distributed
Bayesian Detection
(M. Kam, A. Naim)
Simultaneous Identification of Nominal Model,
Parametric Uncertainty and Unstructured
Uncertainty for Robust Control
(T. Zhou, H. Kimura)
Piecewise-Linear LQ Control for Systems with
Input Constraints
(G.F. Wredenhagen, P.R. Bélanger)
Qualitative Modelling of Linear Dynamical Systems with Quantised State Measurements
(J. Lunze)
Model Sets and Parametrizations for Identification
of Multi-Variable Equation Error Models
(P.M.J. Van den Hof)
Identification of Time-Varying Systems with
Abrupt Parameter Changes
(M. Niedzwiecki)
Gain Margin Improvement Using Generalized
Sampled-Data Hold Function Based Multirate
Output Compensator
(M.J. Er, B.D.O. Anderson, W-Y. Yan)
Techniques for Selecting Pose Algorithms
(J.E. McInroy, G.N. Saridis)

**Brief Papers**

Robust Stability of Neutral Delay Differential
Systems
(Daoyi Xu)
Fast Algorithms for Optimal FIR Filter and
Smoother of Discrete-Time State-Space Models
(W.H. Kwon, K.S. Lee, J.H. Lee)
State-Space Interpretations of Model Predictive
Control
(M. Morari, J.H. Lee, C.E. Garcia)
A State-Space Parametrization of Discrete-Time
Two-Degree-of-Freedom Integral Controllers
(T. Ishihara, H.J. Guo, H. Takeda)
On the Robustness of H∞ State Feedback Control
to Non-Linear Perturbations
(G. Tadmor, I.R. Gurov)
Exact Model Matching of Linear Systems Using
Generalized Sampled-Date Hold Function
(P.N.Paraskevopoulos, K.G. Arvanitis)
Minimax LQ Exact and Inexact Model Matching
Problems
(A. Casavola, E. Mosca)
On-Line Regeneration Control for a Diesel
Particulate Trap-System
(A.M. Stamatelos)
Sufficient Conditions on General Fuzzy Systems
as Function Approximations
(H. Ying)
On the Transient Behaviour in Discrete-Time Model
Reference Adaptive Control: Analysis and Possible
Improvement
(A. Datta)
Analysis of Temporal Performance of Supervised
Discrete Event Systems
(F. Lin)
An Algorithm for Obtaining the Redundancy
Equations of LTI Systems
(J. Ragot, D. Maquin)

**Book Reviews**

The Autonomous Linear Quadratic Control
Problem, by V.M. Mehrmann
(S. Bittanti)

Controlled and Conditioned Invariants in Linear
System Theory, by G. Basile and G. Marro
(A. Vanecek)

### Papers From the April 1994 Issue

**Editorials**

Control Systems Software Reviews
Introduction to the Special Section
(D.J.N. Limebeer, H. Kwakernaak)

**Special Section: Robust and Adaptive Control
of an Unknown Plant: A Benchmark of New
Format**

Robust and Adaptive Control of an Unknown Plant:
A Benchmark of New Format
(S.F. Graebe)
Indirect and Implicit Adaptive Predictive Control
of the Benchmark Plant
(L. Chisci, L. Giarrè, E. Mosca)
Application of Model Reference Adaptive Control
to a Benchmark Problem
(P.A. Cook)
Application of ACSYDE (Automatic Control System Design) to the IFAC-93 Benchmark
(Ph. de Larminat, P. Houizot)
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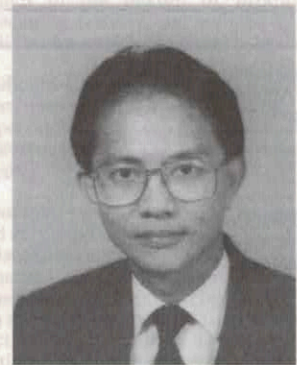with Intermittent Adaptation
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Continuous-Time Systems with Large Parameter

## WHO IS WHO IN IFAC



C.C. Hang, Council member of IFAC

Hang Chang Chieh (C.C. Hang) graduated with a
First Class Honours Degree in Electrical
Engineering from the University of Singapore in
1970. He received the Ph.D degree in control
engineering from the University of Warwick, England, in 1973. From 1974 to 1977 he worked as
Computer and Systems Technologist in the Shell
Eastern Petroleum Company (Singapore) and the
Shell International Petroleum Company (The
Netherlands). Since 1977 he has been with the
Department of Electrical Engineering, National
University of Singapore, where he is currently a
Professor in the Department of Electrical
Engineering and Vice-Dean of the Faculty of
Engineering. His major area of research is adaptive
control in which he has published 120 papers and
one book. He was a Visiting Scientist at Yale
University in 1983 and at the Lund Institute of
Technology in 1987 and 1992. He was an Associate
Editor of Automatica, the Journal of the International Federation of Automatic Control from 1984-
92. Since March 1982 he has been Principal Editor
(Adaptive Control) of the Journal Automatica. In
May 1992 he became a founding member of the
Steering Committee of the Asian Control
Conference. In addition to being a consultant to
industry, he served as a Board Member of the
Public Utilities Board from 1982-88 and the National
Computer Board from 1989-92. He has been
Deputy Chairman of the Singapore National Science
and Technology Board since 1991.
In IFAC, C.C. Hang was elected Member of the
Council for the period 1993-96

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