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Press Conference and Lecture
Vienna, Austria
24 – 27 March, 2000

Council and Related Meetings
Panel Discussion
Athens - Patras, Greece
10 – 14 July, 2000

In addition to holding high-level technical meetings, the Federation is always intent on
furthering international contacts. This is partly done in the context of the Annual Informal
Meetings in Austria and partly in the framework of the Annual Council- and Related Meetings.

In March this year, the IFAC President, Past
President, President Elect, Vice-President and Treasurer will convene for their tradition-
al annual meeting in Laxenburg, at the seat of the IFAC Secretariat. The purpose of
this meeting is to hold informal discussions, to meet with the Secretary and the staff of
the IFAC Secretariat and to strengthen the links to the Austrian NMO, the Austrian
Academy of Sciences and the Austrian Ministry of Science and Research. One other im-
portant aspect of this trip to Austria is also one of promoting the Federation. To do this,
a press conference, followed by a lecture, given by Prof. Pedro Alberto has been organ-
ized. Journalists from all important Austrian newspapers will be invited to the press con-
ference and the lecture.

The lecture has the following title and ab-
tract:

Control and Society
Pedro Alberto, IFAC President

The concept of system, as a set of com-
ponents and their relations and interactions, is
a common one in nature, human-made de-
vices and human society. And most systems
can be considered as composed of subsystems,
one of them being the control subsystem.
In this lecture, this idea, its implications and
the role of IFAC in providing a framework for
its better use and understanding are analyzed.

First, the controlled behavior of natural sys-
tems is emphasized, pointing out what is be-
ing learned from them to develop automatic
control systems in different fields of appli-
cation. Then, the relevance of the control sub-
system in many important industrial devel-
opments is also discussed. In human activi-
ties, control and regulating systems also play
a crucial role. Some illustrative examples will
serve as a reference for further discussion.

Finally, a summary of topics related with control
theory and technology is reviewed and the tech-
cnical structure of IFAC to cope with
most of them is outlined.

In the summer period and preceding the
Council- and Related Meetings, which will be
held in the framework of the IFAC Conference on Manufacture, Modelling,
Management and Control – MIM 2000
(Patras, Greece, 12 – 14 July, 2000), members of the IFAC Council and of the Technical
Board will participate in a panel discussion which has been organized in Athens on July
10, 2000 by our Greek NMO, the Technical
Chamber of Greece. This will provide an
opportunity to present IFAC, and to learn about developments and the situation of
automatic control in Greece.
European Control Conference
ECC'99
in cooperation with IFAC
Karlsruhe, Germany
Aug. 31 – Sept. 3, 1999

The European Control Conference 1999 ECC'99, which was held at the Congress Centre in Karlsruhe, Germany, from August 31 to September 3, 1999, reached an all-time high in its 8 years of history. The European Control Conferences are organised every two years under the auspices of the European Union Control Association (EUCA) in cooperation with IFAC and in collaboration with the IEEE Control Systems Society. Corresponding to EUCA statutes the ECC takes place in turn in a different country of the EU. The first such event in Grenoble (1991) was followed by Groningen (1993), Rome (1995) and Brussels (1997), each of them hosting 700-800 participants. The remarkable reputation the ECC has gained over the years in the international systems and control society is best reflected in the above mentioned book of nearly 1100 delegates from 53 countries that participated this year in Karlsruhe.

The organisers of the ECC'99 emphasised the practical relevance of control theory and technology and stimulated industrial presence by providing sector-oriented Industry Packages. The success of this approach was proven by over 80 contributions from industry which were discussed; taking into consideration cost/profit aspects.

The accentuation of more industry relevant topics could also be observed in the nine plenary and semi-plenary lectures, half of which were dealing with practical applications and which are published in the book "Advances in Control - Highlights of the ECC'99" (Springer-Verlag). Corresponding with three minicourses held at the conference.

In addition to the traditional concentration of the scientific programme on the field of linear and non-linear control theory, participants of the ECC'99 could, for the first time, recognise a strong activity in the area of process supervision, fault diagnosis and fault tolerant control including aspects of safety, reliability, quality and environmental protection. Based on the number of contributions and participants in sessions, this topic ranked third behind linear and nonlinear systems.

The so far positive response from participants from academia and industry gives credit to the international programme committee and the national organising committee, including the conference organisers VDI/VDE-GMA, the local organiser in Karlsruhe and the general chairman, Prof. P. M. Frank, for good work in preparing and running the conference.

Conference proceedings on CD-ROM and the abstracts of all papers and minicourses are all available through the VDI/VDE-GMA (gma@vdi.de) and local bookellers, respectively.

DI Dieter Westerkamp

Information Technology in Agriculture, Food and the Environment
EFITA/CIGR/IFAC Conference
Bonn, Germany, September 27–30, 1999

The conference had a dual focus: It aimed at (1) the identification of potentials of the new developments in information and communication technology for the development of the agri-food sector and its related environment and at (2) the demonstration and discussion of information and communication systems which help sustain and capture potential for sustainable improvements of the sector’s economic and non-economic situation.

The more than 140 papers discussed a wide variety of issues and were presented by scientists from diverse backgrounds. This demonstrated the integrative aspect of information and communication systems which eliminate barriers between traditionally separated areas of scientific research. The conference grouped the presentations in two conference symposia which aimed at the presentation of system applications with potential interest for certain target groups outside the scientific area.

Examples of conference symposia focused on (1) extension services, (2) international development, (3) policy support, (4) precision agriculture, and (5) supply chain management.

It became evident during the conference that there are many efforts to link information systems within enterprises, within supply chains, within sectors, etc. with one exception in conference symposia which focused on precision agriculture and supply chain management, will require more attention in the future.

The conference had an international participation with participants from all continents. It aimed at bringing together representatives of the major associations with engagement in the organization of IT conferences related to agriculture, food and the environment. This included the European, American, Japanese and Brazilian Associations for IT in Agriculture, Food, Forestry, and Environment as well as the international computer conferences backed by the American Association of Agricultural Engineers and by a group of European farmers’ organisations, and representatives of CIGR, the International Commission for Agricultural Engineers. Agreements on future cooperation in international conference activities and in electronic publishing are under discussion.

Further information on the European Federation can be found in www.eftia.org. Abstracts of conference presentations are accessible through www.data.net/efit99.

Proceedings of the conference can be ordered through schieber@uni-bonn.de.

Prof. Dr. Gerhard Schieber
Chairman Program and Organization Committee

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Multi-Agent-Systems in Production – MAS’99
IFAC Workshop
Vienna, Austria, December 2–4, 1999

Manufacturing and production have changed dramatically over the last years. One of the future possibilities to reduce production costs are Multi-Agent Systems (MAS). Such systems are one of the key technologies for realization of decentralized, adaptive and complex production systems. A MAS consists of several "agents" working towards a common goal, having different specialisations for specific subtasks.

The IFAC Workshop on "Multi-Agent-Systems in Production MAS’99" was held in Vienna, Austria from December 2–4, 1999. The first event on this topic was organized by the Institute for Handling Devices and Robotics (Vienna University of Technology) and should bring together industrialists and scientists from all fields involved in research and development. The workshop was sponsored by the International Federation of Automatic Control (IFAC) as well as the IFAC TC on "Advanced Manufacturing Technology (AMT)." Four other IFAC TCs, IFIP, IFORS, the City of Vienna, the Vienna University of Technology as well as other local companies supported MAS’99 as co-sponsors.

Topics of this workshop included design, self-configuration, task distribution, learning, cooperation, fault tolerance, control, path and task planning, coordination, education, scalability, social aspects, organisational design, decision making, programming and languages, interaction (agent – agent, human – agent), automated negotiation, and others. The technical program was especially focused on the application areas robotics, manufacturing, assembly and disassembly.

The workshop was attended by 45 participants from 17 different countries. Resulting from the "Call for Papers," 52 regular papers were selected for the technical program. 40 regular papers (grouped into 13 sessions) as well as 12 keynote papers were finally presented during the workshop.

The conference was very well organized in a family-style atmosphere which stimulated informal and fruitful discussion. Positive comments made by the participants of this workshop confirms its success in meeting its objectives.

Vienna, December 1999

G. Kronreif, P. Kopacek
NOC Chairman, IPC Chairman

Offeneung:

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(To our readers: To comply with the Austrian 'Media Act', every publication must contain a declaration once a year concerning ownership and purpose, as above.)
Control Engineering Practice

A Journal of IFAC the International Federation of Automatic Control

Papers from the December 1999 Issue

Monitoring of Flexible Production Systems Using High-level Petri Net Specifications
(K. Feldmann, A.W. Colombo)
Asynchronous Measurement and Control: A Case Study on Motor Synchronization
(W.P.M. H. Heemraks, R.J.A. Goor, A. van Zijl, P.P.J. van den Bosch, S. Weiland, W.H.A. Hendrix, M.R. Vonder)
A Practical Control Strategy for Servo-pneumatic Actuator Systems
(J. Wang, J. Pu, P. Moore)
Identification of the Rainfall-runoff Relationship in Urban Drainage Networks
(F. Previdi, M. Lovera, S. Mambretti)
Automatic Detection of Slug/Control Loops
(T. Högglund)

Special Section on Real-time Programming

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(M.A. Livani, J. Kaiser, W. Jia)
Efficient Adaptive Connection Admission Control Algorithms for Real-time ATM LANs
(W. Zhao, W. Jia)
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(M. Thomson, PM. Twigg, B.A. Majed, N. Ruck)
Guidance and Control of a Reconfigurable Unmanned Underwater Vehicle
(M. Caccia, G. Veruggio)
Verifying Digital Filter Error Analysis using DFT Techniques
(M.A. Oliver, W. Fosythe)
Modular Neural Network Modelling for Long-range Prediction of an Evaporator
(N.T. Russell, H.H.C. Bakker, R.I. Chaplin)

Special Section on Information Control in Manufacturing

Preface on the Special Section on Information Control in Manufacturing
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Assembly Line -Sequencing based on Petri-net T-Invariants
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Experiences of Using Formal Methods for Chemical Process Control Specification
(H.A. van Grieken, J. Biczok, P. Kian)
Languages and Applications in Hybrid Modelling and Simulation: Positioning of Chi
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Control Applications and Ergonomics, Athens, Greece, June 1998

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Prof. Song Jian, China, P.R.
Keynote Speaker at IFAC World Congress

In the latest issue of the IFAC Newsletter, we had the opportunity to publish the keynote lecture given by Prof. Song Control and Automation Beyond the Century. The interest of our readers in this subject was enormous and many questions were asked about the person of Professor Song. For this purpose we would like to use this opportunity to introduce Professor Song to our readers.

Prof. Song is a distinguished researcher, educator, and public administrator. He is a former State Councilor (vice premier level) of the People's Republic of China and now newly elected Vice Chairman of China's People's Political Consultative Conference, a high-level advisory body. Just prior to his appointment as Vice Chairman, he held the posts of State Councilor, Chairman of the State Council's Environmental Protection Commission, and Chairman or Minister of the State Science and Technology Commission.

Over the last four decades, he has made significant contributions to a diverse array of disciplines including optimal control and parameter control systems, engineering cybernetics, and population control theory. He supervised the program design of China's anti-ballistic missile systems and the launching and positioning of the country's telecommunications satellites. He initiated and successfully carried out the "Spark Program", which aimed at alleviating rural poverty and developing rural/township enterprises throughout China. He has also guided the "Torch Program", which has spearheaded the development of high-tech industries through the establishment of some 53 science parks in key metropolitan areas across China.

Fluent in English and Russian, Dr. Song has engineering (1958) and PhD candidate of science (1960) degrees from MFTY, Moscow, and a doctor of Science degree (1990) from the Moscow National Technical University.

Dr. Song is also currently an academician of both the Chinese Academy of Sciences and the Chinese Academy of Engineering; professor, Tsinghua University, Fudan University, and Harbin University of Technology; research professor, Institute of Information and Control; council member, China Association of Automation and China System Engineering Society; Doctor of Humane Letters, University of Houston; chief editor, Automatic Control and System Engineering and member of the Editorial Board, Encyclopedia of China.

He previously held posts including, head, Laboratory of Cybernetics, Institute of Mathematics, Academia Sinica (1960-70); designer-scientist and vice chief designer-scientist (1960-80), head, Space Science Division (1971-78), and vice president (1978-81), Academy of Space Technology, Seventh Ministry of Machine-Building Industry; vice minister and chief commander of Communication Satellite Launching Operations, Ministry of Astronauts (1980-84); and vice president, China Society of Democratic Science (1982-86) and China System Engineering Society (1985-87).

Dr. Song's international experience includes time spent as a visiting professor at MIT, Harvard University, University of Minnesota, University of Texas, Washington University (St. Louis) in the United States and as a foreign member of the Russian Academy of Sciences and the Royal Swedish Academy of Engineering Sciences.

He has authored, co-authored or edited 11 books and has written and published 160 scientific articles. He has received numerous awards, including the Albert Einstein Award (1987), which is the highest recognition of the International Association of Mathematical Modelling, for signal accomplishment in science.

Robots and Automation in Construction

IAARC/IFAC/IEEE Symposium
Madrid, Spain, 22 – 24 Sept., 1999

The ISARC'99 is the sixteenth of the IAARC-sponsored meetings in the field of Automation and Robotization in Construction and follows the ISARC symposia held in Tokyo (Japan) in 1996, in Pittsburgh (USA) in 1997, and in Munich (Germany) in 1998. As in past symposia, ISARC'99 has brought together the world's leading researchers, developers and end-users. The aim of this year's symposium was to present and discuss the synergy of all the driving forces involved in the automation and robotics in construction: "From architect's desk to site robot".

The International Program Committee (IPC) has tried hard to involve scientists related with the Automation and Robotization in Construction from a variety of fields: Civil Engineers and Architects, Electrical and Mechanical Engineers, Computer Science and Economists, etc. The fruit of this effort was the co-sponsorship by two important international scientific organizations, IFAC and IEEE, for the first time in the life of the ISARC. At the same time several Spanish institutions from different sectors have shown great interest and were actively involved in the event.

The International Program Committee is pleased to have received a very huge response from the international community. 133 papers were received from 37 countries and 113 from 32 countries were accepted and presented during the Symposium. Each of the three symposium days started with a Plenary Session with an international outstanding speaker, discussing the different world regions, state-of-the-art in Construction Automation; Japan, USA and European Union. Following the Plenary Sessions, three parallel tracks took place, consisting of three oral sessions; morning, midday and afternoon.

The symposium provided a large number of organizations and private companies with the opportunity to present and exchange their latest research and development activities. About 40% of participants were from industry. The symposium was supported by some public and private Spanish agencies. Three special issues on the subject of ISARC'99 will be published in the international journals in the field of robotics and construction.

Prof. C. Balaguer
IPC Chairman
Brief Papers

Robust State-predictive Controller with Separation Property: A Reduced-order Model for Control Systems with Non-equal Time Delays
(B. Murnas, H. Bournes)

Constrained Robust Predictive Controller for Uncertain Processes Modeled by Orthogonal Normal Series Functions
(G.H.C. Oliveira, W.C. Amaral, G. Favier, G.A. Dumont)

On Absolute Stability Analysis by Polyhedral Lyapunov Functions
(A. Polanski)

Multiplier-Based Robust $H_{\infty}$ Design with Time-varying Uncertainties
(A. Sideris, A. Tchemychev)

Exponential Stabilization of an Overhead Crane with Flexible Cable via a Backstepping Approach
(B.D.Arruda-Novel, J.M. Coron)

Stability of Extremum Seeking Feedback for General Nonlinear Dynamic Systems
(M. Kriet, Hsin-H. Wang)

Q domain Optimization Method for L-Optimal Controller
(H. Yoon, B.H. Tongue, A.K. Packard)

Technical Communiques

Output Feedback Stabilizing Controller for Time-delay Systems
(J. Levy-Ranieri, A.E. Pearson)

Estimating the Degree of Time-variability in a Parametric Model
(M. Wallen, A. Susin)

Robust $H_{\infty}$ Control of Discrete Systems with Uncertain Parameters and Unknown Delays
(M.S. Mahmoud)

Book Reviews

Nonlinear Dynamical Systems, by P.A. Cook (S. Battilotti)

Dynamic Programming and Optimal Control Part I, by D.P. Bertsekas (T. Glad)

Smart Material Structure, by H.T. Banks, R.C. Smith, Y Wang (H. Zwart)

WHO IS WHO IN IFAC

Prof. Paul Van den Hof
IFAC Council Member

Paul Van den Hof was born in 1957 in Maastricht, The Netherlands. He received the M.Sc. and Ph.D. degrees both from the Department of Electrical Engineering, Eindhoven University of Technology, The Netherlands in 1982 and 1989, respectively. From 1986 to 1999, he was an assistant and associate professor in the Mechanical Engineering Systems and Control Group of Delft University of Technology, The Netherlands. In 1992 he held a short term visiting position at the Centre for Industrial Control Science, The University of Newcastle, NSW, Australia. Since 1999 he has been a full professor in the Signals, Systems and Control Group of the Department of Applied Physics at Delft University of Technology.

Paul Van den Hof’s research interests are in issues of system identification, parameterization and the interaction between identification and (robust) control design, with applications in mechanical servo systems and industrial process control systems. Particular research topics include the development of methods for control-relevant and closed-loop identification. On this latter subject a (public domain) Matlab toolbox has been produced. He has also contributed to the development of flexible parameterizations for linear dynamical systems in the form of generalized orthogonal basis functions.

From 1992 to 1998 Paul Van den Hof was Associate Editor of Automatica, and since January 1999 he has been the Automatica Editor for Rapid Publications. In July 1999 he was elected to the IFAC Council. He is also the prospective Co-Chair of the IPC and NOC of the 2003 IFAC Symposium on System Identification, to be held in The Netherlands.

Therefore, Automatica is soliciting papers for a Special Issue on "Neural Networks for Feedback Control" to be published in July 2001. Accepted papers will present approaches to the design of neural controllers that are mathematically precisely formulated with repeatable design algorithms. The Editors will be

Prof. K.S. Narendra (Invited Editor)
E-mail: kumpati.narendra@yale.edu

Prof. F.L. Lewis (Corresponding Editor)
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The University of Texas at Arlington
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Manuscripts should be submitted for review to Prof. F.L. Lewis, either by postal mail or electronically, by the

Manuscript Due Date: 1 July 2000

For instructions on submissions by post or electronic mail see the Information for Contributors in each Automatica issue or at

http://www.math.uwente.de/eic