IFAC International Federation of Automatic Control
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June

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Council- and Related Meetings
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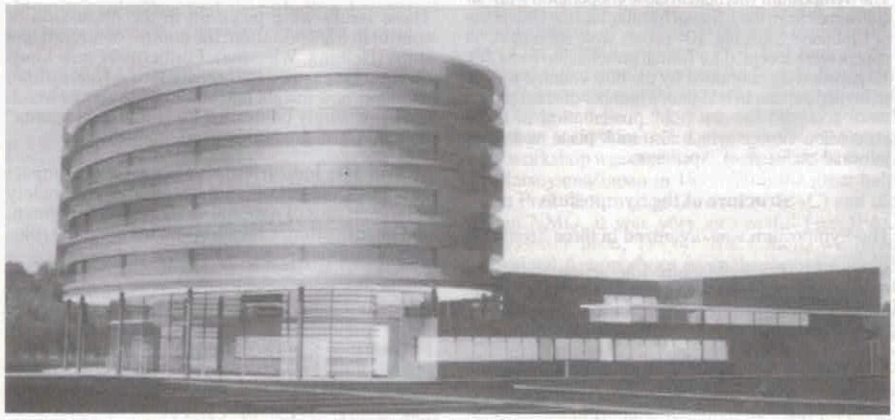

Ecole Centrale de Nantes

This year, the IFAC Council- and Related meetings will take place in Nantes, France, upon invitation of AFCET, the French NMO, in conjunction with the IFAC Conference on System Structure and Control (July 8 – 10, 1998).

Since these meetings precede the next IFAC Congress, which will take place in Beijing, China, P.R. in July 1999, considerable time will be spent for preparation of this Congress. For this purpose also, the International Program Committee for the Congress will hold a meeting.

Some very important decisions for the short-term and the long-term perspective of the Federation will be taken by the Council. In preparation for the General Assembly in Beijing in 1999, the Elections Committee has prepared a slate of candidates for the key positions in IFAC which will be discussed by the IFAC Council.

But beyond these preliminary deliberations for the next triennium, a decision will also be taken on the venue and President for the IFAC Congress in 2008. IFAC always plans far ahead and thus the Congress venues and Presidents for 1999 (Beijing, China, Professor Yong-Zai Lu), 2002 (Barcelona, Spain, Professor Pedro Albertos), and 2005 (Prague, Czech Republic, Professor Vladimir Kucera) have already been determined. For the 2008 Congress, three applications have been made, by the German, the Japanese and the Korean NMOs. At the Council meeting in Nantes, presentations will be made by the three applicants and, following these presentation, the Council will vote on the venue for 2008 in a secret ballot.

In addition to these key matters, the various committees and Boards (Technical Board and Executive Board) of IFAC will meet.

Gusztav Hencsey, IFAC Secretary

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Automated Systems Based on Human Skill – Joint Design of Technology and Organization

6th IFAC Symposium

Kranjska gora, Slovenia, Sept. 17 – 19 1997

1. The Symposium in short

This symposium was the 6th of its name. It brought together about 80 researchers, developers and users of automated systems and information technology. They came from about 25 different countries: about all European countries were represented, furthermore the USA, Japan, Australia etc.

The symposium took place in Slovenia specifically in order to integrate the participants from the newly independent states of Europe to join the IFAC activities - which was successful! The EU sponsored these participants by covering most of their travel expenses.

The Symposium was held in close cooperation with our colleagues from the J. Stefan Institute and the University of Ljubljana, Slovenia. 104 papers were submitted, 54 papers were accepted for formal presentation (= 51 %). 13 papers were submitted by the host country, mostly as invited papers. In addition, a number of short papers were accepted for „ad hoc" presentation in the 3 Discussion Groups which also took place as a more informal exchange of experiences.

2. Structure of the Symposium

The Symposium was organized in three Strands:

Strand I: Human-Machine Interaction: the role of the individual human operator at the work place, human-machine interaction, skills, motivation, health, creativity, quality of working life.

Here the presentations by D. and J. Mickie, Sammut and the Slovenian team around Bratko, Filipic and Urbancic need to be specifically mentioned. Creativity issues were discussed extensively by Holmes, Brandt, Platts, Vamos and others. The issues of quality of working life and the satisfaction of operators at the workplace were explicitly discussed by Matsunaga and Wakamatsu.

Strand II: Business Processes: networks of groups and enterprises, together with the supporting networks of information and control, computer-supported cooperative work, virtual enterprises, issues of reengineering of complex hardware and software, technology and quality management.

In this range of issues, our Slovenian colleagues organized several Invited Sessions which covered all these aspects with particular emphasis on experiences in the former „Eastern" Countries: Mulej, Rihar; for the US: Emspak; and many others.

Other fields of discussion were work-group support by technology, human communication, cooperation, participation in decision processes etc.

These issues were taken up in the discussion of control in transportation: the control of aircraft and ships (Helbing, Wiersma). Furthermore new kinds of interfaces were suggested to offer human operators new insight into automated systems which are increasingly controlled by „intelligent agents" (Peters, Cernetic, Nolden and others).

Strand III: Industrial Development: the impact of control and information technology on society at large, issues of national strategies, employment and qualification, education and training, the roles of trade unions.

Again, the most recent experiences of the former „Eastern" Countries were important contributions to these sessions (e.g. Kljajic, Cizman, Rajkovic). Furthermore, new support systems and new organizational structures for human operators were suggested to counteract de-skilling and de-learning, (Nakamura, Westerwick, Kirikova, Rzevski, Erbe and others). Martin also took up these issues in his Plenary contribution: Production 2000 - Trying to jointly improve technology, organisation and qualification.

The issue of gender was extensively discussed in a special session organized by Marion Hersh. The future of industry under the pressure of environmental discussions was the theme of the Plenary contribution of Rita van der Vorst. The future of society at large was critically viewed by Oberschelp: he compared computer technology today and tomorrow with the magic triggered by the Sorcerer's Apprentice: following Goethe and his poem, this apprentice could not remember the keyword to switch the magic off again!

3. Further Events in 1997

The 6th Symposium „Automated Systems Based on Human Skill" was in a new way integrated with 2 different industrial workshops:
1),,Production 2000", Karlsruhe, Germany, September 11-12.1997 - organized by Tomas Martin. It was an international event with the emphasis on the most recent developments in German industry.
2),,East meets West", Kranjska gora, Slovenia, September 16, 1997 - organized by Marian Rihar. It was an international gathering to exchange experiences among the different countries from „Eastern" Europe and with the „Western" countries.

4. The next Symposium

Automated Systems Based on Human Skills

7th Symposium

is planned for
June 15-17, 2000, Aachen, GermanyThis very special event will be linked to the World Expo Hannover. Within this Expo, the German Association of Professional Engineers (VDI) is organizing the World Engineering Congress. The participants of the Symposium at Aachen are invited to attend this unique Congress - by daily train to and from Aachen.More information: http://www.hdz-ima.rwth-aachen.de/ifac socialimpact.html

D. Brandt, Chair IPC, J. Cernetic, Chair NOC

IFAC World Congress (14th)

Beijing, China, 5 – 9 July, 1999

Although it is still more than a year until the IFAC World Congress in Beijing, some preparations have to be made well in advance of such a big event.

For this purpose we shall publish information about the forthcoming Congress in some of the issues of the IFAC Newsletter to keep you up-to-date about developments and administrative requirements in connection with the Congress.

1. Passport and Visa
A valid passport and visa for visiting China are required. Upon receiving your registration form and fees, the China International Conference Center for Science and Technology (CICCST) will send you an invitation letter with which you can apply for an entry visa at the nearest Chinese embassy or consulate general.

2. Insurance
All participants are advised to make their own arrangements with respect to health and travel insurance before commencing their journey to the Congress.

3. Registration Fee
Advance registration fee:
USD 480,— (full registration)
USD 180,— (student fee)
On-site registration fee:
USD 550,— (full registration)
USD 250,— (student fee)
Full- and student registration fees include the Opening Ceremony and Reception, the Closing Ceremony and Congress publications. Full registration also includes the Congress dinner.

4. Accommodation
Continental Grand Hotel (CGH)
This hotel is the Conference hotel (Wuzhou Hotel). It is in three minutes walking distance to the conference venue – BICC. A block of rooms has been reserved for the participants at a special discount rate.
Address: 8 Beichen Dong Road, North Sihuan Road, Beijing 100101, China
Phone: +86/10/6491-5588
Fax: +86/10/6491-0106
Standard room rate: appr. USD 80 - 100 per night
More information on the Beijing Continental Grand Hotel can be found on the following web site:
http://.chinatour.com/bcjh

Likang Hotel
The Likang Hotel (2 star) is near the meeting venue BICC in about 8 minutes walking distance. Standard room rates may range from USD 35 - 50 per night.

Other hotels will be recommended in the near future.

5. Tours
There will be a number of pre- and post-Congress tours orgnized. They will provide a splendid opportunity to appreciate ancient Chinese civilization and culture and to have a view of the daily life of Chinese people.

If you wish to organize a special tour with a group of more than 5 persons, please contact us. We will try our best to help you.
The details of all programs will be provided in August 1998.

6. Weather
July in Beijing is sunny and fine. The average daily temperature is 25C, with the high at 32C and the low about 22C.

For further information related to the Technical Program, contact
IFAC '99 IPC Secretariat
Institute of Systems Science
Chinese Academy of Sciences
Beijing 100080, China, P.R.
Phone: +86/10/62532161
Fax: +86/10/62587343
e-mail: ifac99@iss03.iss.ac.cn
lsc@public.east.cn.net

for other queries related to registration, hotel accommodation, visa and tours, contact
Mr. Wu Shaoyuan
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Fax: +86/10/62180142
e-mail: sywu@public3bta.net.cn
homepage: http://www.ciccst.org.cn/ifac99

for other organizing information related to IFAC activities, financial aid, exhibition, etc. please contact:
IFAC'99 NOC Secretariat
Chinese Association of Automation
POB 2728
Beijing 100080, China, P.R.
Fax: +86/10/62620908
e-mail: ifac99@sunserver.ia.ac.cn
ifac99@public.gb.com.cn
homepage: http://www.ia.ac.cn/ifac99/ifac99.html

Control Engineering Practice
Volume 6, No 2, February, 1998

Preview:

The R-S-T digital controller design and applications
(I.D. Landau)
Off-equilibrium linearisation and design of gain-scheduled control with application to vehicle speed control
(T.A. Johansen, K.J. Hunt, P.J. Gawthrop and H. Fritz)
Gain-scheduling of the Switched Reluctance Motor
(W.K. Ho, S.K. Panda, K.W. Lim and F.S. Huang)
Model-based control of mold level in a continuous steel caster under model uncertainties
(M.A. Barrón, R. Aguilar, J. González and E. Meléndez)
Practical issues in designing estimators under realistic model and sensor errors
(M. Agarwal)
Scheduling the parallel Kalman algorithm onto multiprocessor systems - a genetic approach
(M. Vaidehi and C.N. Krishnan)
Design of an H∞ filter-based robust visual servoing system
(A.Kawabata and M. Fujita)
Image registration for applications in Digital Subtraction Angiography
(N. Taleb and L. Jetto)
Ethics on the feedback loop
(R. Schinzinger)

Preface to the Special Section on Artificial Intelligence in Real-Time Control
(M.B. Khalid and H.B. Verbruggen)
A control engineer's use of artificial intelligence
(H.E. Rauch)
Adaptive predictive control of a heat exchanger based on a fuzzy model
(M. Fischer, O. Nelles and R. Isermann)
Comparison between the dynamic multi-layered perceptron and the generalised Hammerstein model for experimental identification of the loading process in diesel engines
(M. Ayoubi)
Neural networks for fault diagnosis of a nuclear fuel processing plant at different operating points
(M. Weerasinghe, J.B. Gomm and D. Williams)

IFAC meeting papers – keyword listing

Manoeuvring and control of marine craft
September 1997, Brijuni, Croatia

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Control Engineering Practice
Volume 6, No 3, March, 1998

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Nonlinear Simulation of a modified F-16 with full-envelope control laws
(W.C. Reigelsperger and S.S. Banda)
Identification and control of web processes: polymer film extrusion
(P.E. Wellstead, W.P. Heath and A.P. Kjaer)
Neural identification applied to predictive control of a solar plant
(M.R. Arahal, M. Berenguel and E.F. Camacho)
Iterative auto-calibration of digital controllers: methodology and applications
(A Besancon-Voda)
Robust digital friction compensation
(Min Sig Kang)
Rotor speed estimator for induction motors using voltage and current measurements
(J.L. Zamora, A. Garcia-Cerrada and A. Zazo)
An active omni-directional range sensor for mobile robot navigation
(I.S. Joung and H.S. Cho)
Preface to the Special Section on Real-Time Programming
(M. Maranzana)
Putting hardware-software codesign into practice
(G.Schrott and T.Tempelmaier)
Timing analysis of reactive rule-based programs
(M.Lin and J. Malec)
Timing analysis of a generic robot teleoperation software architecture
(B. Alvarez, A. Alonso and J.A. de la Puente)
Time-stamped event histories: a real-time programming object
(A.Shaw)
Expressing real-time constraints in a reflective object model
(J.P. Babau and J.L. Sourrouille)
Real-time programming: extending PEARL with interfaces and active objects
(A.H. Frigeri, C.E. Pereira and W.A. Halang)

IFAC meeting papers - keyword listing
Distributed computer control systems, July 1997, Seoul, Korea
Singular solutions and perturbation in control systems, July 1997, Pereslavl-Zalessky, Russia

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Conference Calendar

Artificial Intelligence in Agriculture
IFAC/CIGR Workshop (3rd)
Makuhari, Japan, 24 – 26 April 1998

The 3rd IFAC/CIGR Workshop on Artificial Intelligence in Agriculture (AIA'98) was held from 24 to 26 April, 1998 at the international conference center, Makuhari-Messe, Makuhari, Japan. This workshop was locally organized by the SHITA (Japanese Society of High Technology in Agricultural High Technology: president/ Prof. Yasushi Hashimoto, secretary/Prof. Takehiko Hoshi) with the great help from IFAC-TC/ILA (Intelligent Control in Agricultural Automation: chairman / Prof. Haruhiko Murase) in co-operation with CIGR (International Commission of Agricultural Engineering: president/Prof. Osamu Kitani).

The first IFAC Workshop on Expert Systems in Agriculture was held at Huangshan/China, in August 1992, chaired by Prof. F.L. Xiong. The second one, the IFAC/IFIP Workshop on Artificial Intelligence in Agriculture was held at Wageningen/ NL in 1995, chaired by Prof. A.J. Udink ten Cate.There, the name of the workshop was changed slightly in order to broaden its scope to include the AI methodology at large. Further, the purpose of the workshop was successfully focused to provide a forum for the presentation of new results in research, development and applications of AI in Agriculture.

The organization of this workshop was almost identical to the previous workshop, which took place in Wageningen/NL in 1995. The IPC was composed of 28 members from 14 countries. 51 papers were submitted and 36 high quality papers were accepted from 12 countries. We were unhappy to have 3 no-show authors. By the way, we, the IFAC Japanese NMO, has begun to establish the IFAC Foundation of Japan with the help of SICE. We hope to have few no-show authors at all IFAC events held in Japan in the future.

On the first day, April 24, all participants were invited to the 8th International Horticultural Exhibition, the Hi-Tech Horti-Mation held at the same place from April 21-24, 1998. On April 25, 26, we had 2 plenary lectures, one panel discussion and 6 sessions with 55 participants from 12 countries. It was our great pleasure to have opening addresses presented by Prof. Katsuhisa Furuta, (IFAC council member, chairman of the IFAC Japan-NMO), Prof. Osamu Kitani (the president of CIGR) etc. Two plenary lectures were given: "Biosystem-derived algorithms and their applications in agriculture" by H. Murase. And "AI approaches to identification and control of total plant production - for SPA and SFA to environmental control" by T. Morimoto and Y. Hashimoto, which might be called a kind of intelligent control of the cultivating or the storing facilities, taking the biological status into consideration as speaking plant approach (SPA) and/or speaking fruit approach (SFA) to environmental control. One panel discussion was organized by Prof. S. Ninomiya and Prof. T. Hoshi. AI applications in the world were presented and discussed by panelists from four European countries, two Asian countries and the USA. General sessions were successful and 12 papers were selected to be suggested for publication in the IFAC affiliated journal of "Computer and Electronics in Agriculture". It may be stated that the workshop was very successful.

To sum up the activities of IFAC in the agricultural applications as the chair of CC on Life Support Systems, it may be noted that the origin was the establishment of a small Working Group inside APCOM in 1988, owing to Prof. L. Ljung (IFAC advisor; at that time, Chair of TB), Prof. L. Keviczky (IFAC council member; at that time, chair of APCOM) and Prof. M. Kummel (IFAC council member; at that time, vice-chair of APCOM). The first workshop was organized by the Working Group at Matsuyama/Japan in 1991. With the great help from Prof. Y. Sawaragi (advisor of IFAC) and the Japan-NMO, it was very successful (see IFAC Newsletter no.6, 1991). Since then, we have organized 6 workshops as main-sponsors and 3 symposia as co-sponsorships in 8 countries. Most of this was done by the present two Technical Committees which succeeded the original Working Group owing to Prof. V. Kucera (Chair of TB, vice-pres. of IFAC). This June, we have two IFAC-workshops in European countries. One is CAPPT'98 in Budapest chaired by Prof. I. Farkas, another is CAEA'98 in Athens chaired by Prof. N. Sigrimis. It is certain that these workshops, too, will be successful.

Yasushi Hashimoto, IPC Chairman (Chair, CC on Life Support Systems)

Fault Detection, Supervision and Safety for Technical Processes – SAFEPROCESS 97
IFAC Symposium
Hull, UK, 26 – 28 August, 1997

During August 26–28 1997 the IFAC Symposium SAFEPROCESS97 was held at the University of Hull, United Kingdom as the 3rd in a new series of symposia following SAFEPROCESS91 at Baden-Baden and SAFEPROCESS94 at Helsinki. The theme of this symposium series has been reliability, availability and safety of technical processes and their control systems - qualities which are emphasised during all phases of system design and at start-up and including full system operation, maintenance and repair. Reliability, availability and safety imply the continuous monitoring of the whole controlled process, including the sensors actuators and control equipment both in open and closed-loop operation. At SAFEPROCESS 97 the relevant methods and tools for fault data collection and analysis, human factors and fault-tolerant control were presented and discussed. The main topics of the symposia were fault detection and isolation (FDI), fault decision theory and diagnosis, condition monitoring, supervision and fault-tolerant control actions based upon hardware and analytical redundancy in hardware/ software. There were many application studies describing methods to enhance the reliability and safety in industrial processes and biomedical and vehicle systems. The development of methods based upon quantitative and/or qualitative math-

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automatica

A Journal of IFAC the International Federation of Automatic Control

Papers from the May 1998 Issue

Editorial

Obituary: Yakov Zalmanovitch Tsypkin
(E.I. Jury)

Papers

Wiener-filter-based Minimum Variance Self-tuning Regulation
(R. Horowitz, B. Li, J.W. McCormick)
Feedback Linearization Using cmac Neural Networks
(S.Jagannathan, S. Commuri, F.L. Lewis)
An Anti-windup Design for Linear Systems with Input Saturation
(N. Kapoor, A.R. Teel, P. Daoutidis)
Observer Design for General Linear Time-invariant Systems
(R. Nikoukhah, S.L. Campbell, F. Delebecque)
Design of PI Controllers Based on Non-convex Optimization
(K.J. Aström, H. Panagopoulos, T. Hagglund)

Brief Papers

Connection of Multiplicative/relative Perturbation in Coprime Factors and Gap Metric Uncertainty
(G.Lu, L.Qiu)
Robust Adaptive Control of Flexible Joint Manipulators
(S.Jain, F. Khorrami)
Adaptive Output Feedback Control of Current-fed Induction Motors with Uncertain Rotor Resistance and Load Torque
(R.Marino, S. Peresada, P. Tomei)
Asymptotic Solution of the Minimum Force Problem for Linear Singularly Perturbed Systems
(A.I. Kalinin, S.V. Polevikov)
On Plant and LQG Controller Continuity Questions
(D.De Bruyne, B.D.O. Anderson, M. Gevers)
Stability Criteria for Matrices
(H.Tin-Zhu)
Stable Neural Controllers for Nonlinear Dynamic Systems
(S.-H. Yu, A.M. Annaswamy)

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Guaranteed Cost Control of Uncertain Systems with a Time-multiplied quadratic Cost Function: An Approach Based on Linear Matrix Inequalities
(S.O.R. Moheimani, I.R. Petersen)
A Bidimensional Optimal Landing Problem
(M.Levebvre)
State-space Model Identification of Deterministic Nonlinear Systems: Nonlinear Mapping Technology and Application of the Lyapunov Theory
(S.E. Lyshevski)

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Popov-type Criterion for Stability of Nonlinear Sampled-data Systems
(T. Hagiwara, G. Kuroda, M. Araki)
On Contraction Analysis for Nonlinear Systems
(W. Lohmiller, J.-J.E. Slotine)

Brief Papers

Exponential Feedback Passivity and Stabilizability of Nonlinear Systems
(A.L. Fradkov, D.J. Hill)
Necessary Conditions for Robust Stability of a Class of Nonlinear Systems
(J.M. Concalves, M.A. Dahleh)
Approximate I/O Feedback Linearization of Discrete-time Nonlinear Systems via Virtual Input Direct Sign
(S.M. Savaresi, G.O. Guardabassi)
Adaptive Robust Control under Unknown Plants Orders
(S.M. Veres, V.F. Sokolov)
Output Stabilizing Robust Control for Discrete Uncertain Systems
(N.Sharav-Schapiro, Z.J. Palmor, A. Steinberg)
A Search Control for Scheduling Problems
(R.Rodosek)
An Enhanced PID Control Strategy for Unstable Processes
(J.H. Park, S.W. Sung, I-B. Lee)
State and Input Estimation for a Class of Uncertain Systems
(M. Corless, J. Tu)
Finite Dimensional Filters for Passive Tracking of Markov Jump Linear Systems
(V.Krishnamurthy, J. Evans)
An Adaptive Algorithm for the Tuning of Two Input Shaping Methods
(M. Bodson)
A Unified Approach to Optimal State Estimation for Stochastic Singular Systems
(H.-S. Zhang, T.-Y. Chai, X.-J. Liu)
New Results on the Global Stabilization of Minimum Phase Nonlinear Systems
(A.Astolfi)
Input Observability and Input Reconstruction
(M.Hou, R.J. Patton)

Technical Communiques

Robust Design of Stabilizing Controllers for Interconnected Time-delay Systems
(M.S. Mahmoud, S. Bingulac)
On the Relationship between Behavioural and Standard Methods for System Identification
(E.Weyer, R.C. Williamson, I.M.Y. Mareels)

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ematical modelling, heuristic knowledge and computer intelligence with accompanying robustness issues were discussed in considerable detail. There were several papers covering the integration of robust control and robust FDI for fault-tolerant control and on-line fault-tolerant operation, fault prediction, construction of fault-tolerant systems and techniques for control system reconfiguration. For the first time in this symposium series there was a special session on human factors. Papers in this session discussed the role of the human operator in system supervision, human reliability analysis and operator support systems.

Experts attended SAFEPROCESS97 from various fields of industry and academia and delegates were present from 28 countries. The programme consisted of 3 keynote papers, state-of-the-art reviews, the latest results, tutorial papers and 12 specially organised sessions. Many of the papers presented were of an inter-disciplinary nature, reflecting the advancement of interaction issues in the design and operation of fault-tolerant and safety-critical systems. There were 236 papers with 244 participants and this reflected a rapidly developing interest in this important subject as the symposium series has continued to grow.

There is an important connection between robust control theory, control systems design and design and fault-tolerant control systems. For this reason SAFEPROCESS 2000 is planned for Budapest from 14 to 16 June 2000, a few days before the Symposia on Control Systems Design [CSD 2000] at Bratislava (18 - 20, June) and Robust Control Systems Design [ROCOND 2000] at Prague (21 - 23, June). The close timing and geographical location of these three events will certainly facilitate a close synergy between IFAC activities in these related fields of control engineering.

R.J. Patton, IPC Chairman

FORTHCOMING EVENTS (ctd.)

IFAC Conference Modelling and Control in Agriculture Horticulture and Post-Harvest Processing - AGRICONTROL 2000	July 10 - 12	Wageningen NL	1 Dec. 1999	Prof. Gerrit van Straten Wageninen Agricultural University Agrotechnion, Bomenweg 4 NL6703 HD Wageningen, Netherlands e-mail: gerit.vanstraten@user.aenf.wau.nl FAX: +31/317/483 331 http: www.aenf.wau.nl
IFAC Symposium (4th) Intelligent Components and Instruments for Control Application - SICICA 2000	Sept. 13 - 15	Buenos Aires Argentina	July 1999	Eng. Jonas Paiuk, Av. Callao 220 1o B 1022 Buenos Aires, Argentina FAX: +54/1/374-3700 e-mail: system@aadeca.satlink.net
IFAC/(IFIP/IFORS/IFR) Symposium Information Control Problems in Manufacturing Technologies - INCOM 2001	Sept. 24 - 26	Vienna Austria	31. Jan. 2000	Dr. Robert Probst Institute for Handling Devices and Robotics (E318), Technical University Floragasse 7 a, A-1040 Vienna, Austria FAX: 43/1/50418359 e-mail: e318@ihrtl.ihrt.tuwien.ac.at
IFAC Symposium (5th) Advances in Control Education ACE - 2000	Dec. 17 - 19	Gold Coast Australia	January 2000	Dr. Ljubo Vlacic School of Microelectronic Engg., Griffith Univ Nathan, Qld. 4111, Australia FAX: +61/7/3875 5384 e-mail: L.Vlacic@me.gu.edu.au

FORTHCOMING EVENTS*

1998
No. 3
June

*** A complete list of events in 1998 was published in the January edition of the IFAC Newsletter and is available on the IFAC Homepage http://www.ifac-control.org**

Title	1998	Place	Deadline	Further Information
IFAC Symposium Automation in Mining, Mineral and Metal Processing - MMM 98	Sept. 1 - 3	Cologne Germany	-	VDI-VDE GMA POB 10 11 30 D-40002 Düsseldorf, Germany FAX: +49/211/6214-161 e-mail: vdi@gma.de
7th IEEE/IFAC Conference Control Applications	Sept. 1 - 4	Trieste Italy	-	Prof. Frank L. Lewis Automation and Robotics Res. Inst. The University of Texas at Arlington 7300 Jack Newel Blvd. S Fort Worth, TX 76118, USA FAX: +1/817/272 5989 e-mail: flewis@controls.uta.edu
IFAC Symposium Low Cost Automation LCA 98	Sept. 8 - 10	Shenyang China, P.R.	.	Prof. Chen Zhen-Yu LCA 98 Secretariat, POB 919 Beijing 100071, China, P.R. FAX: +86/10/63816990
IFAC Workshop "East Meets West" on Automated Systems Based on Human Skill	Sept. 8 - 12	Palanga Lithuania	-	Prof. Saulius Kausinis Kaunas University of Technology A. Mickeviciaus str. 37-305 LT-3005 Kaunas, Lithuania e-mail: ifaclino@eaf.ktu.lt FAX: +370/7/351574 http: //www.ktu.lt:81/en/science/semin/fram1.html
IFAC Workshop Distributed Computer Control Systems - DCCS '98	Sept. 9 - 11	Como Italy	-	DCCS98 Secretariat Dip. di Scienze Informazione Via Cornelico, 39 I-20153 Milano, Italy FAX +39/2/5500 6373 e-mail: dccs98@dsi.unimi.it http://www.dsi.unimi.it/dccs98
IFAC/IEA/IFIP/IFORS Symposum Analysis, Design and Evaluation of Man-Machine Systems MMS '98	Sept. 16 - 18	Kyoto Japan	-	Prof. Hiroshi Tamura Kyoto Institute of Technology Matsugasaki, Sakyoku Kyoto 606, Japan FAX: +81/75/701 7211 e-mail: tamura@hisol.dj.kit.ac.jp
IFAC Workshop Control in Natural Disasters	Sept. 21- 22	Tokyo Japan	-	Prof. R. Ishii Div. Elec. Comp. Engg. Yokohama National University Yokohama 240, Japan FAX: +81/45/338 1157 e-mail: ishii@ishiilab.dnj.ynu.ac.jp http: www.ishiilab.dnj.ynu.ac.jp//CND98
IFAC Workshop Motion Control	Sept. 21-23	Grenoble France	-	Prof. Luc Dugard Lab. d'Automatique de Grenoble, ENSIEG, BP 46 F-38402 St. Martin d'Heres-Cedex, France FAX: +33/4 76 82 63889 e-mail: dugard@lag.ensieg.fr
ICSC/IFAC Intl. Symposium Neural Computation - NC 98	Sept. 23-25	Vienna Austria	-	ICSC Canada, POB 279, Millet Alberta T0C 1Z0, Canada FAX: +1/403/387 4329 e-mail: icsc@compusmart.ab.ca or: Michael.Heiss@Siemens.at http://www.compusmart.ab.ca/icsc
IFAC Symposium Artificial Intelligence in Real Time Control	October 5 - 8	Grand Canyon AZ, USA	-	Dr. Steven R. LeClair Materials Process Design Branch US Air Force Materials Directorate Wright Laboratory, Wright Patterson AFB Ohio 45433, USA FAX: +1/937/656 7995 e-mail: leclaisr@ml.wpafb.af.mil http://sys36174.ml.wpafb.af.mil/airtc98/airtc98.html
IFIP/EWICS/IFAC Conference SAFECOMP '98	October 6 - 8	Heidelberg Germany	-	Ms. Gabriele Trapp Gesellschaft für Informatik Ahrstrasse 45, D-53175 Bonn, Germany e-mail: dia@gmd.de http://www.fh-fulda.de/safecomp

FORTHCOMING EVENTS (ctd.)

IFAC Workshop Space Robotics - SPRO'98	October 19 - 22	Montreal Canada	- 1998	Prof. J. O'Shea, SPRO'98 Ecole Polytechnique C.P. 6079, SUCC. Centre-ville Montreal, Que., H3C 3A7, Canada FAX: +1/514 340 4174 e-mail: o'shea@auto.polymtl.ca
IFAC Conference Control Applications in Marine Systems - CAMS '98	October 27 - 30	Fukuoka Japan	-	Prof. K. Kijima Kyushu University, Dept. of Naval, Archit. Higashi-ku, Fukuoka 812, Japan FAX: +81/92/632 1560
IFAC Workshop 5th Intelligent Manufacturing Systems	November 9 - 11	Gramado Brazil	-	Prof. Carlos E. Pereira Rua Siqueira Campos 341/304 CEP 92010 - 230, Canoas RS, Brazil FAX: +55/51/ 316 3129 e-mail: cpereira@iee.ufrgs.br http:www.iee.ufrgs.br/iee.cepport.htm
VIII Latin American Congress on Automatic Control ACCA	November 9 - 13	Viña del Mar Chile	-	Prof. Gastón Lefranc H. Escuela de Ing. Electrica U. Catolica de Valpareiso Casilla 4059, Valpareiso, Chile FAX: +56/32/273804 e-mail: glefranc@aix1.ucv.cl http: //gavilan.die.uchile.cl/~mduartem/

Title	1999	Place	Deadline	Further Information
15th IMEKO WORLD CONGRESS	June 13 - 18	Osaka Japan	30 June 1998	Society of Instrument and Control Engg. 35-28-303,1-Chome Hongo, Bunkyu-ku Tokyo 113, Japan FAX: +81/3/3814 4699
14th IFAC WORLD CONGRESS	**July 5 - 9**	**Beijing PRC**	**15 June 1998**	**IFAC'99 IPC Secretariat Institute of Systems Science Chinese Academy of Sciences Beijing 100080, PR Chine FAX: +86/10/6258 7343 e-mail: ifac99@iss03.iss.ac.cn http://www.ia.ac.cn/ifac99/ifac99.html**
15th IFORS WORLD CONGRESS	August 16 - 20	Beijing PRC	30 Nov. 1998	IFORS XV Conference Secretariat Institute of Applied Mathematics Chinese Academy of Sciences Beijing 100080, PR China FAX: +86/10/6254 1689 e-mail: orchina@public.east.cn.net http://www.ifors.org/leaflet/triennial.html
EFITA/IFAC Conference Information Technology in Agriculture	Sept. 27-30	Bonn Germany	*	Prof. Dr. Gerhard Schiefer University of Bonn Meckenheimer Allee 174 D-53115 Bonn, Germany FAX: +49/228/733431 e-mail: mailto:schiefer@uni-bonn.de
EPS/IFAC Intl. Conference on Accelerator and Large Experimental Physics Control Systems - ICALEPCS'99	open	Trieste Italy	*	Dr. Daniele Bulfone co-chair ICALEPCS 99 Sincrotrone Trieste I-34012 Trieste, Italy e-mail: bulfone@elettra.trieste.it FAX: +39/40/3758579 http: www.elettra.trieste.it

Title	2000	Place	Deadline	Further Information
IMACS/IFAC Symposium 3rd Mathematical Modelling - MATHMOD 2000	Feb. 2 - 4	Vienna Austria	15. May 1999	Prof. Inge Troch Vienna University of Technology Wiedner Hauptstrasse 8 - 10 A-1040 Vienna, Austria e-mail: inge.troch@tuwien.ac.at FAX: +43/1/586 29 59 http://simtech.tuwien.ac.at/3rdMATHMOD
IFAC/CIGR Symposium Power Plants and Power Systems	May 24 - 26	Brussel Belgium	June 1999	Ir. Jacques Debelle, c/o IBRA/BIRA R.Ravenstein 3, B-1000 Brussels, Belgium FAX: +32 2 511 7004
IFAC Symposium Fault Detection, Supervision and Safety for Technical Processes SAFEPROCESS 2000	June 14 - 16	Budapest Hungary	15 October 1999	Dr. A. Edelmayer, Systems and Control Lab Computer and Automation Institute, HAS Kende u. 13-17, H-1111 Budapest, Hungary FAX: +36/1/1667503 e-mail: edelmayer@sztaki.hu
IFAC Sympoisum Robust Control Design ROCOND 2000	June 21 - 23	Prague Czech Rep.	September 1999	Dr. M. Sebek, Inst. of Information Theory & CZ-18208 Prague, Czech Rep. FAX: +420/2/6884554 e-mail: msebek@utia.cas.cz

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