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Automatica

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Engineering Applications of Artificial Intelligence

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Journal of Process Control

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Annual Reviews in Control

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Journal on Mechatronics

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Foundation of Systems Biology in Engineering (FOSBE)

CACHE/IFAC Conference

Santa Barbara, California, USA, August 7-10, 2005

The first International Conference on *Foundations of Systems Biology in Engineering* was held in Santa Barbara, California from August 7-10, 2005. This conference drew over 160 participants from over 14 countries, and included strong representation from industry, government agencies, as well as academic researchers. The conference was organized by the CACHE corporation (www.cache.org), and was supported financially by a number of organizations including: the National Science Foundation, the Institute for Collaborative Biotechnologies at UCSB, Pfizer, Entelos, Johnson & Johnson, and Astra-Zeneca. In addition, technical co-sponsorship was provided by: The Society for Biological Engineering of AIChE, the Computing and Systems Technology Division of AIChE, and the International Federation of Automatic Control (IFAC).

Recognizing that the topic of systems biology is a central theme for numerous conferences, we sought to distinguish this meeting with an emphasis on: (i) applied problems from the pharmaceutical industry, (ii) research methodologies, and (iii) challenges in education and training. The applied research problems were detailed in many keynote talks, and the challenges in education and training were addressed in a focused keynote session. In addition, the conference featured a panel discussion on the future challenges in funding for systems biology. The slides for the various keynote talks are archived on the conference web site (www.fosbe.org).

The conference format included 1 plenary speech (Leroy Hood from the Institute for Systems Biol-

ogy) on "Systems Biology Transforming Biology and Medicine", 15 invited keynote speakers, and 70 contributed presentations in the form of posters. While all contributed papers and several of the keynote papers appeared in conference format (5 pages) in the FOSBE Meeting Proceedings, it was decided to invite selected papers to appear in a special issue of *IEEE Systems Biology*. The papers were selected on the basis of favorable reviews from the initial submission, and included papers from the keynote speakers as well as the contributed paper authors. Full-length papers were resubmitted, and a formal peer-review procedure was conducted. I am grateful to the authors and the reviewers for their prompt handling of these papers.

These papers represent the most significant contributions from the FOSBE conference, but they also illustrate the range of important topics addressed at the meeting: systems biology tools for the pharmaceutical industry, development of new educational initiatives, cutting edge research in mathematical modeling, to name a few.

A final note of thanks is owed to the many individuals who played a key role in the organization of the FOSBE conference, including the review process for this special issue. In particular I would like to acknowledge the tremendous efforts of the conference co-chairs: Mike Henson (U. Massachusetts), Alex Bangs (Entelos), and Costas Maranas (Penn State).

Frank Doyle
Conference Chair, FOSBE

Informatics in Control, Automation and Robotics - ICINCO 2005

INSTICC/IFAC Conference

Barcelona, Spain, 14 - 17 September, 2005

The 2nd International Conference on Informatics in Control, Automation and Robotics (ICINCO 2005) was held in Barcelona, from September 14-17, 2005, organized by INSTICC in cooperation with the Universitat Politècnica de Catalunya. This conference built on the success of its first edition, in 2004, and aims at representing a major forum to debate technical advances presented by researchers and developers, both from academia and industry, working in the conference areas. Informatics applications are pervasive in many areas of Control, Automation and Robotics and it seems necessary to emphasize and explore this interdisciplinary potential.

The program of this conference included oral presentations (full papers and short papers) and posters, and was organized in three simultaneous

tracks: "Intelligent Control Systems and Optimization", "Robotics and Automation" and "Systems Modeling, Signal Processing and Control". Furthermore, ICINCO 2005 included 3 satellite workshops and 6 plenary keynote lectures, given by internationally recognized researchers.

The first keynote lecture was presented by one of the most renowned researchers in the area of modern cybernetics, Professor Kevin Warwick (Reading University, UK). We were also grateful for the presence of other distinguished researchers such as Prof. Erik Sandewall (Linköping University, Sweden), Dr. Alberto Sanfeliu (Institute of Robotics and Industrial Informatics, Universitat Politècnica de Catalunya, Spain) who



FORTHCOMING EVENTS

2006
No. 2
April

Title	2006	Place	Further Information
IFAC Symposium Advanced Control of Chemical Processes -ADCHEM 2006	April 02 – 05	Gramado Brazil	http://www.adchem.org e-mail: adchem@enq.ufrgs.br
IFAC Workshop Control Applications of Optimization	April 26 – 28	Cachan-Paris France	http://www.ens-cachan.fr/cao06 e-mail: sec.ifac.cao06@ens-cachan.fr
IFAC Symposium Information Control Problems in Manu- facturing – INCOM 2006	May 17 – 19	St. Etienne France	http://www.emse.fr/incom06 e-mail: incom06@emse.fr
IFAC Symposium Automated Systems Based on Human Skill and Knowledge	May 22 – 24	Nancy France	http://www.ensgsi.inpl-nancy.fr/ASBoHS06/ e-mail: Laure.Morel@ensgsi.inpl-nancy.fr
Intl. Workshop Variable Structure Systems – VSS06	June 05 – 07	Alghero Italy	http://www.diee.unica.it/vss06/ e-mail: vss06@diee.unica.it
IFAC Conference 6th Analysis and Design of Hybrid Systems ADHS'06	June 07 – 09	Alghero Italy	http://www.diee.unica.it/adhs06/ e-mail: adhs06@diee.unica.it
2006 American Control Conference - in cooperation with IFAC -	June 14 – 16	Minneapolis MN, USA	http://www.a2c2.org/conferences/acc2006/ e-mail: misawa@ceat.okstate.edu
IFAC Conference Improving Stability in Developing Nations through Automation – ISA'06	June 15 – 17	Prishtina UN Mission in Kosovo	http://www.ihr.tuwien.ac.at/swiis2006/ e-mail: mwhan@ihr.tuwien.ac.at
IFAC Symposium 7th Advances in Control Education – ACE 06	June 21 - 23	Madrid Spain	http://www.dia.uned.es/ace2006/index.html e-mail: ace2006@dia.uned.es
IFAC/IEEE Symposium Power Plant and Power System Control	June 25 – 28	Kananaskis/Alberta Canada	http://ifacpps2006.org/ e-mail: ifacPPS2006@ucalgary.ca
IFAC Conference Analysis and Control of Chaotic Systems	June 28 – 30	Reims France	http://www.univ-reims.fr/chaos06 e-mail: chaos06@univ-reims.fr
IFAC Workshop Intelligent Solutions in Embedded Systems	June 30	Vienna Austria	http://clara.tuwien.ac.at/wises06/ e-mail: to be announced
IFAC Symposium 5 th Robust Control – ROCOND	July 05 – 07	Toulouse France	http://www.laas.fr/rocond06 e-mail: rocond06@laas.fr
IFAC Workshop 6th Time Delay Systems – TDS06	July 10 – 12	L'Aquila Italy	http://www.diel.univaq.it/IFACTDS06 e-mail: bricca@briccaevents.it
Asian Control Conference - in cooperation with IFAC	July 18 – 21	Bali Indonesia	http://www.asc2006.com e-mail: secretariat@asc2006.com
IFAC Workshop Lagrangian and Hamiltonian Methods for Nonlinear Control	July 19 – 21	Nagoya Japan	http://www.robot.kuass.kyoto-u.ac.jp/lhmlc06/ e-mail : lhmlc06@hava.nuem.nagoya-u.ac.jp
IFAC Workshop Fractional Differentiation and its Applications	July 19 – 21	Porto Portugal	http://www.gecad.isep.ipp.pt/FDA06 e-mail: fda06@dee.isep.ipp.pt
INSTCC/IFAC Conference Informatics in Control, Automation and Robotics – ICINCO-2006	August 01 – 05	Setubal Portugal	http://www.icinco.org e-mail: secretariat@icinco.org
IFAC Symposium Control in Transportation Systems	August 29 – 31	Delft Netherlands	http://www.rws-avv.nl/ifac-cts2006 e-mail: ifac-cts2006@avv.rws.minvenw.nl
IFAC Workshop Applications of Large Scale Industrial Systems – ALSIS'06	August 30 – 31	Helsinki, FI cruise liner	http://ntsat oulu.fi/index.php?286 e-mail: office@atu.fi
IFAC Symposium Fault Detection, Supervision and Safety of Technical Processes – SAFEPROCESS	August 30 – September 1	Beijing China	http://www.au.tsinghua.edu.cn/safe/safeprocess2006/ e-mail: safeprocess2006@mail.tsinghua.edu.cn
IFAC Symposium 8 th Robot Control – SYROCO	September 06 – 08	Bologna Italy	http://www-lar.deis.unibo.it/syroco2006/ e-mail cmelchiorri@deis.unibo.it
IFAC Workshop Bio-Robotics III	September 09 – 10	Sapporo Japan	http://www.bpe.agr.hokudai.ac.jp/BioRoboticsIII/index.html e-mail: tkataoka@bpe.agr.hokudai.ac.jp
IFAC Symposium Mechatronics Systems	September 12 – 14	Heidelberg Germany	http://www.mechatronics2006.com e-mail: ringelmann@vdi.de
IFAC 50th Anniversary Celebration Present and Future of Automatic Control	September 15	Heidelberg Germany	http://www.vdi.de/ifac50
IFAC Symposium 6th Modelling and Control of Biomedical Systems	September 20 – 22	Reims France	http://www.univ-reims.fr/mcbms06 e-mail: mcbms06@univ-reims.fr

FORTHCOMING EVENTS (ctd.)

IFAC Workshop Automation in Mining, Mineral and Metal Processing	September 20 – 22	Cracow Poland	http://konferencje.polsl.pl/IFAC2006 e-mail: IFAC2006@polsl.pl
IFAC Conference Manoeuvring and Control of Marine Craft MCMC-06	September 20 – 22	Lisbon Portugal	http://mcmc06.isr.ist.utl.pt (to be activated) e-mail: to be announced
IFAC Workshop Discrete-Event System Design DESDes'06	September 26 – 28	Rydzyna Poland	http://www.desdes.uz.zgora.pl/ e-mail: DESDes@iie.uz.zgora.pl
IFAC Workshop Energy Saving Control in Plants and Buildings	October 02 – 03	Bansko Bulgaria	http://www.tu-sofia.bg/IFAC_ESC/index.html e-mail: esc06@tu-sofia.bg
IFAC Workshop Multi-Vehicle Systems – MVS 2006	October 02 – 03	Salvador, BA Brazil	http://www.lti.pcs.usp.br/mvs2006 e-mail: mvs06@mail.pcs.usp.br
IFAC Workshop Nonlinear Model Predictive Control for Fast Systems (NMPC_FS'06)	October 09 – 11	Grenoble France	http://www.lag.ensieg.inpg.fr/NMPC_FS06/ e-mail: NMPC_FS@lag.ensieg.inpg.fr
IFAC Workshop Advanced Process Control for Semi- Conductor Manufacturing	December 04 – 05	Singapore Singapore	http://ifacsm06.nus.edu.sg/index.html e-mail : ifacsm06@nus.edu.sg
IFAC/IIASA Workshop New Approaches of Dynamic Optimisation To Assessment of Economic and Environmental Systems	December 05 – 07	Laxenburg Austria	http:// to be announced e-mail: to be announced
Title	2007	Place	Further Information
IFAC Symposium Cost Oriented Automation - COA 07	February 12 – 14	Habana Cuba	http://www.cujae.edu.cu/coa07 e-mail: coa07@electronica.cujae.edu.cu
IFAC Symposium Computer Applications in Biotechnology - CAB-10	June 04 – 06	Cancun Mexico	www.lingen.unam.mx/CAB-10 e-mail: jmorenop@lingen.unam.mx
IFAC Symposium Dynamics and Control of Process Systems -DYCOPS-8	June 06 – 08	Cancun Mexico	http://www.lingen.unam.mx/DYCOPS-8 e-mail: jac@xanum.uam.mx
IFAC Workshop Dependable Control of Discrete Systems - IFAC DCDS07	June 13 – 15	Paris France	www.lurpa.ens-cachan.fr/dcds07 e-mail: dcds07@lurpa.ens-cachan.fr
IFAC Symposium Automatic Control in Aerospace	June 25 - 29	Toulouse France	http://aca2007.onera.fr e-mail: aca2007@oneracert.fr
2007 American Control Conference - in cooperation with IFAC -	July 11 – 13	New York NY, USA	http://www.a2c2.org/conferences/acc2007/ e-mail: judd@ohio.edu
IFAC Symposium 11th Large Scale Systems: Theory and Applications	July 23 – 25	Gdansk Poland	http://www.ely.pg.gda.pl/lss2007 e-mail: lss2007@ely.pg.gda.pl
IFAC Symposium 12 th Automation in Mining, Mineral and Metal Processing - MMM	August 21 – 24	Quebec City Canada	http://www.gch.ulaval.ca/ifacmmm07/ e-mail: ifacmmm07@gel.ulaval.ca
IFAC Symposium Nonlinear Control Systems - NOLCOS	August 22 – 24	Pretoria South Africa	http://www.nolcos2007.org.za e-mail: noc@nolcos2007.org.za
IFAC Workshop Adaptive and Learning in Control and Signal Processing – ALCOSP 07 in conjunction with IFAC Workshop Periodic Control Systems – PSYCO 07	August 29 – 31	St. Petersburg Russia	http://conf.physcon.ru/alcosp07/ e-mail: alcosp07@physcon.ru
IFAC Workshop Periodic Control Systems – PSYCO 07	August 29 – 31	St. Petersburg Russia	http://conf.physcon.ru/psyco07/ e-mail: psyco07@physcon.ru
IFAC Symposium Analysis, Design and Evaluation of Human-Machine Systems	September 04 – 06	Seoul Korea	http:// to be announced e-mail: to be announced
IFAC Conference Management and Control of Producton and Logistics – MCPL 2007	September 27 – 30	Sibiu Romania	http://mcpl2007.ulbsibiu.ro e-mail: mcpl2007@ulbsibiu.ro
IFAC Copnference Cost Effective Automation in Networked Product Development and Manufacturing	October 02 – 05	Monterrey Mexico	http://cidyt.mty.itesm.mx/ifac-CEA07 e-mail: armolina@itesm.mx
IFAC Symposium System Structure and Control - SSSC 2007	October 17 – 19	Iguacu Brazil	http://sssc07.ece.ufrgs.br/ e-mail: sssc07@ece.ufrgs.br
Title	2008	Place	Further Information
American Control Conference - in cooperation with IFAC	June 12 – 14	Seattle, WA USA	http:// to be announced e-mail: to be announced
17 th IFAC WORLD CONGRESS	July 06 – 11	Seoul Korea	http://www.ifac2008.org e-mail: Secretariat@ifac2008.org

Computer Safety, Reliability and Security - SAFECOMP EWICS – IFAC Conference Fredrikstad, Norway 28 - 30 November, 2005

SAFECOMP, the leading international series of conferences on computer safety, reliability and security, is already in its third decade of existence. The 24th event in this series took place in Fredrikstad, Norway, during the week 26 - 30 September 2005.

The first two days were filled with various tutorials, meetings of the main sponsor EWICS TC7, a NONSTOPP seminar and a CSDUML workshop. The NONSTOPP seminar was organised by the 'Norsk Nettverk for Sikre, Trygge Og Pålidelige Programmerbare Systemer' (Norwegian Network for Safe, Secure and Dependable Programmable Systems), and focused on risk analysis and development of critical systems. Subject of the workshop on 'Critical Systems Development Using Modeling Languages' (CSDUML) were strategies and techniques to use modeling languages in safety-critical applications.

The actual conference commenced with an opening reception in the evening of the second day, at which some local music students welcomed the conference attendees warmly with famous sounds. A large share of the presentations delivered during the three days of the conference dealt with modeling complex systems and with formal methods. But there were also various interesting contributions dealing with general aspects of software engineering, issues of safety standards, and security problems. A new feature was a technical visit to Østfold University College and the Institute for Energy Technology (IFE), both located in the nearby Halden, with the latter being a focal point of very early research in computer applications of highest safety criticality. As alternative to the visit to IFE, an excursion to the Halden Boiling Heavy Water Reactor, a test reactor being part of the Halden Reactor Project, was offered.

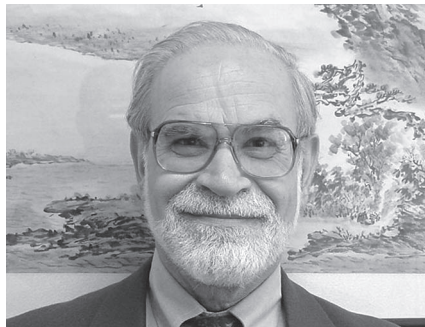
Each day of the conference week there was a keynote address given, respectively, by Prof. Robin Bloomfield, Adelard, United Kingdom, Prof. Mats Heimdahl, University of Minnesota, USA, Prof. Robert France, Colorado State University, USA, Bjørn Wahlstrøm, VTT Industrial Systems, Finland, and Angelo Marino, Scientific Officer, Unit of ICT for Trust and Security in the European Commission.

Out of 85 papers/abstracts submitted addressing, among others, systems analysis, modeling and engineering (30), approaches combining safety, reliability and security (14), telecommunication (12), aerospace (7) and transportation (7), 30 papers were accepted for presentation. The authors of these papers came from 14 countries, with Norway and the United Kingdom as the main contributors. About two thirds of the papers came from universities. The entire SAFECOMP week had 122 participants representing 22 countries. The proportion of participants coming from industry, research organisations and universities was about 3:2:3. The proper SAFECOMP conference was attended by some 100 delegates.

The conference series will continue with the 25th SAFECOMP to be organised in Gdansk, Poland, from 25 - 29 September 2006. For further information see www.safecomp.org

Wolfgang Halang

WHO IS WHO IN IFAC



Abraham Haddad
member of the IFAC Council

A. H. Haddad received the Ph.D. degrees in electrical engineering from Princeton University in 1966. In September 1966, he joined the University of Illinois, Urbana, where at the time of his resignation in August 1981, he was Professor of Electrical Engineering and Research Professor in the Coordinated Science Laboratory. During the academic year 1972-73, he was Visiting Associate Professor at Tel-Aviv University, Tel-Aviv, Israel, while on sabbatical leave from the University of Illinois. From 1968 to 1979, he was an advisor to the U.S. Army Missile Command. In 1979 he was a Senior Staff Consultant with the Dynamics Research Corporation, Wilmington, MA. He served as Program Director for Systems Theory and Operations Research at the National Science Foundation in Washington, DC from August, 1979 to June, 1983. From June, 1983 to August, 1988, he was at the Georgia Institute of Technology in Atlanta, GA as Professor of Electrical Engineering and served as Director of the Computer Integrated Manufacturing Systems Program in 1987-88. He was also a consultant for Lockheed-Georgia Company in Marietta, GA.

On September 1, 1988 he joined Northwestern University as Henry and Isabelle Dever Professor of Electrical and Computer Engineering (the department name was EECS until August 31, 1996 and as of September 1, 2005) and served as Chairman of the Department from 1988 to 1998. As of September 1, 1998 he has also been serving as Director of the Master of Information Technology Program at Northwestern. He served as Interim Chairman of the ECE Department during the academic years 2001-02 and 2004-05.

Dr. Haddad served as a member of the U.S. Army Missile Command Scientific Advisory Group in 1975 and 1976. His service with IEEE has been extensive including: membership on the Publication Board; TAB/USAB Research and Development Committee; Technical Activities Board; Chairman of PUB Long Range Planning Committee; Chairman of TAB Periodicals Committee; Chairman of TAB Meetings Committee; member of the TAB Technical Meetings Council; Chairman of the IEEE Piore Award Committee; member of the IEEE Edison Medal Committee; and Chairman of the Committee and member of the IEEE Awards Board.

He served the IEEE Control Systems Society as: Associate Editor for Estimation and Chairman of the Estimation Committee; Secretary/Treasurer; General Chairman of the 23rd IEEE Conference on Decision and Control; Chairman, Publication Committee; Editor of the IEEE Transactions on Automatic Control and Associate Editor at Large; Vice-President for Financial Affairs; President-Elect in 1991, and President in 1992.

His involvement with IFAC include his service as member of the Policy Committee from 1993 to 1996, Chair of the Policy Committee from 1996 to 2002, and Chair of the IFAC Awards Committee from 2002 to 2005. As of July 2005 he has been a member of the IFAC Council and Vice-Chair of the Administration & Finance Committee. He has

also been serving as Associate Editor of the IFAC Journal Control Engineering Practice since 1999.

He received the IFAC Outstanding Service Award in July 2005. He is a recipient of an IEEE Centennial Medal (1984), IEEE Control Systems Society Distinguished Member Award (1985), and an IEEE Third Millennium Medal (2000). He is a Fellow of IEEE and the American Association for the Advancement of Science. From 1990 through 2003 he was Secretary of the American Automatic Control Council and served as General Chair of the 1993 American Control Conference. At Georgia Tech he received the Faculty Member of the Year Award in 1987.

His interests include estimation, identification, and control for systems subject to uncertainties with application to communications, control, and manufacturing. Recent work deals with detection, estimation, and control for stochastic hybrid systems, namely systems whose model may change based on an underlying discrete-event process, with applications to flow control in communications channels.

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has been scientific coordinator of numerous research projects in Europe, Dr. Paolo Rocchi (IBM, ITS Research and Development, Italy), Prof. Janan Zaytoon (CRESTIC, URCA France) and Prof. M. Palaniswamy (University of Melbourne, Australia).

The three satellite workshops had a large attendance and the proceedings were published as three independent books, each with its own ISBN. These workshops, although quite specialized, have covered areas of great interest for the conference delegates, namely: "Multi-Agent System Robotics" (MARS), "Biosignal Processing and Classification" (BPC) and "Artificial Neural Networks and Intelligent Information Processing" (ANNIIP).

ICINCO 2005 received 386 paper submissions, not including submissions for the workshops, from more than 50 different countries, in all continents. To evaluate each submission, a double blind paper review was performed by the program committee.

The review process involved a team of 224 academic researchers who are experts in at least one of the conference topic areas. Each and every one of the members of the ICINCO international program committee holds a PhD degree in an area related to the conference topics and, in many cases, is a leader in her/his field of research.

Finally, only 229 papers were accepted for publication in the proceedings and presentation at the conference; of these, 166 papers were selected for oral presentation (67 full papers and 99 short papers) and 63 papers were accepted for poster presentation. The global acceptance ratio was less than 60% and the full paper acceptance ratio was 17%. Finally, a short list of about thirty papers has been selected to be included in a book that will be published by Springer with the best papers of ICINCO 2005.

In order to promote the development of research and to allow professional networking, the conference included a Workshop Dinner in the evening of September 13 (Tuesday), and a Conference Dinner in the evening of September 17 (Friday) in its social program.

Commitment to high quality standards is a major aspect of ICINCO that we will strive to maintain, including the quality of keynote lectures, number and quality of workshops, and paper acceptance ratios. Next year, ICINCO 2006 will be held in Setúbal, Portugal, from 1 to 5 August 2006. We look forward to seeing the sustained growth of the ICINCO scientific and professional community at the next conference.

Joaquim Filipe, Escola Superior de Tecnologia de Setúbal / INSTICC, Portugal