2010 No. 1 February Newsletter

Contents:

Analysis and Design of Hybrid Systems
3rd IFAC Conference
Zaragoza, Spain, September 16-18, 2009

ADHS is a series of triennial meetings that aims to bring together researchers and practitioners with background in control and computer science in order to provide a survey of the advances in the field of hybrid systems and of their ability to take up the challenge of analysis, design and verification of efficient and reliable control systems. ADHS'09 is the third Conference of this series after ADHS'03 in Saint Malo (France), and ADHS'09 in Alghero (Sardinia, Italy). The ADHS series follows the successful conference series on the Automation De Processus Mixed / Automation of Mixed Processes: ADPM'92 in Paris (France), ADPM'94 in Brussels (Belgium), ADPM'98 in Reims (France), ADPM'2000 in Dortmund (Germany). The continuity of the ADHS conferences is guaranteed by the IFAC Technical Committee on Discrete Event and Hybrid Systems (TC 1.3) which is the main technical sponsor of the series.

Out of 92 submissions, 66 papers were selected after a careful reviewing process during which each paper underwent three reviews. The high quality of the program is due to the authors of the submitted papers, to the members of the International Program Committee and to the referees who provided accurate and extensive reports.

From the 66 papers accepted 49 are from Europe, 6 from Latin America, 5.5 from US/Canada, 3 from Israel, 1.5 from China/Japan, 1 from North-Africa.

Three distinguished speakers were invited to give a one hour plenary talk during the conference. They are: **Eduardo F. Camacho** (ESI, University of Seville, Spain), whose talk was titled "Model Predictive Control for Hybrid Systems"; **Pieter Mosterman**, (Mathworks Inc., Boston USA) whose talk was titled "Towards Computational Hybrid System Semantics for Time-Based Block Diagram Modeling"; **Jan H. van Schuppen**, (CWI, Amsterdam, The Netherlands) whose talk was titled "Control of Piecewise-affine Hybrid systems on Polytopes". Summaries of these plenary talks can be found on the Conference website at
http://diisconf.cps.unizar.es/adhs09/

Seven invited sessions have timely put interesting new research topics into focus: **S. Dormido** and **A. Urquía** organized a session on "Industrial Applications of Hybrid System Modelling"; **L. Fridman** organized a session on "Homogeneous Higher Order Sliding Mode Finite Time Exact Control and Observation" and one session on

"VSS Methods for Control and Observations of Hybrid Systems"; **C. de Prada** organized a session on "Hybrid Industrial Control"; **Y. Wardi** organized a session on "Optimization of Hybrid Dynamical Systems"; **M.L. Bujorianu and J. Lygeros** organized a session on "Reachability Analysis of Hybrid Systems Under Uncertainty"; **C. Sonntag, S. Engell and D.A. van Beek** organized a session on "Model-Based Design of Hybrid Control Systems: Tools, Formalisms, And Tool Interconnection".

In the light of the reviews of IPC members and the recommendation of session chairs, 5 application-oriented papers were selected and their extended versions will be reviewed for possible inclusion in a special issue of Control Engineering Practice.

The Conference was sponsored by the Technical Committee on Discrete Event and Hybrid Systems (TC 1.3) and co-sponsored by: Technical Committee on Control Design (TC 2.1); Technical Committee on Manufacturing Plant Control (TC 5.1); Technical Committee on Fault Detection, Supervision & Safety of Technical Processes (TC 6.4)

101 participants from 21 different countries attended the Conference. Sessions were well attended, and all accepted papers were presented. The conference venue, the Paraninfo of the University of Zaragoza, is a beautiful historical building. The conference provided the opportunity for junior and senior researchers in Hybrid Systems to meet and exchange ideas and new results, and the comments received from participants were all positive, indicating that the conference was a success.

M. Silva, A. Giua, J. Zaytoon
ADHS'09 IPC Co-Chairs

Estimation and Control of Networked Systems
NECSYS
IFAC Workshop
Venice, Italy, 24-26 September, 2009

Networked systems are complex dynamical systems composed of a large number of simple systems interacting through a communication medium. These systems arise as natural models in many areas of engineering and sciences, such as in sensor networks, autonomous unmanned vehicles, industrial automation, biological networks, and cooperative aggregation and flocking.

These systems have been studied by different engineering disciplines, therefore the most innovative mathematical methods proposed in the last few years for the analysis and design of networked systems are scattered across different areas. The idea to organize the NECSYS workshop came during the 2008 IFAC World Congress in Seoul from the TC on Networked Systems. The aim was bring together researchers from control, computer science, communication, game theory, statistics, mathematics and other areas to discuss emerging topics in networked systems of common interest.

There were 10 invited speakers from different research areas, all of very high profile: from control to signal processing, from distributed optimization to communications, from robotics to computer science. The high quality of the event including the invited speakers and the 1-day mini-course was confirmed by the fact that almost 30% of the registered participants were not authors of any paper.

As a first event, almost all areas are emerging research directions in control theory and multi-agent systems. There is very much interest in these topics and we expect them to grow considerably in the next few years. The main message from this workshop is the convergence of many engineering areas for the study and understanding of large scale networked control systems; each area bringing in expertise and mathmatical tools to address some challenging problems.

In particular the workshop focused on the following thematic areas:

* Coordinated control and estimation over networks.
* Consensus problems.
* Multivehicle systems, flocking.
* Decentralized algorithms for computation over sensor networks.
* Randomized algorithms, gossip algorithms.
* Distributed and decentralized signal processing
* Decentralized and cooperative optimization
* Distributed and decentralized signal processing

The workshop was single track over two days of research presentations (24-25 Sep.) and one day of a mini-course (26 Sep.). The research presentations included 10 plenary talks by international experts and 4 interactive sessions of 15 contributed papers each. The slides for most of the plenary papers are available on the Workshop website at

http://www.necsys.org/

Overall this first edition of the workshop was very successful and attracted much interest. In fact more than 30% of the participants were not presenting papers and there were participants both from academia and industry.

K.H. Johansson IPC chair

Automation in the Mining, Mineral and Metal Industry - MMM 2009
IFAC Workshop
Vina del Mar, Chile, 14 -16 October, 2009

Opening Session of the MMM

225 delegates from 22 countries attended the IFAC MMM2009 International Workshop on Automation in the Mining, Minerals and Metal Industry, that was held on 14-16 October, 2009 in the Sheraton Miramar Hotel & Convention Center in Viña del Mar, Chile. Among the participants there were 119 delegates from industry and 38 from academia. Among other attendants were graduate students.

There were 5 plenary sessions on

Development and Competitiveness of Mining Business: Role of Innovation, by F. Costabal

Automatic Control in Mineral Processing Plants: An Overview, by D. Hodouin

Operational Variables and Networks for Remote an Autonomous Mining, by L. Mijica

Innovation Cycles of Innovative Automation Projects in the Mining Industry, by C. Maggi

Strategic Alignment of Automation Projects at Codelco, by F. Amiama

Abstracts and slides of the papers are available on the Workshop website at
   http://www.ifacmmm2009.com/

During the three days of the IFAC MMM2009 Workshop, the audience had the opportunity to attend more than 60 presentations on applications and development of technology, focusing on different aspects of automation practices in the mining, mineral and metal industry. About 35% of the papers were written by at least one author from the industrial sector, presenting industrial applications.

The variety of topics included, amongst others, strategic vision, state of the art review, advanced process control as well as the use of robotics, communications and teleoperations in the fields of mining, mineral and metal industry. The majority of the presented articles were published in the book of abstracts of the Workshop with the full version of the papers in the CD electronic version.

The main companies from the mining and metal sector, operating in the region, were present. This first version of the IFACMMM workshop in South America was a success and it was confirmed to be an international forum where professionals can meet and interact about innovations and recent developments related to automation applied in mining, mineral and metal processing.

Luis Bergh IPC chair

From Within the Secretariat

Those of you who have known IFAC for a long time, will also have met **Ms. Elfriede Schrott**, who worked at the Secretariat in the eighties. After she retired she remained in close contact with the members of the Secretariat and continued to have great interest in IFAC and its activities. This goes to show that IFAC is not just an organization, but a close-knit family, which is, nevertheless, always happy to welcome new members and to integrate those who are no longer active.

It is therefore with great sadness that we learned of the passing of Elfi Schrott on December 30, 2009. The members of the Secretariat and all those who knew her will keep her in fond memory.

The Tables of Contents of the IFAC Journals can be found respectively at

Automatica
http://www.elsevier.com/locate/automatica

Control Engineering Practice
http://www.elsevier.com/locate/conengprac

Engineering Applications of Artificial Intelligence
http://www.elsevier.com/locate/engappai

Journal of Process Control
http://www.elsevier.com/locate/jprocont

Annual Reviews in Control
http://www.elsevier.com/locate/arcontrol

Journal on Mechatronics
http://www.elsevier.com/locate/mechatronics

Title	2010	Place	Further Information
IFAC/ASHAE Conference Control Methodologies and Technology For Energy Efficiency (IFAC CMTEE 2010)	March 29 – 31	Vilamoura Portugal	http://www.cmtee.org/ e-mail: info@cmtee.org
8th ENIM/IFAC - Intl. Conference Modelling and Simulation – MOSIM 2010	May 10 – 12	Hammamet Tunisia	http://www.enim.fr/mosim10 e-mail: mosim10@enim.fr
IFAC Workshop Time Delay Systems – TDS 2010	June 07 – 09	Prague Czech Rep.	http://www.tds2010.fs.cvut.cz/ e-mail: tds2010@fs.cvut.cz
7th INSTICC/IFAC Intl. Conference Informatics in Control, Automation and Robotics – ICINCO 2010	June 15 – 18	Funchal Madeira, PT	http://www.icinco.org/ e-mail: icinco.secretariat@insticc.org
IEEE/IFAC Workshop Variable Structure Systems – VSS 2010	June 26 – 28	Mexico City Mexico	http://www.vss2010.unam.mx/ e-mail: gchair@unam.mx
IFAC Workshop Internet Based Control Education - (IBCE'10)	June 27 – 29	Orlando FL, USA	http:// not yet available e-mail: not yet available
American Control Conference - in cooperation with IFAC -	June 30 – July 02	Baltimore MD, USA	http://www.a2c2.org/conferences/acc2010/ e-mail: to be announced
IFAC Workshop Intelligent Manufacturing Systems -IMS 2010 in conjunction with	July 01 – 02	Lisbon Portugal	http://www.ims10.ipb.pt/ e-mail: ims2010@uninova.pt
IFAC Workshop Advanced Maintenance Engineering., Service and Technology - A-MEST	July 01 – 02	Lisbon Portugal	http://www.ims10.ipb.pt/ e-mail: ims2010@uninova.pt
IFAC Symposium DYnamics and COntrol of Process Systems - DYCOPS 2010	July 05 – 07	Leuven Belgium	http://www.dycops2010.org/ e-mail: to be announced
IFAC/(EFB) Symposium Computer Applications in Biotechnology - CAB 2010	July 07 – 09	Leuven Belgium	http://www.cab2010.org/ e-mail: to be announced
IFAC Symposium Large Scale Systems: Theory and Applications – LSS 2010	July 11 – 14	Villeneuve d'Ascq France	http://lss2010.ulbsibiu.ro/ e-mail: p.borne@ec-lille.fr
IFAC Symposium Advances in Automotive Control - IFAC- AAC 2010	July 12 – 14	Munich Germany	http:// www.vdi.de/aac2010. e-mail: ringelmann@vdi.de
IFAC Symposium Mining, Mineral and Metal Processing -IFACMMM2010	August 02 – 04	Cape Town South Africa	http://www.ifacmmm2010.com/index.html e-mail: info@ifacmmm2010.com
10th FISITA/IFACIntl. Symposium Advanced Vehicle Control - AVEC1	August 22 – 26	Loughborough UK	http://www.lboro.ac.uk/avec10 e-mail: Avec10@lboro.ac.uk
Latin American Control Conference LACC - in cooperation with IFAC -	August 24 – 27	Santiago Chile	www.acca2010.usach.cl e-mail: congreso.acca2010@usach.cl
IFAC Workshop Adaptation and Learning in Control and Signal Processing - ALCOSP 2010 in conjunction with	August 26 – 28	Antalya Turkey	http://www.ifacworkshops.org/ e-mail: ifacworkshops@boun.edu.tr
IFAC Workshop Periodic Control Systems – PSYCO 2010	August 26 – 28	Antalya Turkey	http://www.ifacworkshops.org/ e-mail: ifacworkshops@boun.edu.tr
IFAC Workshop Discrete Event Systems – WODES 2010	August 30 September 1	Berlin Germany	http://www.wodes2010.org/ e-mail: info@wodes2010.org
IFAC Symposium Analysis, Design, and Evaluation of Human-Machine Systems- HMS	August 31 – Sept. 03	Valenciennes France	http://www.univ-valenciennes.fr/IFACHMS2010/ e-mail: contact-ifachms2010@univ-valenciennes.fr
IFAC Symposium Nonlinear Control Systems - NOLCOS 2010	September 01 – 03	Bologna Italy	http://www.nolcos2010.unibo.it/ e-mail: nolcos2010@morettieventi.it
IFAC Symposium Cost Oriented Automation – COA 2010	September 01 – 03	Prague Czech Rep.	http://ifac.cz/coa/ e-mail: richard@susta.cz
IFAC Symposium Intelligent Autonomous Vehicles - IAV 2010	September 06 – 08	Lecce Italy	http://iav2010.unile.it/ e-mail: iav2010@unile.it
IFAC Symposium Automatic Control in Aerospace - ACA 2010	September 06 – 10	Nara Japan	http://www.space.t.u-tokyo.ac.jp/aca2010 e-mail: ifac-office@space.t.u-tokyo.ac.jp
IFAC Conference Management and Control of Production and Logistics – MCPL-2010	September 08 – 10	Coimbra Portugal	http://www.dei.uc.pt/MCPL2010 e-mail: mcpl2010@dei.uc.pt

CALL FOR NOMINATIONS
FOR
THE HAROLD CHESTNUT CONTROL ENGINEERING TEXTBOOK PRIZE

The Harold Chestnut Control Engineering Textbook Prize Selection Committee of the International Federation of Automatic Control (IFAC) calls for nominations for the Triennial Harold Chestnut Prize

The Prize is awarded to the author(s) of a control engineering textbook that has most contributed to the education of control engineers. The Prize, consisting of a monetary award and a certificate, will be presented at the Closing Ceremony of the 18th IFAC World Congress that will be held in Milano, Italy in 2011.

To be considered, nominations must relate to books that are:

1. written in one of the official IFAC languages, preferably in English; and
2. published between September 1, 2002 and July 31, 2008.

Nominations should include:

a) A nomination letter that states the full title, name(s) and address of the author(s), name of the textbook, date of publication, and name and address of the publisher;
b) Evidence of the contribution/s of the textbook to the education of control engineers; and
c) Any additional information that may support the Judging Process, as per the selection criteria listed below. It is important to note that only those book reviews in IFAC journals (Automatica, Control Engineering Practice, Engineering Applications of Artificial Intelligence, Journal of Process Control, Mechatronics), IFAC affiliated journals, journals of IFAC NMOs, and other reputable academic journals (e.g. IEEE transactions) will be considered.

All nominations will be evaluated using the selection criteria:

• Originality and innovation
• General content in terms of the topics covered
• Clear applications to real problems
• Style: presentation, readability and clarity in relation to the content
• Meeting educational objectives:
    - Clear statement of what students should be able to do
    - Worked examples and exercises
    - Software support
    - Multi-disciplinary examples (cross-boundary applications of control)
    - Use by practicing engineers

To be considered

nominations must be received by close of business on September 30, 2010

Only submissions on a CD (containing word, pdf, html, excel, power point and/or image files) will be accepted. Please note that all the supporting evidence should also be presented in electronic format and stored on the submitted CD.

If the Prize-winning textbook is written by more than one author, the monetary component of the Prize will be equally split among the authors with each author receiving a certificate. The winner(s) will be notified well in advance, to allow them to plan their attendance at the Award Ceremony to be held during the 18th IFAC World Congress, Milano, Italy in 2011.

Please submit nominations to:

Bozenna Pasik-Duncan, Professor
Chair, IFAC Harold Chestnut Control Engineering Textbook Prize Committee
Department of Mathematics, University of Kansas
1460 Jayhawk Boulevard
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http://www.ifac-control.org/awards/harold-chestnut-control-engineering-textbook-prize

FORTHCOMING EVENTS (ctd.)

IFAC Symposium Mechatronic Systems	September 13 – 15	Boston, MA USA	https://engineering.purdue.edu/IFACMech10/ e-mail: paden@engr.ucsb.edu
IFAC Symposium System Structure and Control	September 15 – 17	Ancona Italy	http://leibniz.diiga.univpm.it/SSSC10/ e-mail: to be announced
IFAC Conference Control Applications in Marine Systems - CAMS2010	September 15 – 17	Rostock Germany	www.cams2010.uni-rostock.de (to be conf) e-mail: to be announced
IFAC Symposium Telematics Applications – TA'2010	October 05 – 08	Timisoara Romania	http:// www.upt.ro/ta2010 e-mail: office.ta2010@aut.upt.ro
IFAC Workshop Programmale Devices and Embedded Systems - PDeS	October 06 – 08	Pszczyne Poland	http://pdes.polsl.pl/ e-mail: pdes@polsl.pl
IFAC Workshop (4th) Fractional Differentiation and its Applications – FDA'10	October 18 – 20	Badajoz Spain	http://ees.fberg.tuke.sk/fda10 e-mail: fda10@tuke.sk
IFAC Conference Modelling and Control in Agriculture, Horticulture and Post-Harvest Processing – AGRICONTROL 2010	December 06 – 08	Kyoto Japan	http://elam.kais.kyoto-u.ac.jp/agricontrol2010/ e-mail: agrictrl@energy.kais.kyoto-u.ac.jp
Title	**2011**	**Place**	**Further Information**
IFAC WORLD CONGRESS – 18th Milano 2011	August 28 – Sept. 02	Milan Italy	http://www.ifac2011.org/ e-mail: info@ifac2011.org