



2004
No. 3
June

International Federation of Automatic Control

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IFAC Journals

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

Automatica

<http://www.elsevier.com/wps/find/journaldescription.librarians/270/description>

Control Engineering Practice

<http://www.elsevier.com/wps/find/journaldescription.librarians/123/description>

Engineering Applications of Artificial Intelligence

<http://www.elsevier.com/wps/find/journaldescription.librarians/975/description>

Journal of Process Control

<http://www.elsevier.com/wps/find/journaldescription.librarians/30445/description>

Annual Reviews in Control

<http://www.elsevier.com/wps/find/journaldescription.librarians/429/description>

Intelligent Assembly and Disassembly – IAD03

IFAC Workshop

Bucharest, Romania, 9 – 11 October, 2003

Rapid development observed in modern production is firmly connected with the development of new assembly and disassembly systems. Fast changes of products and short development times of new products are demanded, development of reliable, fast adaptable and self teaching assembly systems can be observed. Important fields of product development such as product design, development of planning systems, simulation and modelling, logistics, mechatronics, and sensors, development of new assembly system components as well as collecting and processing of knowledge are essential for the development of new intelligent assembly systems (IAS).

The aim of the IFAC Workshop Intelligent Assembly and Disassembly (IAD'03), held in Bucharest on October 9–11, 2003, was to highlight these issues, show the actual results of the research and development work, set the direction of future development and analyse the possibility of introducing IAD into production processes.

Topics included, being not limited to, the following areas: (i) Design for assembly and disassembly; (ii) Planning systems and methods; (iii) Robotized assembly and disassembly; (iv) Logistics; (v) Applications (with special emphasis on SMEs); (vi) Deproduction problems; (vi) Virtual reality for assembly and disassembly; (vii) Internet-based assembly and disassembly.

From 48 papers received, 36 were accepted for oral presentation. Three plenary papers were presented by: Guenther Schmidt from the Technical University of Munich, Marco Ceccarelli from the University of Cassino, Dragica Noe from the University of Ljubljana and Peter Kopacek from the Vienna Technical University. The geographic distribution of accepted papers was: PR China 2, USA 1, Romania 18, France 7, Spain 3, Japan 1, Germany 1, Austria 2, Italy 2, and Slovenia 2.

Regular papers were presented in seven Technical Sessions:

- Disassembling Planning and Optimization
- Agile Manufacturing and Integrated Logistic Systems
- Robotics Solutions for Assembly and Disassembly
- Non-Destructive Disassembly for Demanufacturing. Manufacturing Control Applications

- Vision Systems in Assembling Processes
- High Accuracy, Robotized Assembly
- Multi-Agent Assembling Systems. Educational Systems in Manufacturing Assembly

The quality of the papers was good, they highlighted issues in research and implementing, revealed the trends in assembly and disassembly techniques, and analysed the possibilities of future introduction of intelligent assembly techniques, mainly based on advanced information technologies, into flexible manufacturing. A significant number of papers were strongly related to manufacturing practice and developments, being of real relevance for industry.

The organisers of the IAD'03 event have planned the workshop such that the participants met in a panel of significant scientific and technical discussions, renewed professional contacts, and strengthened their technical expertise. The social and cultural events were chosen to give the authors the opportunity to exchange ideas in beautiful historical and cultural sites of Romania like the Royal Palace of Cotroceni – Bucharest or the King's Castle of Peles – Sinaia.

The National Organizing Committee worked hard to put together an outstanding workshop program, for which we are grateful. We extend our gratitude to the distinguished plenary speakers, and thank all authors and attendees for their support and participation. We believe that IAD'03 was an important event for future development of assembly/disassembly technologies.

Theodor Borangiu, Peter Kopacek

IPC Chairs

Impressum:

Medieninhaber und Herausgeber:
International Federation of Automatic Control (IFAC),
Zurich
Schlossplatz 12, A-2361 Laxenburg, Austria

Verlagsort und Redaktion:
Dipl.Ing. Dr. Gusztáv Hencsey
Schlossplatz 12, A-2361 Laxenburg

Hersteller:
Artur Schefczik & Sohn
August-Reuss-Gasse, A-1130 Wien

Editor: Gusztáv Hencsey
Layout: Ernestine Rudas
published bimonthly

New Technologies for Automation of the Metallurgical Industry

IFAC Workshop

Shanghai, China, October 11–13, 2003

The IFAC Workshop on New Technologies for Automation of Metallurgical Industry was held in Shanghai, China, October 11-13, 2003. This Workshop was sponsored by the IFAC Technical Committee on Automation in Mining Mineral and Metal Processing and co-sponsored by the IFAC Technical Committees on Cost Oriented Automation and on Developing Countries. The Workshop was organized by the Dalian University of Technology and the Shanghai Baosight Software Company, Ltd, China, on behalf of the Chinese Automation Association. The Workshop was supported by the National Natural Science Foundation of China.

The International Program Committee (IPC) of the Workshop received 96 paper contributions. The 72 selected papers and 4 invited plenary papers constitute the preprints. In the preprints, 34 papers are from China and 42 papers from other countries, 57 papers are from universities and institutes, 7 papers are from software/automation companies (4 from China), 8 papers are from Industry (3 from Japan, 2 from China, 2 from Korea, 1 from Canada).

The workshop aimed at providing researchers and engineers with a forum for reporting on recent technological and methodological developments, and their applications in automation in the metallurgical industry, in order to meet the challenges set by complex industrial process measurement, modeling, control, scheduling, management and optimization.

The workshop brought together 88 experts from 14 countries to share the state-of-the-art in new automation technologies for the metallurgical industry. The 76 papers included in Preprints covered both the latest theoretical aspects of control methods and technique development, as well as their applications in the metallurgical industry. The presented papers will be printed in a Proceedings by Elsevier Ltd.

The four plenary papers were given by leading experts in the field.

- 1) Development of the Iron and Steel Industry in Korea, Prof. Sang Chul Won (Pohang University of Science and Tech., Korea)
- 2) Industrial IT for Cold Rolling Mills: The Next Generation of Automation Systems and Solutions, Mr. Thomas Hoernfeldt (ABB Process Industries, Germany)
- 3) Integrated Automation Systems for Minerals Processing, Prof. Tian You Chai (Northeastern University, China)
- 4) The Information Integration Techniques in Metallurgical Industry Automation of China, Dr. Li Qun Cong (Shanghai Baosight Software Co. Ltd, China).

The 16 technical sessions of the workshop are given below.

- 3 Hot Rolling
- 2 Cold Rolling
- 2 Iron Making
- 1 Casting
- 1 Flotation
- 1 Steel Making
- 1 Scheduling and Optimization
- 1 Fault Analysis and Monitoring
- 1 Measurement and Instrumentation

- 1 Process Control Systems and Control Algorithms
- 1 Speed Control
- 1 Miscellaneous

The papers covered both the latest theoretical aspects of control methods and technique development as well as their applications in the metallurgical industry.

A half-day industrial field trip to Shanghai Baoshan Iron & Steel Co. Ltd was arranged during the workshop. The Shanghai Baoshan Iron & Steel Co. Ltd is the largest Iron and Steel enterprise in China.

In general, the organization work of this workshop was excellent. Although we did not conduct a formal evaluation, comments we received from participants were all positive. The workshop was a success!

Le Jiang Xu, Chair of the NOC
Wei Wang, Vice-Chair of NOC
Sirkka-Liisa Jämsä-Jounela, Chair of the IPC
Sang Chul Won, Chair of the TC 6.2 on Mining, Mineral and Metal Processing



A Journal of **IFAC** the International Federation of Automatic Control

Engineering Applications of Artificial Intelligence

Special Issue on

Intelligent Control and Signal Processing

Guest Editors:

R.A. Vingerhoeds and B. Grabot

Adaptive Forecasting of Irregular Demand Processes

J.L. Carmo, A.J. Rodrigues
A Mixture Density Network Approach to Modelling and Exploiting Uncertainty in Nonlinear Control Problems

R. Herzallah, D. Lowe
Evolving the Neural Network Model for Forecasting Air Pollution Time Series

H. Niska, T. Hiltunen, A. Karppinen, J. Ruuskanen, M. Kohlemainen

Strip-packing Using Hybrid Genetic Approach

L.H.W. Yeung, W.K.S. Tang
Multi-agent Learning for Routing Control within an Internet Environment

P.R.J. Tillotson, Q.H. Wu, P.M. Hughes
Robust Robot Control Enhanced by a Hierarchical Adaptive Fuzzy Algorithm

H. Emara, A. Latif Elshafei
Comparing Learning Classifier Systems and Genetic Programming: A Case Study

S. Sette, B. Wyns, L. Boullart
Prediction of Arthritis Using a Modified Kohonen Mapping and Case Based Reasoning

B. Wyns, L. Boullart, S. Sette, D. Baeten, I. Hoffmann, F. De Keyser

Automated Systems Based on Human Skill and Knowledge

IFAC Symposium (8th)

Göteborg, Sweden, Sept 22–24, 2003

The symposium was held in Göteborg, a beautiful city of 400 000 inhabitants at the West coast of Sweden. The City is characterized by the big port and you can see and feel the North Sea close by. It is a friendly city, and you feel welcome and relaxed. Chalmers University of Technology is situated very close to the center. The facilities offered to the symposium were excellent, technology worked properly. Only once did the equipment for the power point presentations fail but the speaker was well prepared and he immediately continued with his overhead transparencies. No interruption in the presentation!

The contents of the presented papers were up to date with the latest technologies and the human aspects were related in a very relevant way. They covered the following areas:

1. Prof. Lena Mårtensson, Assoc. Prof. Johan Stahre
Skill and role development in industrial processes
2. Prof. Gudela Grote
Uncertainty Management as the Core of System Design
3. Prof. Erik Hollnagel
The Role of Automation in Joint Cognitive Systems

Technical sessions

1. Human and System Interaction
2. Intelligent Manufacturing Systems (also IMS-NoE)
3. Ethical and Educational Aspects of Automation
4. Planning and Disturbance Handling in Automated Systems
5. Human Impact of Automation in Transportation and Vehicle Systems
6. Levels of Automation and Human Supervisory Control
7. Human Impact on Virtual Environments
8. Knowledge Management and Networks
9. Complex System Modelling and Design
10. Emerging Issues in Social Impact of Automation

The final speaker, Prof Erik Hollnagel presented a new term: joint cognitive systems, which he argued for as a replacement to the general term human-centered automation.

The high standard of the papers was very much appreciated and so were the industrial visits to the Volvo Car Corporation and to the Sahlgrenska University Hospital. Industrial visits are common at IFAC symposia but a hospital is a new arena for IFAC meeting attendees. We were very well received by the chief anaesthetist of the hospital, who happened to be the wife of the NOC chair! Dr. and Mrs Stahre showed us the emergency wards with all their technology and we were given a comprehensive picture of the shortcomings of some of the equipment.

The symposium dinner held at an island outside Göteborg was another highlight. We were entertained by a small choir from the university, who sang sailor songs, very suitable to the environment.

Lena Martensson
IPC Chair



FORTHCOMING EVENTS

2004
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| Title | 2004 | Place | Further Information |
|---|--------------------------------|--------------------------|---|
| IFAC Symposium Automatic Control in Aerospace | June 14 – 18 | St. Petersburg Russia | http://aca2004.aanet.ru e-mail: aca2004@aanet.ru |
| IFAC Symposium Telematics Applications in Automation and Robotics – TA 2004 | June 21 – 23 | Helsinki Finland | http://www.automaatioseura.fi/TA04 e-mail: office@atu.fi |
| American Control Conference – in co-operation with IFAC – | June 30 – July 2 | Boston MA, USA | http://www.mie.uiuc.edu/acc2004/ e-mail: speyer@seas.ucla.edu |
| IFAC Symposium Intelligent Autonomous Vehicles – IAV 2004 | July 5 – 7 | Lisbon Portugal | http://iav04.isr.ist.utl.pt e-mail: iav04@isr.ist.utl.pt |
| IFAC Symposium Dynamics and Control of Process Systems – DYCOPS-7 | July 5 – 7 | Cambridge MA, USA | http://www.dycops.org/ e-mail: craven@dycops.org |
| IFAC Conference Control Applications in Marine Systems – CAMS 2004 | July 7 – 9 | Ancona Italy | http://cams04.unian.it e-mail: cams04@unian.it |
| IFAC Workshop Fractional Differentiation and its Applications – FDA '04 | July 19 – 20 | Bordeaux France | http://www.lap.u-bordeaux.fr/fda04/home.html e-mail: fda04@lap.u-bordeaux.fr |
| Asian Control Conference (5th) – in co-operation with IFAC – | July 20 – 23 | Melbourne Australia | http://www.ascc2004.com/ e-mail: ascc@ee.mu.oz.au |
| IFAC Symposium Large Scale Systems: Theory and Applications | July 26 – 28 | Osaka Japan | http://www-watt.mech.eng.osaka-u.ac.jp/lss2004/ e-mail: ifac-lss04@watt.mech.eng.osaka-u.ac.jp |
| INSTICC/IFAC Intl. Conference Informatics in Control, Automation and Robotics – ICINCO 2004 | August 25 – 28 | Setubal Portugal | http://www.icinco.org e-mail: secretariat@icinco.org |
| IFAC Workshops on – Adaptation and Learning in Control and Signal Processing – ALCOSP – Periodic Control Systems – PSYCO | August 30 – September 1 | Yokohama Japan | http://www.contr.sd.keio.ac.jp/ifacws04/main.htm e-mail: sano@sd.keio.ac.jp e-mail: katayama@amp.i.kyoto-u.ac.jp |
| IFAC Symposium 6 th Nonlinear Control Systems – NOLCOS'04 | September 1 – 3 | Stuttgart Germany | http://www.nolcos2004.uni-stuttgart.de e-mail: nolcos2004@ist.uni-stuttgart.de |
| IFAC Multitrack Conference Advanced Control Strategies for Social and Economic Systems | September 2 – 4 | Vienna Austria | http://www.ihurt.tuwien.ac.at/acs04/ e-mail: kopacek@ihrt.tuwien.ac.at |
| IFAC Workshop Internet Based Control Education – IBCE'04 | September 6 – 7 | Grenoble France | http://ibce.lag.ensieg.inpg.fr e-mail: ibce@inpg.fr |
| IFAC Symposium Mechatronic Systems | September 6 – 8 | Sydney Australia | http://rumi.newcastle.edu.au/mech2004/ e-mail: kdisney@mail.newcastle.edu.au |
| IFAC Workshop Real Time Programming – WRTP 2004 | September 6 – 8 | Istanbul Turkey | http://http://www.enre.umd.edu/iwss2004/ e-mail: Jose.Hurtado@umd.edu |
| IFAC/(IFIP/IFORS/IEA) Symposium 9 th Analysis, Design, and Evaluation of Human-Machine Systems – HMS 04 | September 7 – 9 | Atlanta GA, USA | http://www.isye.gatech.edu/IFAC-HMS2004 e-mail: sheila.devezin@isye.gatech.edu |
| IFAC Workshop 5th Time Delay Systems | September 8 – 10 | Leuven Belgium | http://www.cs.kuleuven.ac.be/conference/tds04/ e-mail: tds04@cs.kuleuven.ac.be |
| IFAC Symposium 11 th Automation in Mining, Mineral and Metal Processing – MMM 2004 | September 8 – 10 | Nancy France | http://www.cran.uhp-nancy.fr/ifac-mmm2004/ e-mail: mmm2004@cran.uhp-nancy.fr |
| IFAC Workshop 2 nd Advanced Fuzzy/Neural Control | September 16 – 17 | Oulu Finland | http://www.ntsat oulu.fi/ e-mail: office@atu.fi |

FORTHCOMING EVENTS (ctd.)

| Title | 2004 | Place | Further Information |
|--|----------------------------|----------------------------------|---|
| IFAC Workshop Discrete Event Systems | September 22 – 24 | Reims France | http://www.univ-reims.fr/wodes04 e-mail: wodes04@univ-reims.fr |
| IFAC Workshop Generalized Solutions in Control Problems GSCP-2004 | September 24 – 26 | Pereslavl- Zalessky Russia | http://www.botik.ru/PSI/CPRC/GSCP2004 e-mail: gscp@cprc.botik.ru |
| IFAC Workshop Modelling and Control for Participatory Planning and Managing Water Systems | Sep. 29 – Oct. 1 | Venice Italy | http://www.elet.polimi.it/IFAC_TC_Environment/Venice2004 e-mail: venice2004@elet.polimi.it |
| IFAC Workshop Automatic Systems for Building the Infrastructure in Developing Countries: Regional and Global Aspects (DECOM–TT) | October 3 – 5 | Bansko Bulgaria | http://hsi.iccs.bas.bg/decom04/ e-mail: decom04@hsi.iccs.bas.bg |
| SCS/IFAC Conference Advances in Vehicle Control and Safety – AVCS | October 28 – 31 | Genova Italy | http://www.liophant.org/i_m_scs/i3m2004/avcs/ e-mail: rachid@u-picardie.fr |
| IFAC Conference Management and Control of Production and Logistics – MCPL-2004 | November 2 – 5 | Santiago Chile | http://www.uamericas.net/MCPL2004 e-mail: mcpl@uamericas.cl |
| IFAC Workshop Programmable Devices and Systems PDS-2004 | November 18 – 19 | Cracow Poland | http://pds2004.iele.polsl.gliwice.pl e-mail: pds2004@iele.polsl.gliwice.pl |
| IFAC Workshop Intelligent Assembly and Disassembly – I A D'2004 | November 18 – 20 | Vienna Austria | http://www.ihrt.tuwien.ac.at/iad04/ e-mail : han@ihrt.tuwien.ac.at |
| IFAC Symposium System Structure and Control | December 8 – 10 | Oaxaca Mexico | http://sssc04.cinvestav.mx e-mail: jtorres@cinvestav.mx |
| Title | 2005 | Place | Further Information |
| American Control Conference – in co-operation with IFAC – | June 8 – 10 | Portland OR, USA | http://www.ee.washington.edu/conf/acc2005/ e-mail: SJayasuriya@mengr.tamu.edu |
| 16TH IFAC WORLD CONGRESS | JULY 4 – 8 | PRAGUE CZ | http://www.ifac.cz |
| Title | 2006 | Place | Further Information |
| IFAC Symposium System Identification – SYSID 2006 | April | Newcastle Australia | http:// not yet available e-mail: not yet available |
| IFAC Symposium 7th Advances in Control Education | June 16 – 18 | Madrid Spain | http:// not yet available e-mail: not yet available |
| IFAC Symposium 5 th Robust Control – ROCOND | July 5 – 7 | Toulouse France | http:// not yet available e-mail: arzelier@laas.fr |
| 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 6 – 8 | Bologna Italy | http: not yet available e-mail not yet available |
| IFAC Symposium Mechatronics Systems | September 12 – 14 | Wiesloch Germany | http:// not yet available e-mail: not yet available |
| IFAC 50th Anniversary Celebration Present and Future of Automatic Control | September 15 | Heidelberg Germany | |
| IFAC Symposium 6th Modelling and Control of Biomedical Systems | September 20 – 22 | Reims France | http: not yet available e-mail not yet available |