

CSCS-18
18th INTERNATIONAL CONFERENCE ON
CONTROL SYSTEMS AND COMPUTER
SCIENCE

May 24-27, 2011
University POLITEHNICA of Bucharest

PROGRAMME

18th INTERNATIONAL CONFERENCE ON CONTROL SYSTEMS AND COMPUTER SCIENCE

CSCS-18 is the 18th biennial conference to be held at *Politehnica University of Bucharest*, Bucharest, Romania, from 24 to 27 May 2011. The accepted papers and scientific topics reflect the aims of the Conference. It consists of specialized sections dedicated to major topics in theory and applications of systems science and computer science. At this edition 1 international workshop and 8 Invited Sessions are organized.

WORKSHOP: The 5th International Symposium on "Interdisciplinary Approaches in Fractal Analysis", *Workshop Chair*: Prof. Radu Dobrescu

INVITED SESSIONS:

- **Large Scale Distributed Systems**, *Session Chairs*: Prof. Nicolae Tapus, Prof. Valentin Cristea
- **Cyber-Physical Systems**, *Session Chair*: Prof. Ioan Dumitrache
- **Intelligent Agents and Multi-Agent Systems**, *Session Chairs*: Prof. Adina Florea
- **Industrial Process Control**, *Session Chairs*: Prof. Dumitru Popescu, Prof. Pierre Borne
- **Service Oriented Models for Intelligent Process Management**, *Session Chairs*: Dr. Wei-Tek Tsai, Prof. Serban Petrescu
- **Modern Power System Control**, *Session Chairs*: Prof. Sergiu Iliescu, Prof. Ioana Fagarasan
- **Environment process control**, *Session Chair*: Prof. Costica Nitu
- **Computer Graphics, Computer Vision and Virtual Reality**, *Session Chair*: Prof. Florica Moldoveanu

ORGANIZERS

CSCS-18 International Conference is organized by:

- Romanian Society of Control Engineering and Technical Informatics (SRAIT)
- Faculty of Automatic Control and Computers, University *POLITEHNICA* of Bucharest
- Romanian Academy – "Information Science and Technology" Section
- IEEE Region 8

INTERNATIONAL PROGRAMME COMMITTEE

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Bogdan Hanchevici	Călin Munteanu	George Milescu

CONFERENCE WEB-SITE

<http://cscs18.ncit.pub.ro>

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cscs18@aut.pub.ro

CSCS-18 TIMETABLE

Thursday, May 24, 2011

14.00 – 17.00 Registration

Wednesday, May 25, 2011

08.30 – 17.30 Registration
09.00 – 09.30 Opening Ceremony (EC105)
09.30 – 10.30 Invited Paper (Plenary Session, EC105)
10.30 – 11.00 Coffee break
11.00 – 13.00 Conference sessions
13.00 – 14.30 Lunch.
14.30 – 15.30 Invited Paper (Plenary Session, EC105)
15.30 – 17.30 Conference sessions
19.00 Cocktail Party

Thursday, May 26, 2011

08.30 – 18.00 Registration
08.30 – 09.30 Invited Paper (Plenary Session, EC105)
09.30 – 10.00 Coffee break
10.00 – 12.00 Conference sessions
12.00 – 13.30 Lunch
13.30 – 15.30 Conference sessions
15.30 – 16.00 Coffee break
16.00 – 18.00 Conference sessions
20.00 Conference Dinner

Friday, May 27, 2011

08.30 – 18.00 Registration
08.30 – 09.30 Invited Paper (Plenary Session, EC105)
09.30 – 10.00 Coffee break
10.00 – 12.00 Conference sessions
12.00 – 13.30 Lunch
13.30 – 15.30 Conference sessions
15.30 – 17.00 Round Table and Closing Ceremony

Invited Papers

Challenges in the Control of Cyber-Physical Systems

Prof. Pedro Albertos

Instituto Universitario de Automática e Informática Industrial
Universitat Politècnica de València, Spain

Abstract: A cyber-physical system integrates computing, communication and storage capabilities within entities in the physical world. Traditionally, control designers and real-time computer and telecommunication experts work separately. The first conceive the control algorithms based on the required performance and the process knowledge, regardless their subsequent implementation, whereas the computer expert deal with the control code without paying much attention to the impact of the code execution in the control performance and the communication experts provide the link, assuming data accessibility and validity. But they are interlaced and the full design should be jointly treated, mainly if the control tasks share resources with some other activities and these resources are limited. In this talk, the real-time control design and implementation will be reviewed, mainly from the control perspective. Global requirements in control applications in time critical environments, such as automobile, aerospace or flight control, where multiple interactive control loops are implemented, are reviewed. Special attention is devoted to new and widespread control scenarios where the controller is not anymore implemented in a full dedicated computer without resources constraints, but sharing and competing for computing, storage and communication facilities with several other tasks. Embedded control systems, networked control systems and event-based control systems challenge the design of the control and its implementation where architectural issues play a relevant role in the controlled system performance. Some key concepts interacting with both, the control performance and the control implementation, such as the control effort or the control kernel are emphasized and some general directions in the co-design are summarized.



Pedro Albertos, past president of IFAC (the International Federation of Automatic Control) in 1999-2002, IFAC Fellow, IFAC Advisor and Senior Member of IEEE, is a world recognized expert in real-time control, leading several projects in the field. Full Professor since 1975, he is currently at Systems Engineering and Control Dept. UPV, Spain. He is Doctor Honoris-Causa from Oulu University (Finland) and Bucharest Polytechnic (Rumania). Invited Professor in more than 20 Universities, he delivered seminars in more than 30 universities and research centres. Authored over 300 papers, book chapters and congress communications, co-editor of 7 books and co-author of “Multivariable Control Systems” (Springer 2004) and “Feedback and Control for Everyone” (Springer 2010), he is also

associated editor of Control Engineering Practice and Automatica and Editor in Chief of the Spanish journal RIAI. His research interest includes multivariable control and non-conventional sampling control systems, with focus on time delays and multirate sampling patterns.

Scalable Nonlinear Model Predictive Control for Energy Applications

Mihai Anitescu, Ph.D.

Argonne National Laboratory, Mathematics and Computer Science Division

Abstract: Optimal control of nationally critical complex energy systems such as the power electric grid requires the treatment of large-scale interconnected sub-systems in the presence of multiple sources of uncertainty. For complex energy systems, the source of uncertainty can be incomplete information or reductive modeling of weather conditions, consumer demand, market prices, etc. In this work we investigate scalable approaches for one framework for control under uncertainty:

stochastic programming (SP) with recourse. Our methodology relies on approximating the underlying uncertainty of the stochastic problem via sampling, and solving the corresponding sample average approximation (SAA). To that end, we developed PIPS: an interior-point method with a specialized linear algebra layer that solves the stochastic programming problems that appear in rolling horizon nonlinear model predictive control of energy dispatch. We address scalability bottlenecks by using a specialized preconditioning technique and dense massively parallel linear algebra. We demonstrate the scalability of the approach for up to 2 billion variables on 130000 cores on the Argonne BG/P “Intrepid” supercomputers for an energy dispatch problems over the Midwestern United States. We will discuss remaining theoretical and practical challenges.



Dr. Animescu has obtained his Engineer (M.Sc.) Diploma in electrical engineering from the University POLITEHNICA of Bucharest in 1992 and his Ph.D. degree in applied mathematical and computational sciences from the University of Iowa in 1997. Between 1997 and 1999 he was the Wilkinson fellow in computational science in the Mathematics and Computer Science Division at Argonne National Laboratory. Between 1999 and 2002 he was an assistant professor of mathematics at the University of Pittsburgh, where he is currently an adjunct associate professor. Since 2002, he has been a Computational Mathematician in the Mathematics and Computer Science Division at Argonne National Laboratory. Since 2009, he is a professor (part-time) in the Department

of Statistics at the University of Chicago. Dr. Animescu is a Senior Editor for Optimization Methods and Software and a member of the editorial boards of Mathematical Programming series A, Mathematical Programming series B, SIAM Journal on Optimization and SIAM Journal on Scientific Computing. He is the vice-president of the SIAM Activity Group in Optimization. He is a past organizer of the SIAM Annual Meeting and International Symposium on Mathematical Programming. He is the author of more than 80 papers in scholarly journals and conference proceedings, on numerical optimization, numerical analysis, computational mathematics and their applications.

Toward a Computational Theory of Evidence-based Reasoning

Prof. Gheorghe Tecuci

Learning Agents Center and Computer Science Department

George Mason University

Abstract: Evidence-based reasoning is at the core of many problem solving and decision making tasks in a wide variety of domains. Through abductive reasoning we generate hypotheses from our observations; through deductive reasoning we use our hypotheses to generate new lines of inquiry and discover new evidence; and through inductive reasoning we test our hypotheses with the discovered evidence. These processes, which integrate imaginative and critical reasoning, are often stunningly complex because our evidence is incomplete, inconclusive, ambiguous, dissonant, and with various degrees of believability. We present research performed in the Learning Agents Center of George Mason University on developing a Computational Theory of Evidence-based Reasoning viewed as mixed-initiative integration of evidence in search of hypotheses, hypotheses in search of evidence, and evidential tests of hypotheses, all taking place simultaneously, in a world that is changing all the time. This theory is embedded in the Disciple cognitive agents that are capable of capturing tacit knowledge from subject matter experts, and can act as assistants to experts, as expert consultants to non-experts, or as intelligent tutors to students. We illustrate the applications of these agents in various domains, including intelligence analysis, cyber security, and inquiry-based learning in natural sciences.



Gheorghe Tecuci is Professor of Computer Science in the Volgenau School of Engineering and Director of the Learning Agents Center at George Mason University. He is also Visiting Professor and former Chair of Artificial Intelligence at the US Army War College. Dr. Tecuci has followed a career-long interest in the development of a computational theory and technology which allows non-computer scientists to develop cognitive agents that incorporate their problem solving expertise, and can act as problem-solving and decision-making assistants to experts, as expert consultants to non-experts, or as intelligent tutors to students. He has published over 175 papers with contributions to new research areas, particularly Multi-strategy Learning, Instructable Agents, and Computational Evidence-Based Reasoning. He was elected member of the Romanian Academy and received several awards, including the “Traian Vuia” Prize for research excellence on learning systems, the US Army Outstanding Civilian Service Medal ("for groundbreaking contributions to the application of Artificial Intelligence to Center of Gravity determination"), the lifetime IT&E Outstanding Research Faculty Award, the Best Paper Award at the International Conference on Intelligent Tutoring Systems, and the Deployed Application Award from the Association for the Advancement of Artificial Intelligence.

Multi-Agent Systems meets Ambient Intelligence

Prof. Amal El Fallah Seghrouchni

Laboratoire d'Informatique de Paris 6

University Pierre and Marie Curie, France

Abstract: Intelligent agents and multi-agent systems (MAS) play an important role in today's software development. Indeed, they provide an interesting paradigm to build distributed intelligent systems and offer a relevant abstraction to design complex applications. In particular, the autonomy and cognitive skills of agents help significantly to design autonomous systems. Since almost two decades, the MAS community has developed a large and rich panel of concepts, architectures, interaction techniques, and general approaches to the analysis and the specification of MAS. The aim of this presentation is to emphasise the main features of MAS programming and to highlight some of their links with artificial intelligence, distributed systems and software engineering. This talk will also present an overview of agent oriented programming languages. It then shows how our CLAIM language can be used in the context of ambient intelligent applications.



Amal El Fallah Seghrouchni is Professor at the University Pierre and Marie Curie (Paris 6 – France). She is researcher at LIP6 laboratory where she heads the Multi-Agent Systems team. She is currently delegated at the CNRS and on extended mission at Thales Airbone Systems. Her research area is “Analysis, Design and Validation of Multi-Agent Systems”. Her main topics of interest are multi-agent planning, coordination, and agent oriented programming languages. Since 2008, she is interested in ambient intelligence and pervasive computing as a challenging domain to deploy cognitive multi-agent systems (MAS). She published several papers related to MAS field, co-edited books or post-proceedings and co-organised several international events dedicated to

Multi-Agent Systems (e.g. Dagstuhl seminars; the series of ProMAS workshops as a satellite event of AAMAS since 2003, LADS workshop at MALLOW since 2007 and MASTS since 2009). She also has been invited professor and gave talks in international seminar and lectures for up-graduated students about multi-agent planning, coordination and interaction protocols, mobile computing, etc. (for more details, please visit <http://www-poleia.lip6.fr/~elfallah>).

Wednesday, May 25, 2011

Invited session on “Large Scale Distributed Systems”

Session LSDS-1

Session Chairs: Prof.dr.ing. Nicolae TAPUS, Conf.dr.ing. Emil SLUSANSCHI – ROMANIA

Wednesday, May 25, 2011, 11:00 – 13:00, Room EC105

LSDS-1.1 eUPB: Towards an Integrated e-Service Platform in Large Scale Distributed Environments

Florin Pop, Mugurel Andreica, Ciprian Dobre, Răzvan Rughiniș, Alin Moldoveanu, Costin Boiangiu

LSDS-1.2 Towards a Peer-Assisted Content Delivery Architecture

Bogdan Florescu, Mugurel Ionut Andreica

LSDS-1.3 Data Dissemination in Opportunistic Networks

Radu Ciobanu, Ciprian Dobre

LSDS-1.4 Towards a Peer-to-Peer Recommender System Based on Collaborative Filtering Techniques

Ana-Delia Sambotin, Mugurel Ionut Andreica

LSDS-1.5 Improvements of Instruction Scheduling

Bogdan Ditu, Nicolae Tapus

Invited session on “Computer Graphics, Computer Vision and Virtual Reality”

Session CGCV-1

Session Chairs: Prof.dr.ing Florica MOLDOVEANU, Sl.dr.ing. Costin BOIANGIU – ROMANIA

Wednesday, May 25, 2011, 11:00 – 13:00, Room EC004

CGCV-1.1 Modelling the solution space form for an indeterminate pattern recognition problem. The ‘skin detection’ case

Octavian Georgescu

CGCV-1.2 Complex Image Pre-processing Algorithms based on Integral Image Applied to Object Recognition Problems

Mircea Ioan Popa, Diana Lupea, Gheorghe Lazea

CGCV-1.3 Detection of Altered Fingerprints Using a Mahalanobis Distance Based Classifier

Adina Petrovici, Corneliu Lazar

CGCV-1.4 A Real Time Solution for an Entertainment System with Gesture Recognition and Augmented Reality

Florica Moldoveanu, Mircea Barbulescu, Carmen Sosoiu

CGCV-1.5 From HTML to 3DMMO - a Roadmap Full of Challenges

Alin Dragos Bogdan Moldoveanu, Florica Moldoveanu, Victor Asavei, Alexandru Egner, Anca Morar

CGCV-1.6 A Fractal Approach to Terrain Generation and Rendering

Alexandru-Lucian Petrescu, Victor Asavei, Florica Moldoveanu

Section SOFTWARE ENGINEERING (1)

Session Chairs: Prof.dr.ing Florin RADULESCU, Conf.dr.ing. Decebal POPESCU – ROMANIA

Wednesday, May 25, 2011, 11:00 – 13:00, Room EC001

SE-1.1 Practical Analysis of Product Defect Prediction Using the Rayleigh Function

Ana Maria Vladu, Sergiu Stelian Iliescu, Ioana Fagarasan

SE-1.2 Common Media Server Architecture

Mihail Constantin

SE-1.3 T100 – A Content Management System for PHP Web Applications Development

Dragos Badea, Anton Duca

SE-1.4 Stock market analysis

Cristian Tabarana, Filip Neculciu, Florin Radulescu

SE-1.5 Data mining for a database on student record system

Anca Elena Alexandrescu, Gabriela Anca Scriba, Florin Radulescu, Alexandru Boicea

SE-1.6 Case Study on Bypassing Windows Security Mechanisms When Exploiting Software Vulnerabilities

Adrian Furtuna, Victor-Valeriu Patriciu, Ion Bica

Invited session on “Service Oriented Models for Intelligent Process Management”

Session Chairs: Dr. Wei-Tek Tsai – USA, Prof.dr.ing. Serban Petrescu – ROMANIA

Wednesday, May 25, 2011, 11:00 – 13:00, Room EC002

SOM.1 A Service-Oriented Controller for Intelligent Building Management

Laurentiu Bucur, Wei-Tek Tsai, Serban Petrescu, Catalin Chera, Florica Moldoveanu

SOM.2 A Service Oriented Model for Building Control and Simulation

S. Petrescu-Serban, Catalin Chera

SOM.3 A Service-Oriented Approach for Intelligent Building Management

Wei-Tek Tsai, Serban Petrescu, Laurentiu Bucur, Catalin Chera

SOM.4 Software Architecture with Ontology for Intelligent Building Management

Jay Parker Elston, Wei-Tek Tsai, Wu Li, Laurentiu Bucur

SOM.5 Model Based Educational Content for Pressure Measurement Experiments

Adriana Olteanu, Anca Daniela Ionita, Grigore Stamatescu, Valentin Sgarciu, Traian Ionescu, Alexandra Cernian

SOM.6 Modeling With Fluid Qualities

Cristian Giumale, Lorina Negreanu, Mihnea Muraru, Matei Popovici, Alexandru Agache, Ciprian Dobre

Invited session on “Industrial Process Control”

Session IPC-1

Session Chairs: Prof. Geneviève Dauphin-Tanguy, Prof. Jacques Lottin - FRANCE

Wednesday, May 25, 2011, 15:30 – 17:30, Room EC105

- IPC-1.1** Performance Control for Major Operating Load Variations Processes
Ciprian Lupu, Alexandru Ticlea, Andreea Udrea, Catalin Petrescu
- IPC-1.2** Time Delay Control of the tool tilt of hydraulic equipment
Mamadou DIOUF, Jacques LOTTIN, Youssef CHINOUNE
- IPC-1.3** Control strategy for urban traffic in a macroscopic approach
Catalin Dimon, Genevieve Dauphin-Tanguy, Elena Ghita
- IPC-1.4** Real-time monitoring and forecasting of the ecological processes
Janetta Culita, Alexandru Dumitraşcu, Dan Ştefănoiu
- IPC-1.5** Application Example of Model Following in Aircraft Fault Tolerant Control
Elena Cimpoesu, Bogdan Ciubotaru, Dumitru Popescu

Invited session on “Computer Graphics, Computer Vision and Virtual Reality”

Session CGCV-2

Session Chairs: Conf.dr.ing Alin MOLDOVEANU, Sl.dr.ing. Irina MOCANU – ROMANIA

Wednesday, May 25, 2011, 15:30 – 17:30, Room EC004

- CGCV-2.1** Computer Assisted Insertion of Prostheses Based on Medical Images
Anca Morar, Florica Moldoveanu, Alin Moldoveanu, Victor Asavei, Alexandru Egner
- CGCV-2.2** Multi GPGPU Optimizations for 3D MMO Virtual Spaces
Victor Asavei, Florica Moldoveanu, Alin Moldoveanu, Alexandru Egner, Anca Morar
- CGCV-2.3** Local Thresholding Algorithm Based on Variable Window Size Statistics
Costin-Anton Boiangiu, Alexandra Olteanu, Daniel Rosner, Nicolae Tapus, Mugurel Andreica
- CGCV-2.4** Skew Detection Using the Radon Transform
Bogdan Raducanu, Costin-Anton Boiangiu, Alexandra Olteanu, Alexandru Stefanescu, Florin Pop, Ion Bucur
- CGCV-2.5** Human Position Modelling by Grammars
Irina Mocanu

Section SOFTWARE ENGINEERING (2)

Session Chairs: Prof.dr.ing. Cristian GIUMALE, Prof.dr.ing. Lorina NEGREANU – ROMANIA

Wednesday, May 25, 2011, 15:30 – 17:30, Room EC001

- SE-2.1** OLAP Cube data analysis package
Alexandra Georgeta Constantin, Florin Radulescu
- SE-2.2** Automated generation of TTCN-3 type set used for testing of healthcare applications
Alexandru Egner, Florica Moldoveanu, Alin Moldoveanu, Victor Asavei, Anca Morar
- SE-2.3** Using non-metric multidimensional scaling for analysing social networks
Cristian Turcitu, Florin Rădulescu

SE-2.4 A Formal Approach for the Development of Service-Oriented Applications

Lorina Negreanu, Cristian Giumale, Alexandru Agache, Mihnea Muraru, Matei Popovici, Ciprian Dobre

SE-2.5 SOFTWARE QUALITY ASSURANCE FOR MONITORING AND CONTROL SYSTEMS IN THE ENERGY FIELD

Victor Ursianu, Florica Moldoveanu, Radu Ursianu, Emiliana Ursianu

SE-2.6 An Ontological Approach for the Automatic Control Disciplines Studied in a University

Alexandra Suzana Cernian, Anca Bertesteanu, Dorin Carstoiu, Valentin Sgarciu

Section SYSTEMS AND SIGNALS (1)

Session Chairs: Prof. Clement Festila, Prof. Rodica Strungaru – ROMANIA

Wednesday, May 25, 2011, 15:30 – 17:30, Room EC002

SS-1.1 Real Time Monitoring and Control System of a Separation Column for ¹³C Isotope

Adrian-Olimpiu Neaga, Clement Festila, Eva-Henrietta Dulf, Roxana Both, Aurel Baldea, Mihai Gligan

SS-1.2 ECG Signal Processing: Atrial Fibrillation Cancellation by Improved Event Synchronous Cancellor

Dragos Țarălungă, Werner Wolf, Rodica Strungaru, Ilinca Gussi, G. Mihaela Ungureanu

SS-1.3 Web Application for Abdominal Fetal ECG Signals Analysis

Ana-Maria Ilincai, Rodica Strungaru, Ilinca Gussi, Werner Wolf, Dragos Țarălungă, G. Mihaela Ungureanu

SS-1.4 Time-frequency analysis for the investigation of hand motor imagery tasks

Diana Piper, Georgiana Sandu, Ana-Maria Ilincai, Rodica Strungaru, Mihaela Ungureanu

SS-1.5 Robust Fault Detection and Identification in a Fuel Cell System via Fuzzy Models

Antoni Escobet, Angela Nebot, Francisco Mugica

Thursday, May 26, 2011

Section SYSTEMS AND SIGNALS (2)

Session Chairs: Prof. Octavian Pastravanu, Prof. Adrian-Mihail Stoica – ROMANIA

Thursday, May 26, 2011, 10:00 – 12:00, Room EC105

SS-2.1 Adaptive Observer Design for Hydrodynamic States of an Oil-Well

Vitaliy Fomin, Iliya Solovyev

SS-2.2 Diagonal Stability of Polytopic Systems with a Dominant Vertex

Octavian Pastravanu, Mihaela-Hanako Matcovschi, Mihail Voicu

SS-2.3 Online classification of electromyographic signals during finger isometric flexion and the role of visual feedback

Sergiu Man, Sorin Herle, Corrado Cescon, Gheorghe Lazea, Roberto Merletti

SS-2.4 Remote Monitoring of Patients and Elderly People

Viorel Petcu, Adrian Boteanu, Adrian Petrescu

SS-2.5 Performance Analysis of Networked Systems with Fading Communication Channels

Adrian-Mihail Stoica

Invited session on “Industrial Process Control”

Session IPC-2

Session Chairs: Prof.dr.ing. Dumitru POPESCU – ROMANIA, Prof. Pierre BORNE - FRANCE

Thursday, May 26, 2011, 10:00 – 12:00, Room EC004

IPC-2.1 H-infinity controller design for variable speed wind turbines

Andreea Pinteaa, Nicolai Christov, Pierre Borne, Dumitru Popescu

IPC-2.2 Expert System for generating SCADA configurations with practical applications in the naval industry

Cătălin Bâra, Dumitru Popescu, Ciprian Lupu

IPC-2.3 Multi-model adaptive control for turbocharged diesel engines

Silviu Cornel Cirstoiu, Olivier Pages

IPC-2.4 Composed Recursive Model Free Control for the Anaerobic Digestion Process of Cattle Dung

Wang H.P.

IPC-2.5 Hierarchical Control for an Ethylene Reactor

Dumitru Popescu, Florin Ionescu, Madalina Mircioiu

Invited session on “Intelligent Agents and Multi-Agent Systems”

Session IAMAS-1

Session Chairs: Prof. Amal El Fallah Seghrouchni – FRANCE, Prof.dr.ing. Adina FLOREA – ROMANIA

Thursday, May 26, 2011, 10:00 – 12:00, Room EC002

IAMAS-1.1 Conflict Resolution in Normative Systems

Ioan Alfred Letia, Dan Alexandru Marian

IAMAS-1.2 Hop-by-hop Inspection Mechanism for Wireless Sensor Networks

Răzvan Rughiniș, Laura Gheorghe, Răzvan Deaconescu, Nicolae Țăpuș

IAMAS-1.3 Artificial Emotion Simulation Model and Agent Architecture

Valentin Lungu,

IAMAS-1.4 A proposal for inter-agents communication in an Multi-Agent System for Data Mining in Geospatial Data driven by an Ontology

Dana Persa, Eugen-Claudiu Persa

Session IAFA1. APPLICATIONS OF FRACTAL ANALYSIS IN MEDICINE

Session Chairs: Przemyslaw WALISZEWSKI - GERMANIA, Dan POPESCU - ROMANIA

Thursday, May 26 , 2011, 10.00 – 12.00, Room EC001

IAFA1.1 Time Series Analysis of Blood Flow Velocity in Kidney Graft

Przemyslaw Waliszewski - GERMANIA

IAFA 1.2 Fractal Analysis of Neuronal Dendritic Branching Pattern in the Human Neostriatum: a Revised Classification Scheme

Nebojsa Milosevic, Bojana Krstonosic, Dusan Ristanovic, Radmila Gudovic – SERBIA

IAFA 1.3 Aggressive Posterior Retinopathy of Prematurity: Fractal Analysis of Images before and after Laser Surgery

Maja Olujic, Nebojsa Milosevic, Ana Oros - SERBIA, Herbert Jelinek - AUSTRALIA

IAFA 1.4 CT Kidney Images Classification Using the Correlation Dimension of the Associated Spatial Series

Andree Udrea - ROMANIA

IAFA 1.5 Multifractals: a Review with an Application in Neuroscience

Audrey Karperien, Herbert Jelinek – AUSTRALIA, Nebojsa Milosevic - SERBIA

IAFA 1.6 Fractal Analysis of Textures Based on Modified Box-Counting Algorithm

Nicoleta Angelescu, Dan Popescu, Radu Dobrescu - ROMANIA

Invited session on “Large Scale Distributed Systems”

Session LSDS-2

Session Chairs: Prof.dr.ing. Valentin CRISTEA, Sl.dr.ing. Ciprian DOBRE – ROMANIA

Thursday, May 26, 2011, 13.30 – 15.30, Room EC105

LSDS-2.1 Rescheduling Service for Reliable Distributed Systems

Florin Pop, Oana-Alexandra Baron, Valentin Cristea

LSDS-2.2 Parallel Numerical Simulations in Aerodynamics

Marius Poke, Emil Slusanschi, Damian Podareanu, Alexandru Herisanu

LSDS-2.3 Airflow Simulator Heat Transfer Computer Simulations of the NCIT-Cluster Datacenter

Alexandru Stroe, Emil Slusanschi, Ana Stroe, Simona Posea

LSDS-2.4 Safe Storage of ECG Signal Waveform in Cloud Computing

Vlad Ciobanu, Adrian Petrescu

LSDS-2.5 Impact of altruism in a delay tollerant network formed by passengers of a subway network

Mihai Tanase, Valentin Cristea

Invited session on “Cyber-Physical Systems”

Session CYBER-PHYSICAL SYSTEMS

Session Chairs: Prof.dr.ing. Ioan DUMITRACHE, Paul Dan Cristea – ROMANIA

Thursday, May 26, 2011, 13:30 – 15:30, Room EC004

- CPS.1** Handover from 3G to 4G network: Security Analysis
Cristina-Elena Vintila, Victor-Valeriu Patriciu, Ion Bica
- CPS.2** Preemption Control using CPU Frequency Scaling in Real-time Systems
Abhilash Thekkilakattil, Radu Dobrin, Sasikumar Punnekkat
- CPS.3** An Agent-based Architecture for the Internet of Things
Irina-Gabriela Lolu
- CPS.4** Power Quality Measurements Using a Low-Cost Embedded Solution
Liviu Tomesc, Bogdan Betaea, Mirela Trusca, Petru Dobra
- CPS.5** Functional Nanoscale Imaging of Protein Surfaces
Paul Dan Cristea, Rodica Tuduce, Octavian Arsene, Dan Nicolau
- CPS.6** Human skin detection using texture information and vector processing techniques by neural networks
Catalin Dumitrescu, Ioan Dumitrache

Invited session on “Intelligent Agents and Multi-Agent Systems”

Session IAMAS-2

Session Chairs: Prof. Amal El Fallah Seghrouchni – FRANCE, Conf.dr.ing. Razvan RUGHINIS – ROMANIA

Thursday, May 26, 2011, 13:30 – 15:30, Room EC002

- IAMAS-2.1** Contextual Reputation Extraction for Trust Decision in MAS
Andreea Urzica, Sofia Neata, Adina Magda Florea
- IAMAS-2.2** Improving Ant Based Load Balancing Algorithms in Distributed Systems
Alexandru Gherega, Adina Florea
- IAMAS-2.3** Intelligent Agent-Based System for Urban Traffic Monitoring and Control
Simona Iuliana Caramihai, Ioan Dumitrache, Monica Cristina Voinescu
- IAMAS-2.4** Using Particle Swarm Optimization to Create Particle Systems
Valentin Lungu, Angela Sofron

Session IAFA2. COMPLEXITY MODELING

Session Chairs: Florin IONESCU - GERMANY, Virginia Ecaterina OLTEAN -ROMANIA

Thursday, May 26, 2011, 13:30 – 15:30, Room EC001

- IAFA 2.1** Determining the Level of Psycho-Emotional Tension on a Heterogeneous Rules of Fuzzy Output
Nikolay Korenevskiy – RUSSIA, Riad Al Kasasbeh - IORDANIA, Florin Ionescu – GERMANY, Stefan Arghir - ROMANIA
- IAFA 2.2** On a Hierarchy of Hybrid Automata Models - an Example
Virginia Ecaterina OLTEAN, Radu Dobrescu, Dan Popescu– ROMANIA
- IAFA 2.3** Self-organised Criticality in Complex Networks
Mihai Tanase, Radu Dobrescu – ROMANIA
- IAFA 2.4** Using Boolean Delay Equations for Predicting Fractal Processes
Stefan Arghir, Radu Dobrescu – ROMANIA, Florin Ionescu – GERMANY
- IAFA 2.5** Complex Home Environment for Elderly or Disabled Persons Medical Assistance
Stefan Mocanu, Irina Mocanu, Silvia Anton, Calin Munteanu - ROMANIA

Section DISTRIBUTED COMPUTING

Session Chairs: **Dr.Ing. Gabriel NEAGU, Sl.dr.ing. Florin POP – ROMANIA**

Thursday, May 26, 2011, 16:00 – 18:00, Room EC105

- DC.1** Auto-administrating and self-repairing systems by enforcing a configuration policy
Alexandru Stanciu, Bogdan Enciu, Gabriel Neagu
- DC.2** Grid Based Hydrologic Model Calibration and Execution
Danut Mihon, Teodor Stefanut, Victor Bacu, Denisa Rodila, Karim Abbaspour, Lukasz Kokoszkiwicz, Elham Rouholahnejad, Ann van Griensven, Dorian Gorgan
- DC.3** SERAFIMO - integrated platform for financial transactions using common communication technologies available on the standard mobile phone
Mihai Tanase, Valentin Cristea, Andrei Toma, Florin Pop, Radu Constantinescu
- DC.4** Evaluating Resource Utilization of Peer-to-Peer Video Streaming Strategies
Mircea Bardac, George Milescu, Adina Magda Florea
- DC.5** Probabilistic Scheduling Guarantees in Distributed Real-Time Systems under Error Bursts
Hüseyin Aysan, Radu Dobrin, Sasikumar Punnekkat

Section DESIGN METHODS (1)

Session Chairs: **Dr. Eva-Henrietta Dulf, Prof. Corneliu Lazar – ROMANIA**

Thursday, May 26, 2011, 16:00 – 18:00, Room EC004

- DM-1.1** When Singularities Impinge upon Numerical Validation and Tracking of Feedback Control Laws
Catalin-Stefan Teodorescu, Andrei Rosu, Liviu Mihai Stefanescu Winterlik
- DM-1.2** Robust Control in Frequency Controlled Induction Heating Inverters
Tibor Szelitzky, Eva-Henrietta Dulf, Iulia Inoan, Clement Festila, Adrian-Olimpiu Neaga
- DM-1.3** Java Reflection Performance Analysis Using Different JDKs
Radu Serban, Catalin Tudose, Carmen Odubasteanu
- DM-1.4** A Study of Architecture Modeling in the Context of Development Tools Chain
Lavinia Ghica, Bogdan Ditu, Nicolae Tapus
- DM-1.5** Combination of the observer principle with Youla-parametrized regulator
Laszlo KEVICZKY, Csilla BÁNYÁSZ

Section ROBOTICS, MECHATRONICS AND COMPONENTS

Session Chairs: **Prof. Viorel Minzu, Prof. Sorin Manoiu-Olaru – ROMANIA**

Thursday, May 26, 2011, 16:00 – 18:00, Room EC001

- RMC.1** Stability Analysis Software Platform Dedicated for a Hexapod Robot
Sorin Manoiu-Olaru, Mircea Nitulescu
- RMC.2** Graph Search on Mobile Robots Free Space Approximate Cell Decomposition
Radu Robotin, Gheorghe Lazea, Petru Dobra
- RMC.3** Discrete-Time Sliding-Mode Controller for Wheeled Mobile Robots
Bogdan Dumitrascu, Adrian Filipescu
- RMC.4** Path Following Fuzzy Control and Bubble Rebound Obstacle Avoidance Method of a WMR Mobile Platform
Adrian Filipescu, Viorel Minzu, Eugenia Minca, Adriana Filipescu

Invited session on “Environment Process Control”

Session Chairs: Prof.dr.ing Costica NITU, As.dr.ing. Alexandru DUMITRASCU – ROMANIA

Thursday, May 26, 2011, 16:00 – 18:00, Room EC002

EPC.1 STAND-ALONE POWER SYSTEM FOR MONITORING AND CONTROL ACCESS OF A PARKING

Florin DRAGOMIR, Otilia Elena DRAGOMIR, Adrian OPREA, Eugenia MINCA

EPC.2 Environment Control Systems versus Wireless Transmissions

Mircea-Bogdan Gagniuc

EPC.3 Distributed system for remote monitoring and control of a greenhouse environment

Alexandru Dumitrascu, Dan Stefanoiu, Janetta Culita, Ionut Tomita

EPC.4 CARBON CYCLE AND CLIMATE

Vladimir F. Krapivin, Costica Nitu, Alexandru Dumitrascu

EPC.5 STUDY OF THE CO₂ GREENHOUSE EFFECT

Costica Nitu, Vladimir F. Krapivin, Anda Sabena Dobrescu

EPC.6 Algorithms for data processing in environmental analysis

Vasile Tovarnitchi

EPC.7 Pattern and shape recognition techniques for environmental processes

Radu Florin Curca

Friday, May 27, 2011

Invited session on “Modern Power System Control”

Session MPSC-1

Session Chairs: Prof.dr.ing Sergiu ILIESCU – ROMANIA, Stephane Ploix - FRANCE

Friday, May 27, 2011, 10:00 – 12:00, Room EC105

MPSC-1.1 Remote diagnosis and intervention – a new layer of protection for industrial processes

Luiza Ocheană, Dan Popescu, Gheorghe Florea

MPSC-1.2 Networked Control Systems: Random delay compensation with play-back buffers and Smith predictor

Anca-Mihaela Acreala, Vasile Comnac, Cristian Boldisor

MPSC-1.3 Energy Harvesting and Power Management in Wireless Sensor Networks

Dan Stefan Tudose, Nicolae Tapus

MPSC-1.4 A problem arising from power control: the control of the conservation laws

Vladimir RASVAN

MPSC-1.5 Preparation Power Systems Modelling using Delay Time Petri Nets Components

Elena Tudoroiu, Adina Astilean, Nicolae Tudoroiu

Section COMPUTERS, COGNITION AND COMMUNICATION

Session Chairs: Prof. Irina Ionita, Prof.dr.ing. Catalin Buiu – ROMANIA

Friday, May 27, 2011, 10:00 – 12:00, Room EC004

CCC.1 A System with Fuzzy Logic for Analysing the Emissary Pollution Level of a Wastewater Treatment Plant

Madalina Carbureanu

CCC.2 An Automated System based on Data Mining for Banking Decision Support

Irina Ionita

CCC.3 Fuzzy logic ECG analyzer for portable devices

Adrian Boteanu, Adrian Petrescu

CCC.4 Elitist Variants of Differential Ant-Stigmergy Algorithm for High-dimensional Real-parameter Optimization

Adrian Emanoil Serbencu, Adriana Serbencu

CCC.5 Anonymous Fuzzy Identity Based Encryption

Bogdan Tudor

Session IAFA3. Invited Session: STOCHASTIC COMPLEXITY

Session Chairs: Ioan TABUS – FINLANDA, Doru Ciprian GIURCANEANU - FINLANDA

Friday, May 27, 2011, 10.00 – 12.00, Room EC001

IAFA 3.1 Performance of Sparse Modeling Algorithms for Predictive Coding

Florin Ghido, Ioan Tabus - FINLANDA

IAFA 3.2 On the Use of Stochastic Complexity in Spectral Analysis of Radial Velocity Data

Vili Forsell, Doru Ciprian Giurcaneanu - FINLANDA

IAFA 3.3 Sparsity Estimation for Greedy RLS Filters via Information Theoretic Criteria

Alexandru Onose – FINLANDA, Bogdan Dumitrescu - ROMANIA

IAFA 3.4 MDL Based Structure Selection of Union of Ellipse Models at Multiple Scale Descriptions

Jenni Hukkanen – FINLANDA, Edmund Sabo – ISRAEL, Ioan Tabus - FINLANDA

Colloquial On the perspective of using fractal analysis in medicine and biology

Debate *Promoter: Mircea Rusu; Opposant: Catalin Vasilescu*

Moderator: Radu Dobrescu

Section DESIGN METHODS (2)

Session Chairs: Prof. Cristian Oara, Prof. Mihail Abrudean – ROMANIA

Friday, May 27, 2011, 10:00 – 12:00, Room EC002

DM-2.1 40 - Nonlinear Model based Predictive Control of Visual Servoing Systems using Image Moments

Cosmin Copot, Corneliu Lazar, Adrian Burlacu

DM-2.2 Adaptive Robust Stability for Extremum Control System with a modified Implementation

Clement Festila, Roxana Both, Eva Dulf, Roxana Cordos

DM-2.3 Driveline oscillations modeling and control

Andreea E. Balau, Constantin F. Caruntu, Corneliu Lazar

DM-2.4 Optimizing a Superscalar System using Multi-objective Design Space Exploration

Horia Calborean, Ralf Jahr, Theo Ungerer, Lucian Vintan

DM-2.5 Temperature control of the billets in a furnace with rotary hearth

Vlad Muresan, Mihail Abrudean, Tiberiu Colosi

Invited session on “Modern Power System Control”

Session MPSC-2

Session Chairs: Prof.dr.ing Sergiu ILIESCU. Prof.dr.ing. Ioana FAGARASAN – ROMANIA

Friday, May 27, 2011, 13:30 – 15:30, Room EC105

MPSC-2.1 Control and management of high-power wind energy conversion system operating regimes: towards aerodynamic-compliant energy performance

Adriana Scarlat, Iulian Munteanu, Antoneta-Iuliana Bratcu, Emil Ceanga

MPSC-2.2 Data Center Control: Guidelines for Obtaining Energy Efficiency

Iulia Dumitru, Stephane Ploix, Ioana Fagarasan, Sergiu Iliescu

MPSC-2.3 Transmission Network Capacity Enhancement by Special Protection Schemes

Victor Popescu, Liliana Oprea, Daniel Răzvan Costianu

MPSC-2.4 Prediction of energy consumption in homes

Nicoleta Arghira, Stephane Ploix, Ioana Făgărăsan, Sergiu Stelian Iliescu

MPSC-2.5 Stability and Robustness of Wholesale Electricity Markets

Victor M. Zavala, Mihai Anitescu

Section EMBEDDED CONTROL SYSTEMS

Session Chairs: Prof. Petru Dobra, Prof.dr.ing. Theodor Borangiu – ROMANIA

Friday, May 27, 2011, 13:30 – 15:30, Room EC004

ECS.1 Optimizing nodes architecture in wireless sensors networks - choosing the operating system

Catalin Popeanga, Gabriel Ionescu

ECS.2 Optimized Simulated Annealing for Network-on-Chip Application Mapping

Ciprian Radu, Lucian Vintan

ECS.3 Rapid Control Prototyping Libraries with Application for Positing Systems

Radu Duma, Petru Dobra

ECS.4 Sensor, Actuator and Embedded System Setup for the Control of a Small Scale Coaxial Rotor Helicopter

Bogdan Arama, Nasser Houshangi

ECS.5 Real-time Control Architecture for a Four Motor Rotorcraft

Ionel Stanculeanu, Theodor Borangiu

Section INDUSTRIAL SYSTEMS, BIO & ECOLOGICAL SYSTEMS

Session Chairs: Prof. Liviu Miclea, Prof. SERGIU CARAMAN – ROMANIA

Friday, May 27, 2011, 13:30 – 15:30, Room EC001

ISBES.1 Condenser Level Control for 13C Isotope Separation Column

Dan-Calin Dumitrache, Clement Festila, Eva-Henrietta Dulf

ISBES.2 Phase Error Compensation in Automatic Gauge Control

NICU ROMAN, SERGIU CARAMAN, MARIAN BARBU, ION BIVOL, EMIL CEANGA

ISBES.3 Composite Application for Water Resource Management

Mariana Mocanu, Marian Muste, Vasile Lungu, Radu Drobot

ISBES.4 Comparison between hydroxyapatite-coated shoulder prosthesis in the presence or absence of collagen, during external and internal rotation

Mihaela Manisor, Cosmin Marcu, Gheorghe Tomoaia, Liviu Miclea

ISBES.5 Steady-State Analysis Of A Step-Down Converter In A Photovoltaic System

Catalin-Dumitru Petrescu, Ciprian Lupu, Octavian Nicula

Section DESIGN METHODS (3)

Session Chairs: Prof. Adrian-Mihail STOICA, Prof. Ioan URSU – ROMANIA

Friday, May 27, 2011, 13:30 – 15:30, Room EC002

DM-3.1 An integrated methodology of control synthesis with anti-windup feedback compensation

Ioan Ursu

DM-3.2 Production Planning Process in a Manufacturing Cell

Claudia Raluca Tudorie

DM-3.3 Towards a PIO II criterion: Improving the pilot modeling

Adrian Toader, Ioan Ursu

DM-3.4 A COMPARISON OF ADAPTIVE SUPERVISORY SWITCHING CONTROL SCHEMES FOR HIGH MANEUVERABILITY AIRCRAFTS

Andrei-Sorin NEAMTU, Adrian-Mihail STOICA

GENERAL INFORMATION

LOCATION

CSCS-18 will be held at the Faculty of Automatic Control and Computers, *Politehnica* University of Bucharest, 313 Spl. Independentei, Bucharest, Romania. The formal Opening Ceremony will be organized in the EC105 room, Automatic Control and Computers Faculty.

ACCESS TO CONFERENCE SITE

The Conference site can be accessed by the following means of transportation:

- By underground - The Conference site is at 5 minutes walk from
POLITEHNICA underground station
- By bus - Nos. 136, 236, 336 (UPB Stop)
- By trolley bus - Nos. 61, 62 (UPB Stop)

CAR PARKING

There are free and ample parking facilities in the immediate vicinity of the Conference site.

MAIL

Correspondence in connection to the CSCS-18 Conference should be addressed as it follows:

CSCS-18 - SRAIT
"POLITEHNICA" University of Bucharest
Faculty of Control and Computers
313 Spl. Independentei, Sector 6
77206 Bucharest
ROMANIA
PHONE + (40) 21 402 91 67
FAX + (40) 21 402 95 87
WEB <http://cscs18.ncit.pub.ro>
e-mail cscs18@aut.pub.ro

CONFERENCE LITERATURE

The conference proceedings, containing all accepted papers, will be published and distributed to all registered participants. All presented papers during the conference will be evaluated for future publications in a special book.

WORKING LANGUAGE

The working language of CSCS-18 is English and will be used for presentations and discussions.

NAME BADGE

An admission badge bearing the participant's name will be issued to all registered participants, thus authorizing access to all Conference sessions.

GET ACQUAINTED COCKTAIL PARTY

A Get Acquainted Cocktail Party will be held on Wednesday, May 25th 2011 from 19:00 hours at *Casa Oamenilor de Stiinta* Restaurant. The cost of attendance is covered by the registration fee.

REFRESHMENTS

Refreshments will be available at the Conference site daily.

LUNCHESES

Self-lunches will be available in the Faculty of Automatic Control and Computers and in the Leu Complex. The price for a lunch varies between 3 Euros and 5 Euros.

DINNER

Dinner will be served Thursday night at 20:00 hrs. The price of a dinner will be around 30 Euros. All information will be available at registration desk.

REGISTRATION AND INFORMATION DESK

The CSCS-18 Registration Desk will be open at the Conference site, Automatic Control and Computers Faculty, starting from May 24th 2011, 14:00 hrs.

REGISTRATION FEE

Registration fee is 300 Euro and includes participation, volumes, coffee breaks and cocktail. The fee for PhD students is 50 Euro. For Romanian participants and SRAIT members the fee will be 150 Euro.

CLIMATE

The weather in Bucharest is warm in May. Temperatures between 20°C to 30°C are to be expected.

INSURANCE

The organizers cannot be held liable for accidents to participants or for damage to or loss their personal property, howsoever caused. Participants are advised to make their own insurance arrangements.

Thursday 24.05.2011	Wednesday 25.05.2011				Thursday 26.05.2011				Friday 27.05.2011						
Registration 14.00-17.00 Hall EC	09.00	Opening Ceremony (EC105)					Invited paper Toward a Computational Theory of Evidence-based Reasoning <i>Gheorghe Tecuci</i>					Invited paper Multi-Agent Systems meets Ambient Intelligence <i>Amal El Fallah Seghrouchni</i>			
	09.30 – 10.30	Invited paper Challenges in the Control of Cyber-Physical Systems <i>Pedro Albertos</i>				08.30 – 09.30									
	10.30	Coffee Break				09.30	Coffee Break				09.30	Coffee Break			
	11.00 – 13.00	LSDS-1 (EC105)	CGCV-1 (EC004)	SE-1 (EC001)	SOM (EC002)	10.00 – 12.00	SS-2 (EC105)	IPC-2 (EC004)	IAFA-1 (EC001)	IAMAS-1 (EC002)	10.00 – 12.00	MPSC-1 (EC105)	CCC (EC004)	IAFA-3 (EC001)	DM-2 (EC002)
	13.00 – 14.30	Lunch				12.00 – 13.30	Lunch				12.00 – 13.30	Lunch			
	14.30 – 15.30	Invited paper Scalable Nonlinear Model Predictive Control for Energy Applications <i>Mihai Anitescu</i>				13.30 – 15.30	LSDS-2 (EC105)	CPS (EC004)	IAFA-2 (EC001)	IAMAS-2 (EC002)	13.30 – 15.30	MPSC-2 (EC105)	ECS (EC004)	ISBES (EC001)	DM-3 (EC002)
	15.30 – 17.30	IPC-1 (EC105)	CGCV-2 (EC004)	SE-2 (EC001)	SS-1 (EC002)	15.30	Coffee Break				15.30 – 17.00	Round Table and Closing Ceremony (EC105)			
						16.00 – 18.00	DC (EC105)	DM-1 (EC004)	RMC (EC001)	EPC (EC002)					
	19.00	Cocktail				20.00	Conference Diner								