



**LAB-RS July 22-24, 2009**

2nd ECSIS Symposium

Learning and Adaptive Behaviours in Robotic Systems  
Theme

*Learning and adaptation in robots working within  
environments in close proximity to other robots and humans*

**Program**

## Day 1, 22 of July 2009

Joined sessions LAB-RS and ISRIS  
Technical University Iasi – T1 Theatre  
Chair session Professor Adrian Stoica

8<sup>00</sup>-9<sup>00</sup> Participant registration (LAB-RS and ISRIS), Coffee

9<sup>00</sup>-9<sup>10</sup> Welcome from organizers  
Keynotes

9<sup>10</sup>-10<sup>00</sup> Robotic surgery; past results and current developments  
Professor Paolo Fiorini Md PhD Department of Informatics University of Verona, Italy

10<sup>00</sup>-10<sup>20</sup> Break, refreshments to go, buss transportation

Joined sessions LAB-RS, ISRIS  
Rehabilitation Hospital Theatre

10<sup>20</sup>-12<sup>00</sup> Computed Assisted Live Surgery: Birmingham hip resurfacing arthroplasty (BHR)  
Featuring Professor Paul Botez Md PhD, Dr Geert Peersman, Antwerp, Belgium  
Operative navigation equipment provided by Smith& Nephew

12<sup>00</sup>-12<sup>10</sup> Buss transportation

12<sup>10</sup>-13<sup>20</sup> Lunch, Colini Restaurant

13<sup>20</sup>-13<sup>30</sup> Buss transportation

LAB-RS afternoon session  
Technical University Iasi – T1 Theatre  
Chair session: Professor Vader Sloten, Professor Ioan Doroftei

13<sup>30</sup>-13<sup>55</sup> Design of a Central Pattern Generator Using Reservoir Computing for Learning Human Motion  
Francis Wyffels and Benjamin Schrauwen, Gent University, Belgium

13<sup>55</sup>-14<sup>20</sup> Issues on Mechatronic Devices Aiming to Test Neuroprothesis  
Marian S. Poboroniuc, Ciprian M. Stefan, Gheorghe Livint, and Danut C. Irimia, "Gh.Asachi" Technical University of Iasi, Romania

14<sup>20</sup>-14<sup>45</sup> A Brain-Machine Interface Based on EEG: Extracted Alpha Waves Applied to Mobile Robot  
Mufti Mahmud, University of Padova, Italy, David Hawellek, University Medical Centre Hamburg-Eppendorf, Germany and Aleksander Valjamae, Universitat Pompeu Fabra, Barcelona, Spain

14<sup>45</sup>-15<sup>00</sup> A High Resolution Bi-Directional Communication through a Brain-Chip Interface  
Marta Maschietto, Mufti Mahmud, Stefano Girardi, and Stefano Vassanelli, University of Padova, Italy

15<sup>00</sup>-15<sup>10</sup> Break  
Chair session Professor Horia Nicolai Teodorescu

15<sup>30</sup>-15<sup>55</sup> Goal-Directed Movement Generation with a Transient-Based Recurrent Neural Network Controller  
R. Felix Reinhart and Jochen J. Steil, Bielefeld University, Germany

15<sup>55</sup>-16<sup>20</sup> Determining Sound Source Orientation from Analytical Source Directivity and Real Multi-Microphone Recordings  
Francesco Guarato, John Hallam, University of Southern Denmark and Dieter Vanderelst, University of Antwerp, Belgium

16<sup>20</sup>-16<sup>45</sup> A Novel Information Measure for Adaptive Controllers in Swarm Systems  
Paolo Di Prodi, Bernd Porr, University of Glasgow, UK and Florentin Wörögter, BCCN, Goettingen, Germany

16<sup>45</sup>-17<sup>10</sup> Adaptive Filter and Estimator for Echolocation in Air and Robotic Vision  
Horia-Nicolai L. Teodorescu, , "Gh.Asachi" Technical University of Iasi, Romania

17<sup>10</sup> End of sessions day I

18<sup>30</sup> Get together party Colini Restaurant

## **Day 2, 23 of July 2009**

Technical University Iasi – T1 Theatre

Dr Terry Huntsberger

8<sup>00</sup>-9<sup>00</sup> Coffee  
Joined session LAB-RS - ISRIS

9<sup>10</sup>-10<sup>00</sup> Onboard Learning of Adaptive Behavior: Biologically Inspired and Formal Methods  
Dr.Terry Huntsberger, Jet Propulsion Laboratory, USA

10<sup>00</sup>-10<sup>10</sup> Coffee break

10<sup>20</sup>-11<sup>00</sup> Total Prosthetic of the Human Body - an Innovative concept for Rehabilitation and Human Robots. Anatomic and Physiological Bases and Technical Solutions, with Accent on Modular CAD Solutions for Prosthesis of the Human Biomechanism, respectively, Superior and Inferior Limbs,  
Ionel Staretu Technical University of Brasov, Romania

- 11<sup>00</sup>-11<sup>10</sup> Intermezzo
- 11<sup>10</sup>-12<sup>00</sup> Dr.Terry Huntsberger TBD
- 12<sup>10</sup>-13<sup>30</sup> Lunch Collini Restaurant, Buss transportation

### **LAB-RS afternoon session**

**Chair session** Jürgen Leitner, Nicodemus Hallin

- 13<sup>30</sup>-13<sup>55</sup> Adaptive Anytime Motion Planning for Robust Robot Navigation in Natural Environments  
Mihail Pivtoraiko, Robotics Institute, Carnegie Melon University USA
- 13<sup>55</sup>-14<sup>20</sup> Multi-robot Cooperation in Space: A Survey  
Jürgen Leitner, Helsinki University of Technology, Finland
- 14<sup>20</sup>-14<sup>55</sup> Monitoring Strategies for Adaptive Periodic Control in Behavior-Based Robotic Systems  
Ernesto Burattini, Alberto Finzi, Silvia Rossi, and Mariacarla Staffa, University of Naples, Italy
- 14<sup>55</sup>-15<sup>10</sup> Simulating Human Reasoning in Mine-Like Object Inspection Assignments for a Formation of Unmanned Underwater Vehicles  
Nicodemus Hallin, Benjamin Johnson, Henry Egbo, Michael O'Rourke, Terence Soule, and Dean Edwards, University of Idaho, USA
- 15<sup>10</sup>-15<sup>30</sup> Break  
Chair session:Levente Tamas, Doru Ponescu
- 15<sup>30</sup>-15<sup>55</sup> Collaborative Robotic System Obtained by Combining Planning and Holonic Architecture  
Doru Panescu, Carlos Pascal, Marius Sutu, and Gabriela Varvara; "Gh Asachi" Technical University of Iasi, Romania
- 15<sup>55</sup>-16<sup>20</sup> Laser Based Localization Techniques for Indoor Mobile Robots  
Levente Tamas, Gheorghe Lazea, Istvan Szoke, Mircea Popa, and Andras Majdik, Technical University of Cluj Napoca, Romania

### **Day 3, 24 of July 2009**

**University Medicine and Pharmacy Theatre**

- 8<sup>00</sup>-9<sup>00</sup> Coffee  
Plenary joined session LAB-RS – ARTIPED- ISRIS  
Chair Prof.Vander Sloten, Prof Lefeber
- 9<sup>10</sup>-10<sup>00</sup> Daphne System for Neuromotor Control Evaluation: Reconfiguration Concepts  
Professor Alberto Rovetta, PhD Politecnico di Milano Italy
- 10<sup>00</sup>-10<sup>10</sup> Cofee break

- 10<sup>10</sup>-10<sup>55</sup> Use of Compliant Actuators in Robotic Application  
Professor Dirk Lefeber Vrije Universiteit Brussel, Belgium
- 10<sup>55</sup>-11<sup>10</sup> Towards Improved Assessment of Bone Fracture Risk  
Professor Jos Vander Sloten, Katholieke Universiteit Leuven, Belgium
- 11<sup>10</sup>-11<sup>20</sup> Intermezzo, coffe break  
Chair Session, Proffesor Lobontiu, Adriana Tapus
- 11<sup>20</sup>-11<sup>45</sup> Robotically Assisted Aorto-Femoral Bypass Grafting Surgery  
Professor Adrian Lobontiu, MD  
Henri Mondor Hospital, Paris 12 University, France
- 11<sup>45</sup>-12<sup>10</sup> Improving the Quality of Life of People with Dementia through the Use  
of Socially Assistive Robots  
Dr. Adriana Tapus University of Southern California, USA
- 12<sup>10</sup>-12<sup>30</sup> Bruno Petit Presentation
- 12<sup>30</sup>-13<sup>30</sup> Lunch Unirea Restaurant
- Afternoon session LAB-RS  
Bioengineering Faculty  
Chair; Boisteanu Daniela, Stafie Celina, Hnatiuc Mihaela
- 14<sup>00</sup>-14<sup>40</sup> Communication between the Sensor Levels for Monitoring Subjects with  
Disabilities  
Mihaela Hnatiuc and Alexandru Caranica, Maritime University  
Constanta, Romania
- 14<sup>40</sup>-15<sup>20</sup> Home Monitoring of Sleep Apnea Treatment: Benefits of Intelligent  
CPAP Devices  
Daniela Boisteanu, Raluca Vasiluta, Andrei Cernomaz, and Corina  
Mucenica, "Gr.T.Popa" University of Medicine and Pharmacy Iasi  
Romania
- 15<sup>20</sup>-15<sup>50</sup> Statistic Evaluation of the Clinical Benefits of Rehabilitation in Patients  
with Spine Cord Injury Undergoing Complex Treatment with Specific  
Therapeutic Factors from Techirghiol Health Resort  
Camelia Ciobotaru, Maritime University "Ovidius" Constanta, Romania  
Minea Mihaela, Olga Surdu, and Surdu Traian Virgiliu, Balneal and  
Rehabilitation Sanatorium Techirghiol, Romania
- 15<sup>50</sup>-16<sup>30</sup> The Need for Multidisciplinary Approach in the Treatment of Eating  
Behaviour Disorders of the Young Population  
Celina Stafie and Maria Manuela Apostol, "Gr.T.Popa" University of  
Medicina and Pharmacy Iasi Romania

- 16<sup>30</sup>-17<sup>00</sup> Clinical Simulation - Efficacy and Tendency in Medical Technological Education  
Elena Toader and Daniela Damir, "Gr.T.Popa" University of Medicina and Pharmacy Iasi Romania
- 17<sup>00</sup>-17<sup>30</sup> Signature Enzyme Identification Using Amperometric Biosensor  
Mihaela Hnatiuc, Maritime University Constanta Romania and  
Mariarita Montreal, Rome, Italy
- 17<sup>30</sup>-18<sup>00</sup> Discussions
- 19<sup>30</sup> Outdoor networking& dinner (LAB-RS, ISRIS, ARTIPED)

**Day 4, 25 of July 2009**

- 8<sup>00</sup>-9<sup>30</sup> Buss loading, departure UNESCO awarded Northern Moldavia Monasteries tour
- 13<sup>30</sup>-15<sup>30</sup> Lunch Jam-session  
Romania on the map of industrial and health care robotics development  
Prof Dr Paul Botez, Prof Dr Adrian Stoica, Prof Dr Dragos Arotaritei,  
Conf Dr Paul Sirbu