

# SACI 2015 program

updated on May 14

## May 21 (Thursday)

**8:00 – 12:00 Registration** (Room A 107)

**9:00 – 9:30 Opening Ceremony** (Room A 101 Aula)

Viorel-Aurel Serban, Mircea Popa, Imre J. Rudas, Nicolae Robu, Horia Ciocarlie, Radu-Emil Precup

**9:30 – 10:00 Plenary Session I** (Room A 101 Aula)

Session chair: Imre J. Rudas

131 Stefan Preitl

15 years Cooperation between Óbuda University, Budapest and Politehnica University Timișoara, 10 Editions of IEEE International Symposium on Applied Computational Intelligence and Informatics, "SACI" at Timișoara

**10:00 – 10:30 Plenary Session II** (Room A 101 Aula)

Session chair: Octavian Prostean

129 Hamido Fujita

Granules of Risks Prediction Services in Cloud Semantics Based on Subjective Knowledge Acquisition from Big Data

**10:30 – 11:00 Coffee break**

**11:00 – 11:30 Plenary Session III** (Room A 101 Aula)

Session chair: Stefan Preitl

133 C. L. Philip Chen

Deep Learning for Pattern Learning and Recognition

**11:30 – 12:00 Plenary Session IV** (Room A 101 Aula)

Session chair: Radu-Emil Precup

121 **Imre Rudas, József Gáti, Anikó Szakál and Krisztina Némethy**

The Hungarian NASA Researcher in the Field of Space Robotics-Life Work of Antal K. Bejczy

**12:00 – 13:45 Lunch break** (Casa Politehnicii 1)

**13:30 – 15:30 Registration** (Room A 107)

**13:45 – 15:15 Parallel sessions**

**13:45 – 15:15 [T1] Session on Biomedical Engineering Systems** (Room A 115)

Session chairs: Levente Kovács and Radu-Emil Precup

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| 125 | <b>Levente Kovács</b> , Tamás Ferenci, Johanna Sápi, György Eigner, József Klespitz, Péter Szalay, Miklós Kozlovszky and Imre Rudas | Physiological Modeling and Control at Óbuda University  |
| 55  | <b>Diana Andrei, Dan V. Poenaru, Dan Nemes, Cristian Milicin, Mihaela Vida, Norbert Gal and Emanuela Nadasan</b>                    | Computer aided patient evaluation in the low back pain pathology                                |
| 56  | <b>Emil Voisan, Bogdan Paulis, <a href="#">Radu-Emil Precup</a> and <a href="#">Florin Dragan</a></b>                               | ROS-Based Robot Navigation and Human Interaction in Indoor Environment                          |
| 18  | <b>Marius Alexandru Velciu, <a href="#">Alecsandru Pătrașcu</a> and <a href="#">Victor Valeriu Patriciu</a></b>                     | An evaluation of the Reed-Solomon error-correcting codes usage for bio-cryptographic algorithms |
| 64  | <b>Emanuela Gal-Nadasan, Norbert Gal, Mihaela Crișan-Vida, Dan Nemes and Diana Andrei</b>   | Computer aided scoliosis evaluation and recovery using an intelligent optical 3D sensor         |
| 65  | <b>Iulia Clitan, Daniel Moga, Vlad Muresan, Nicoleta Stroia, Corneliu Lungoci, Valentin Sita and Ion Aurel Mironiuc</b>             | Design of a Temperature Controller for an Hyperthermic Intra-peritoneal Chemotherapy Equipment  |

**13:45 – 15:00 [T2] Session on Applied Mathematics I** (Room 109)

Session chair: Alexandru Kristály

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| 108 | <b>Lupa Nicolae, Megan Mihail and Popa Ioan-Lucian</b>   | Generalized exponential dichotomies for evolution operators            |
| 103 | Tibor Pogány, <b>Árpád Baricz</b> and Imre Rudas   | Incomplete Kratzel function model of leaky aquifer and alike functions |
|     | Authors: Claudia Zaharia, Dorel Mihet<br>Title: Fixed point theorems of Bailey type in compact fuzzy metric spaces             |  |
|     | Authors: Nicolae Marian Seimeanu, Mihai-Gabriel Babutia<br>Title: Polynomial trichotomies through examples and counterexamples |  |
| 104 | <b>Árpád Baricz</b> and Tímea Mészáros   | Bounds for the symmetric difference of generalized Marcum Q-functions  |

**13:45 – 15:15 [TP1] Poster session** (Ground floor)

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| 6 | <b>Peter Bakucz</b> , Jozsef Zoltan Szabo and Annamaria Varkonyi-Koczy | A Non-iterative Robust-Gaussian Filtering Algorithm for Roughness Measurements |
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| 12 | <b>Mihai Popescu, Dan Ungureanu-Anghel and Ioan Filip</b>  | Sequential automata model for transport and routing of pallets to identical stations placed in series on a production line         |
| 14 | <b>Peter Butka, Jana Pocsova and Jozef Pocs</b>  | On intent stability index for One-Sided Concept Lattices   |
| 16 | <a href="#">Gelu-Ovidiu Tirian</a> , <a href="#">Octavian Prostean</a> , <a href="#">Ioan Filip</a> and <a href="#">Cezara Rat</a> | Inverted pendulum controlled through fuzzy logic   |
| 40 | <b>Iosif Szeidert, Ioan Filip, Octavian Prostean and Cristian Vasar</b>  | Regression Methods used for the Determination of Induction Generator Efficiency in Context of Planning and MPPT Control Strategies |
| 86 | <b>Gheorghe-Daniel Andreescu, Octavian Cornea, Nicolae Muntean and Emil Guran</b>  | Bidirectional Flyback Inverter with Low Output Voltage THD   |
| 27 | <b>Sergiu Nimara, Alexandru Amaricai and Mircea Popa</b>   | Sub-Threshold CMOS Circuits Reliability Assessment Using Simulated Fault Injection Based on Simulator Commands                     |

**15:15 – 15:30 Coffee break**

**15:30 – 17:00 Parallel sessions**

**15:30 – 17:00 [T3] Session on Computational Intelligence in Systems, Man and Cybernetics Application** (Room A 115)

Session chairs: Norbert Gal and Florin Dragan

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| 111 | Bogdan Ionescu, Cristian Gadea, Bogdan Solomon, Mircea Trifan, <b>Dan Ionescu</b> and Vasile Stoicu-Tivadar                      | A Chat-Centric Collaborative Environment for Web-based Real-Time Collaboration                                       |
| 116 | Ryotaro Oikawa, Munehiro Takimoto and Yasushi Kambayashi   | Distributed Formation Control for Swarm Robots Using Mobile Agents   |
| 5   | László Pál and Tibor Csendes   | An improved stochastic local search method in a multistart framework   |
| 80  | Salavat Marian Cosmin and Popa Mircea  | Sybil Attack Type Detection in Wireless Sensor Networks based on Received Signal Strength Indicator detection scheme |
| 83  | <a href="#">Shahidul Islam</a> , <a href="#">Cristian Gadea</a> , <a href="#">Bogdan Ionescu</a> and <a href="#">Dan Ionescu</a> | A Sensor Array System for the Estimation of 3D Body and Parts Movements  |
| 53  | Victor Stefan Roman and Catalin Buiu   | Automatic detection of meteors in spectrograms using artificial neural networks                                      |

**15:30 – 16:45 [T4] Session on Applied Mathematics II** (Room 109)

Session Chair: Árpád Baricz

|     |  |   |
|-----|--|---|
| 132 | Péter Tibor Nagy   | Schreier Decomposition of Loops   |
| 101 | <b>Csaba Farkas, János Fodor and Alexandru Kristály</b>                              | Anisotropic elliptic problems involving sublinear terms   |
| 120 | <b>Stefan Andrei, <a href="#">Ildiko Szoke</a> and <a href="#">Stefan Holban</a></b> | Hierarchical clustering techniques and classification applied in Content Based Image Retrieval (CBIR) |

Authors: Claudia Luminița Mihiț, Maria Lăpădat

Title: On some asymptotical behaviors of linear discrete-time systems in infinite-dimensional spaces

Author: Alexandru Kristály

Title: Why are some convexity notions useless in Riemannian geometry?

**15:30 – 17:00 [TP2] Poster session** (Ground floor)

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| 22 | Csaba Szasz and <b>Eva Dulf</b>   | Fractional Fourier Transform: a Novel Tool for Multimodal Communication Improvement of Pervasive Mobile Robots |
| 30 | <a href="#">Radu-Emil Precup</a> , Alexandra-Dina Balint, <a href="#">Emil Petriu</a> , <a href="#">Mircea-Bogdan Radac</a> and Emil Voisan | PI and PID Controller Tuning for an Automotive Application Using Backtracking Search Optimization Algorithms   |
| 35 | Marius-Florin Crainic and Stefan Preitl   | Ergonomic operating mode for a robot arm using a game-pad with two joysticks                                   |
| 47 | Simona Sgaverdea, Claudia-Adina Bojan-Dragos, Radu-Emil Precup, Stefan Preitl and Alexandra-Iulia Stinean                                   | Model Predictive Controllers for Magnetic Levitation Systems   |
| 51 | Ioan Luminosu and Aldo De Sabata  | Solar Thermal Systems Developed in the Western Part of Romania: an LCoE Analysis                               |

**18:30 Banquet** (Restaurant Universitar, Aleea FC Ripensia no. 1)

**May 22 (Friday)**

**8:00 – 12:30 Registration** (Room A 107)

**9:00 – 10:30 Parallel sessions**

**9:00 – 10:30 [F1] Session on Computational Intelligence and Informatics Applications** (Room A 115)

Session chairs: Stefan Preitl and Gyula Hermann

|    |   |  |
|----|---|--|
| 69 | <b>Attila Simo</b> , Constantin Barbulescu and Stefan Kilyeni   | Transmission Network Expansion Planning Software-Tools   |
| 74 | <a href="#">Mircea Trifan</a> , <a href="#">Bogdan Ionescu</a> , <a href="#">Cristian Gadea</a> and <a href="#">Dan Ionescu</a> | A Graph Digital Signal Processing Method for Semantic Analysis   |
| 52 | Roxana Both, Eva-Henrietta Dulf, Cristina Ioana Muresan and Mihai Secara  | Fractional order PD control of an isotope separation columns cascade   |
| 17 | <a href="#">Ioana Sora</a> and Doru Todinca   | Dealing with Fuzzy QoS Properties in Service Composition   |
| 42 | Daniel-Eugen Butoianu and <a href="#">Doru Todinca</a>  | The Efficiency of minimum Operator for Fuzzy Automata: A Case Study  |
| 60 | <a href="#">Zdena Dobesova</a> , Lucie Lackova and Martin Malcik  | Perception and Cognition of Different Types of Graphic Notations as a Source of Information in Applied Informatics |

**9:00 – 10:30 [F2] Special Session on PhD papers (Room A 109)**

Session chair: László Horváth

|     |   |  |
|-----|---|--|
| 123 | <b>György Eigner</b> , József K. Tar and <b>Levente Kovács</b>  | Adaptive Control Solution for T1DM Control                             |
| 126 | Péter Kádár and Márk Karacsi  | Emergency heat and power supply with mCHP device in global blackout    |
| 119 | <a href="#">Krisztián Karóczkai</a> , <a href="#">Anna Bánáti</a> , <a href="#">Péter Kacsuk</a> and <a href="#">Miklós Kozlovsky</a> | Supporting Smart System applications in Scientific Gateway environment |
| 114 | Eszter Kail, Péter Kacsuk and Miklós Kozlovsky  | A Novel Approach to User-steering in Scientific Workflows              |
| 105 | Gábor Kertész and Zoltán Vámosy   | Current Challenges in Multi-View Computer Vision                       |
| 122 | Attila Selmei and Tamás Orosz   | Trends and followers in GUI development for business applications      |

**9:00 – 10:30 [FP1] Poster session (Ground floor)**

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|----|--|---|
| 54 | Peter Butka, Jana Pocsova and <b>Jozef Pocs</b>  | Experimental Study on Reduction of One-Sided Concept Lattice Based on Subsets Quality Measure |
| 58 | <a href="#">Ciprian Sorandaru</a> , Sorin Musuroi, Gheza-Mihai Erdodi and Doru-Ionut Petrescu  | The Control of the Wind Power Systems by Imposing the DC Current                              |
| 59 | Claudia Farago, Gabriel Oltean, Paul Farago and <a href="#">Sorin Hintea</a>   | An Evolutionary Approach for Nominal Design and Yield Enhancement of Analog Amplifiers        |
| 61 | Alexandra-Iulia Stînean, <a href="#">Stefan Preitl</a> , <a href="#">Radu-Emil Precup</a> and <a href="#">Claudia-Adina Bojan-Dragos</a> | Model Predictive Control of a Mechatronic System with Variable Inputs                         |
| 24 | <a href="#">Cristina Stangaciu</a> , Andreea Horvath, <a href="#">Mihai Micea</a> and <a href="#">Vladimir-Ioan Cretu</a>                | Analysis and Improvements in Energy Consumption Models for RTS                                |

**10:30 – 11:00 Coffee break**

**11:00 – 12:30 Parallel sessions**

**11:00 – 12:30 [F3] Session on Process Control (Room A 115)**

Session chairs: Péter Kádár and Ioana Sora

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|-----|--|---|
| 127 | <b>László Horváth</b> and <b>Imre Rudas</b>  | High Level Abstraction for Product Concept Definition in Virtual Engineering  |
| 33  | <b>Ovidiu Sicoe</b> , <a href="#">Alexandru Amaricai</a> , <a href="#">Mircea Popa</a> and <b>Oana Boncalo</b> | Generation of Floating Point 2D Translation Operators for FPGA  |
| 4   | <a href="#">Andrei Lihu</a> and <a href="#">Stefan Holban</a>  | The Influence of the Background Model on DNA Motif Prediction: an Assessment for Zinc Finger Transcription Factor ZFX |
| 63  | <b>A.M. Dan</b> and <b>T.L. Dragomir</b>   | A Sensitivity Based Approach to Determine the Parameters Variation of a Cardiovascular Model                          |

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| 84 | <b>Artur Kuczapski and Antonius Stanciu</b>   | Assistive Software for Cochlear Implant Fitting: Estimation and Monitoring of the Effective Stimulation Thresholds, Prediction of Expected Hearing Levels |
| 78 | <b>Stefano-Niko Orzen, Mircea Stratulat, <a href="#">Sorin Babii</a> and Constantin Cosovan</b> | Fault Tolerance of Propagated Errors in Persistent Real-Time Routing Processes with a Synchronization Based Algorithmic Method                            |

**11:00 – 12:30 [F4] Special Session on Safety and Security Sciences (Room A 109)**

Session chair: Zoltán Rajnai

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| 115 | <b>László Pokorádi</b>   | Failure Probability Analysis of Bridge Structure Systems  |
| 99  | Ruboczki Edit and Rajnai Zoltan                                | How to develop cloud security awareness   |
| 97  | <a href="#">Nyikes Zoltan</a> and <a href="#">Kerti Andras</a> | Overview of Hungary Information Security, The Issues of the National Electronic Classified Material of Transmission |
| 100 | Werner Gabor and Rajnai Zoltan                                 | Fuzzy Logic Adapted Controller System for Biometrical Identification in Highly-Secured Critical Infrastructures     |
| 98  | <a href="#">Szilagyi Gyozo</a> and Rajnai Zoltan               | Reveal the Organizational Substitution Anomalies Using Network Analysis Methods                                     |
| 110 | <a href="#">Vanderer Gábor</a> and Rajnai Zoltan               | Security Awareness and Social Responsibility  |

**11:00 – 12:30 [FP2] Poster session (Ground floor)**

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|-----|---|---|
| 62  | <b>Corina Anca Mnerie</b> , Stefan Preitl and Virgil-Florin Duma              | Classical PID versus Predictive Control Solutions for a Galvanometer-based Scanner        |
| 81  | <a href="#">Cosmina Illes</a> , Cristian Vasar, Ioan Filip and Iosif Szeidert | Energy Efficiency Analysis in Multi-Hop Wireless Sensor Networks                          |
| 87  | Loredana Ghiormez and Octavian Prostean                                       | Electric Arc Current Control for an Electric Arc Furnace Based on Fuzzy Logic             |
| 102 | Sándor Szénási, Imre Felde and István Kovács                                  | Solving One-dimensional IHCP with Particle Swarm Optimization using Graphics Accelerators |
| 112 | Róbert Istók  | High Frequency Emissions of Electromagnetic and Electronic Fluorescent Lamps              |

**12:30 – 14:00 Lunch break (Casa Politehnicii 1)**

**13:30 – 16:00 Registration (Room A 107)**

**14:00 – 15:30 Parallel sessions**

**14:00 – 15:30 [F5] Session on Information Security and Manufacturing Systems (Room A 115)**

Session chairs: Dan Ionescu and Cristian Vasar

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| 8  | <b>György Max</b> and Béla Lantos   | Time-Suboptimal Predictive Control of Four-in-Wheel Driven Electric Vehicles |
| 28 | <a href="#">Erno Horvath</a> , <a href="#">Claudiu Pozna</a> and <a href="#">János Kovács</a> | An abstraction of the Lidar measurements                                     |
| 29 | <b>Dalibor Dobrilovic, Borislav Odadzic and Zeljko Stojanov</b>                               | Approach in planning the deployment of 868 MHz RF modules in WSN scenarios   |

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| 89 | <b>Loránd Lukács and Béla Lantos</b>              | Nonlinear Dynamic Model Identification of Airplanes Including Inertial Parameters and Force-Torque Relations Based on Real Flight Data |
| 75 | <b>Lucian Bara, Oana Boncalo and Marius Marcu</b> | Hardware support for performance measurements and energy estimation of OpenRISC processor  |
| 37 | <b>Dumitru Daniel Dinu and Mihai Togan</b>        | DHCPAuth – A DHCP Message Authentication Module  |

**14:00 – 15:30 [F6] Session on Social Network and Business Process (Room A 109)**

Session chairs: Isabela Dramnesc and Ernő Horváth

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| 49 | <b>Oana Iuliana Golban, Marius Marcu and Sebastian Fuicu</b> | Solution for analyzing interpersonal relationships using a mobile application   |
| 50 | <b>Alexandru Stanescu and Marius Marcu</b>                   | Adaptive Video Streaming Solution for Varying Mobile Networks Environments  |
| 3  | <b>Ana Perišić, Marko Lazić and Branko Perišić</b>           | The Foundation for Cooperative Services in Engineering Buildings - The Common Ontology for Architectural and Urban Data Repository Modeling |
| 38 | <b>Maria Laura Sebu and Horia Ciocarlie</b>                  | Business Process Similarity Metric Supporting One-to-many Relationship  |
| 39 | <b>Maria Laura Sebu and <a href="#">Horia Ciocarlie</a></b>  | Business Activity Monitoring Solution to Detect Deviations in Business Process Execution  |
| 2  | <b>Alexandru Topirceanu and Mihai Udrescu</b>                | Measuring Realism of Social Network Models Using Network Motifs   |

**14:00 – 15:30 [FP3] Poster session (Ground floor)**

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| 107 | <b>Olga Baklanova, Alexander Baklanov and Olga Shvets</b>   | METHODS AND ALGORITHMS OF COMPUTER VISION FOR AUTOMATED PROCESSING OF MINERAL ROCKS IMAGES         |
| 113 | <b>Sandru Lucian Alexandru, Tony Stanescu and Valer Dolga</b>   | Studies Regarding Detection of Obstacles with Different Geometric Shape Using Parallax Ping Sensor |
| 124 | <b>Endre Pap and Anikó Szakál</b>   | General pseudo-integral  |
| 128 | <b>Attila Bencsik, Krisztina Némethy, Gyula Kártyás and Franciska Hegyesi</b>   | Effects of New Engineering Paradigm on University Education Programs                               |
| 70  | <b><a href="#">Constantin Barbulescu</a>, <a href="#">Stefan Kilyeni</a>, <a href="#">Attila Simo</a> and <a href="#">Razvan Teslovan</a></b> | Photovoltaic Power Plants Influence on Distribution Network Expansion Planning                     |

**15:30 – 16:00 Coffee break**

**16:00 – 17:15 Parallel sessions**

**16:00 – 17:15 [F7] Session on Applied Informatics (Room A 115)**

Session chairs: Dalibor Dobrilovic and Marius Marcu

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| 23 | <b>Péter Arató and Dániel András Drexler</b> | Comparison of two loop-free decomposition methods |
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| 118 | <a href="#">Isabela Dramnesc</a> and <a href="#">Tudor Jebelean</a> | A Case Study in Proof Based Synthesis of Algorithms on Monotone Lists                     |
| 85  | Ernő Horváth, Péter Kőröss, István Lakatos and Péter Dely           | Development of Individual Information Technology Systems of Experimental Vehicles         |
| 43  | <a href="#">Ioana Sora</a>  | A PageRank Based Recommender System for Identifying Key Classes in Software Systems       |
| 130 | Tamás Orosz   | Support of Physics Education by means of Business Informatics methods at University level |

**16:00 – 17:00 [F8] Session on Systems, Man, and Cybernetics Algorithms (Room A 109)**

Session chairs: Mihai Togan and Alexander Baklanov

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| 15  | <a href="#">Alecsandru Pătrașcu</a> , <a href="#">Alexandru Marius Velciu</a> and <a href="#">Victor Valeriu Patriciu</a>        | Cloud Computing Digital Forensics Framework for Automated Anomalies Detection                       |
| 109 | Gyula Hermann and György Hermann   | Application of Computational Geometry in Coordinate Measurement                                     |
| 7   | Adriana Cristina Enache, Valentin Sgarciu and Alina Nita   | Intelligent Feature Selection Method rooted in Binary Bat Algorithm for Intrusion Detection         |
| 46  | <a href="#">Elisa Moisi</a> , <a href="#">Benedek Nagy</a> , <a href="#">Tibor Lukic</a> and <a href="#">Vladimir-Ioan Cretu</a> | Comparing memetic and simulated annealing approaches for discrete tomography on the triangular grid |

**16:00 – 17:15 [FP4] Special session on Space Robotics (Poster session on Ground floor)**

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| 90 | Hamido Fujita  | Health_Risks-Forecast@People-in-Clouds: Big data based Clouds for Healthcare-Risk Forecasting |
| 94 | Ren C. Luo, Y.C. Wu and P.H. Lin   | Multimodal Information Fusion for Human-Robot Interaction                                     |
| 92 | Ryszard Klempous, Jan Nikodem and Andrzej Wytyczak-Partyka                                     | Computer-Assisted Surgical trainer for Minimally Invasive Surgery                             |
| 95 | Árpád Takács, Sándor Jordán, Dénes Ákos Nagy, József K. Tar, Imre J. Rudas and Tamás Haidegger | Surgical Robotics—Born in Space   |
| 93 | Jaroslav Žáček, Eva Volná and Michal Janošek   | Modular Neural Network in the Cloud   |
| 96 | Zsolt Miklós Szabó-Resch and Zoltán Vámosy   | Introducing the TekiControl project: using ROS from C#  |
| 91 | István Kecskés and Péter Odry  | Multi-scenario Optimization Approach for Fuzzy Control of a Robot-car Model                   |

**18:00 Coctail (Casa Politehnicii 2, Bd. M. Eminescu nr. 11)**