

# TECHNICAL PROGRAM

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June 14, 2006, Wednesday

**15:00 – 17:00 REGISTRATION Hotel Annabella**

June 15, 2006, Thursday

**8:00 – 17:00 REGISTRATION Hotel Annabella**

**9:15 – 9:30 OPENING CEREMONY Room Deák**

**Chair:** *Imre J. Rudas*  
Budapest Tech, Hungary

**9:30 – 10:15 PLENARY SESSION Room Deák**

**Chair:** *Imre J. Rudas*  
Budapest Tech, Hungary

**Recent Advances in Robotics and Mechatronics – From Space to Surgery**

*Gerd Hirzinger*  
Germany

**10:15 – 10:35 COFFEE BREAK**

**10:35 – 12:20 SESSION Simulation and Process Control Room Deák**

**Chair:** *Karel Jezernik*  
University of Maribor, Slovenia

**10:35 Simulation of Robotic Manipulators**

*Leon Žlajpah*  
Slovenia

**10:55 A Novel Index to Compare the Representation Quality of Objects Approximated with Spheres**

*Riccardo Franci, Vincenzo Parenti-Castelli*  
Italy



**14:00 – 15:40 PARALLEL SESSION Control and Vision Room Erzsébet**

**Chair:** *Jadran Lenarcic*  
Jozef Stefan Institute, Slovenia

- 14:00 Bimanual Haptic Telepresent Control Applied to Disposal of Explosive Ordnances – Concepts and Experimental Validation –**  
*Günther Schmidt, Alexander Kron*  
Germany
- 14:20 Motion Control Simulation with Special Fuzzy Operators**  
*Márta Takács*  
Hungary
- 14:40 Functional Modeling and Simulation of a Rotary Hydraulic Actuator Controlled by a Servovalve**  
*Inocentiu Maniu, Valentin Ciupe, Valer Dolga, Corneliu Radulescu*  
Romania
- 15:00 Collision Avoidance Trajectory Design**  
*Claudiu Pozna, Fritz Troester*  
Romania, Germany
- 15:20 Redesign of the Control Stage for an Obsolete Hydraulic Robot**  
*Valentin Ciupe, Inocentiu Maniu, Valer Dolga, Corneliu Radulescu*  
Romania

**15:40 – 16:00 COFFEE BREAK**

**16:00 – 17:40 SESSION Industrial Robot Application II Room Deák**

**Chair:** *Zdenek Kolibal*  
Brno University, Czech Republic

- 16:00 A Holonic Fault Tolerant Manufacturing Platform with Multiple Robots**  
*Theodor Borangiu, Florin Daniel Anton, Silvia Tunaru, Anamaria Dogar*  
Romania
- 16:20 The Design of a High Precision Linear Stage**  
*Gyula Hermann*  
Hungary

- 16:40**            **Automation in Shoe Assembly**  
*Bojan Nemeč, Leon Žlajpah*  
Slovenia
- 17:00**            **Application of Networks in Automotive Production**  
*György Schuster, Tamás Sándor*  
Hungary
- 17:20**            **Calibration of Three-Axial Inertial Motion Sensor Using Industrial  
Robot and Optical System**  
*Roman Kamnik, Simon Stegel, Marko Munih*  
Slovenia
- 18:00 –**            **WELCOME RECEPTION**  
**at Hotel Annabella**

June 16, 2006, Friday

**8:00 – 17:00 REGISTRATION Hotel Annabella**

**9:00 – 10:40 PARALLEL SESSION Mechanics of Robots Room Deák**

**Chair:** *Theodor Borangiu*  
Technical University of Bucharest, Romania

**9:00 Dynamic Performace of Micro-Compliant Platformforms:  
Experimental Analysis**

*Nicola P. Belfiore, Massimiliano Scaccia, Antonio Di Vasta,  
Francesco Ianniello*  
Italy

**9:20 Design of Compliant Robotic Micro-Devices**

*Štefan Havlík, Giuseppe Carbone*  
Slovakia, Italy

**9:40 Kinematic Optimization of a Haptic Interface with Redundant  
Actuation**

*Paolo Righettini, Steven Chatterton, Hermes Giberti*  
Italy

**10:00 Spherical Mechanisms Used in Industrial Robot Designing**

*Corneliu Rădulescu, Inocențiu Maniu, Valer Dolga, Valentin  
Ciupe*  
Romania

**10:20 Design of a Translating Parallel Robot Based on 3-CPU Kinematics**

*Massimo Callegari, Matteo-Claudio Palpacelli, Marco Scarponi*  
Italy

**9:00 – 10:40 PARALLEL SESSION Mobile Robots Room Erzsébet**

**Chair:** *Nicola P. Belfiore*  
Dept. of Mechanics and Aeronautics, Italy

**9:00 Analysis and Design of a 1-DOF Leg for Walking Machines**

*Cristina Tavolieri, Erika Ottaviano, Marco Ceccarelli, Alessandro  
Di Rienzo*  
Italy

- 9:20**                    **Mechatronic Design for Autonomous Mobile Systems**  
*Valer Dolga, Inocentiu Maniu, Cornel Radulescu, Valentin Ciupe*  
Romania
- 9:40**                    **Mobile Robot Navigation Using Omnidirectional Vision**  
*László Mornailla, Tamás Gábor Pekár, Csaba Gergő Solymosi,*  
*Zoltán Vámosy*  
Hungary
- 10:00**                    **Multipurpose Control System and Mobile Robot Development for Control Algorithms Research**  
*Denis A. Olchanski, Sergey A. Levykh*  
Hungary, Russia
- 10:20**                    **Stability Control of Human Inspired Jumping Robot**  
*Jan Babič, Damir Omrčen*  
Slovenia

**10:40 – 11:00**    **COFFEE BREAK**

**11:00 – 12:20**    **PARALLEL SESSION Control and Vision**                    **Room Deák**

**Chair:**            *Günter Schmidt*  
Technical University of München, Germany

- 11:00**                    **Fuzzy Model-based Robot Motion Control, Conventional and Decoupled Realization**  
*Andreja Rojko, Karel Jezernik*  
Slovenia
- 11:20**                    **Exponential Stabilisation of Robot Arms**  
*Václav Zúda*  
Czech Republic
- 11:40**                    **Image-Based Visual Servo Control of a Robotic Arm by Using Cellular Neural Networks**  
*Alexandru Gacsádi, Virgil Tiponuş, Péter Szolgay*  
Romania, Hungary
- 12:00**                    **Dynamics and Control of Two Planar Robot Manipulators Handling a Flexible Beam**  
*Ali Tavasoli, Mohammad Eghtesad, Hamed Jafarian*  
Iran

<b>11:00 – 12:20</b>	<b>PARALLEL SESSION Education in Robotics</b>	<b>Room Erzsébet</b>
	<b>Chair:</b> <i>József K. Tar</i> Budapest Tech, Hungary	
<b>11:00</b>	<b>Computational Robot Consciousness: a Pipe Dream or a (Future) Reality?</b> <i>Jozef Kelemen</i> Czech Republic	
<b>11:20</b>	<b>The (Short) Robot Chronicle (On the 20th Century Cultural History of Robots)</b> <i>Jana Horakova</i> Czech Republic	
<b>11:40</b>	<b>A Quadruped Walking Robot as Educational Robot</b> <i>Steliana Vatau</i> Romania	
<b>12:00</b>	<b>An Approach to Integrated Modeling of Robot System in an Intelligent Space</b> <i>László Horváth, Imre J. Rudas, Zsuzsa Preitl</i> Hungary, Romania	
<b>12:20 – 14:00</b>	<b>LUNCH</b>	
<b>14:00 – 14:45</b>	<b>PLENARY SESSION</b>	<b>Room Deák</b>
	<b>Chair:</b> <i>Imre J. Rudas</i> Budapest Tech, Hungary	
	<b>The Human Frontier: Robotics New Quest and Challenge</b> <i>Oussama Khatib</i> USA	
<b>14:45 – 15:45</b>	<b>SESSION Grippen</b>	<b>Room Deák</b>
	<b>Chair:</b> <i>Gernot Kronreif</i> Mechatronic Automation Systems, Austria	
<b>14:45</b>	<b>Tip-Grasp Experiences with Three-Finger Anthropomorphic LARM Hand</b> <i>Nestor Eduardo Nava Rodríguez, Marco Ceccarelli</i> Italy	

<b>15:05</b>	<b>Family of Mechanical Anthropomorphic Poly-Mobile Grippers for Robots - Synthesis, Analysis, Design and Functional Simulation</b> <i>Ionel Staretu, Marius Ionescu, Valentin Runcan</i> Romania
<b>15:25</b>	<b>Improved Pivot Grasping Using Friction Plane Contacts</b> <i>Tomaž Koritnik, Tadej Bajd, Roman Kamnik, Marko Munih</i> Slovenia
<b>15:45 – 16:00</b>	<b>COFFEE BREAK</b>
<b>16:00 – 17:40</b>	<b>SESSION Non-industrial application <span style="float: right;">Room Deák</span></b>
	<b>Chair:</b> <i>Erika Ottaviano</i> University of Cassino, Italy
<b>16:00</b>	<b>Robotic System for Image Guided Therapie – B-RobII</b> <i>Gernot Kronreif, Martin Fürst, Wolfgang Ptacek, Martin Kornfeld, Joachim Kettenbach</i> Austria
<b>16:20</b>	<b>A Non-Overlapping Receptive Field Model Based on Receptive Field Physiology</b> <i>András Róka, Ádám Csapó, Péter Baranyi</i> Hungary
<b>16:40</b>	<b>Smart Card and Biometrics Used for Secured Personal Identification System Development</b> <i>Mădălin Ștefan Vlad, Razvan Tatoi, Valentin Sgârțiu</i> Romania
<b>17:00</b>	<b>Integration of a Redundant Mobile Manipulator System: A Drink Serving Task</b> <i>Damir Omrčen, Bojan Nemec, Andrej Kos, Leon Lahajnar, Jan Babič, Andrej Gams, Aleš Ude, Leon Žlajpah</i> Slovenia
<b>17:20</b>	<b>Integrated Environment for Assisted Movement of Visually Impaired</b> <i>Virgil Tîponuț, Alexandru Gacsádi, Lavinia Țepelea, Călin Lar, Ioan Gavriluț</i> Romania
<b>18:00 –</b>	<b>DINNER WITH WINE TASTING</b>



June 17, 2006, Saturday

**8:00 – 11:00    REGISTRATION    Hotel Annabella**

**9:00 – 9:45    PLENARY SESSION    Room Deák**

**Chair:**    *Imre J. Rudas*  
Budapest Tech, Hungary

**How Intelligent the Toy Robots are?**  
*János Somló, András Molnár, Zoltán Vámosy, Anna Kutypova,*  
*Denis Olchanski*  
Hungary

**9:50 – 11:50    SESSION Mobile Robots    Room Deák**

**Chair:**    *Jozef Kelemen*  
Silesian University, Czech Republic

**9:50    Mobile Robot Path Planning Using Omnidirectional Wheels in  
Known or Partially Known Environments**  
*Istvan Szabó, Radek Knoflíček*  
Czech Republic

**10:10    Experiments in Fuzzy Control of a Class of Servo Systems for  
Mobile Robots**  
*Stefan Preitl, Radu-Emil Precup*  
Romania

**10:30    AMORsim – A Mobile Robot Simulator for Matlab**  
*Toni Petrinić, Edouard Ivanjko, Ivan Petrović*  
Croatia

**10:50    The ZeeRO Mobile Robot – A Modular Architecture**  
*Gheorghe Lazea, Radu Bogdan Rusu, Radu Robotin, Romulus  
Sime*  
Romania

**11:10    About the Simulation of the Human Knee Joint for Walking  
Locomotion**  
*Dragos Popa, Daniela Tarnita, Danut Tarnita, Iulian Iordachita*  
Romania

