#### RAAD2015 Program

### WEDNESDAY May 27, 2015 [GRIGORESCU Room, 4<sup>th</sup> floor]

08:15 - 08:45	Registration
08:45 - 09:10	Opening Session
09:00 - 10:00	Plenary Session 1: Toward Lifelong Learning, Adaptation, and Adjustability for
	Personalized Human-Robot Interaction,
	Professor Adriana Țăpuș, ENSTA-ParisTech, France
10:00 - 10:30	Coffee break
10:30 - 12:30	Technical Session A: Robot integration in industrial applications
12:30 - 14:00	Lunch
14:00 - 16:00	Technical Session B: Grasping analysis, dexterous grippers and component design
16:00 - 16:30	Coffee break
16:30 - 18:30	Technical Session C: Advanced robot motion control
20:00 -	Welcome cocktail, Grand Hotel Continental

### THURSDAY May 28, 2015 [GRIGORESCU Room, 4<sup>th</sup> floor]

08:00 - 08:30	Registration
08:30 - 09:30	Plenary Session 2: Carl CLOOS - A Provider of Advanced Robotic Solutions for Arc
	Welding,
	Dr. Nicolae Joni, General Manager of Robcon TM, Romania
09:30 - 10:50	Technical Session D: Robot vision and sensory control
10:50 - 11:20	Coffee break
11:20 - 12:40	Technical Session E: Human-robot interaction and collaboration
12:40 - 14:00	Lunch / Meeting of the RAAD International Steering Committee
14:00 - 16:00	Technical Session F: Modelling and design of novel mechanisms and robotic structures
16:00 - 16:30	Coffee break
16:30 - 17:50	Technical Session G: Robots in medicine and rehabilitation
19:45 –	Gala dinner, Restaurant Crama Domneasca, historical centre of Bucharest
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## FRIDAY May 29, 2015 [TONITZA Room, 4<sup>th</sup> floor]

08:30 - 10:30	Technical Session H: Tracking systems and Unmanned Aerial Vehicles
10:30 - 11:00	Coffee break
11:00 - 13:00	Technical Session I: Autonomous task learning, motion planning and scheduling
13:00 - 13:05	Wrap up
13:05 - 14:30	Lunch

#### WEDNESDAY May 27, 2015

09:00 - 10:00Plenary Session 1: Toward Lifelong Learning, Adaptation, and Adjustability for<br/>Personalized Human-Robot Interaction,Professor Adriana Tăpuş, ENSTA-ParisTech, FranceChairmen: Theodor Borangiu, Romania

Technical Session A: Robot integration in industrial applications	
Chairmen: Do	ru Pănescu, Romania
10:30-10:50	On Applying CSP for Coordination of a Multi-Robot Holonic Manufacturing Doru Pănescu and Gabriela Varvara
10:50-11:10	Establishing Optimal Energy Working Parameters for a Robotized Manufacturing Cell Silviu Răileanu, Theodor Borangiu and Florin Anton
11:10-11:30	ROS Based Safety Concept for Collaborative Robots in Industrial Applications Stephan Kallweit, Robert Walenta and Michael Gottschalk
11:30-11:50	Experimental Platform for Performance Tests of Compliant Robotic Devices Jaroslav Hricko
11:50-12:10	Cooperative Assembly Using Two Industrial Robots Mădălin Petru Sbanca and Gheorghe Leonte Mogan
12:10-12:30	The Beginning of the Automation A Brief Review on the Automatic Devices in the Hellenistic Age <i>Cesare Rossi</i>

<b>Technical Session B</b> : Grasping analysis, dexterous grippers and component design <b>Chairmen:</b> Panagiotis Kostoumpardis, Greece		
14:00-14:20	Gripping Analysis of an Underactuated Finger Francesco Penta, Cesare Rossi and Sergio Savino	
14:20-14:40	Dynamic Behaviour of an Underactuated Finger Vincenzo Niola, Cesare Rossi, Sergio Savino and Pavel Potapov	
14:40-15:00	Swivel Walker with Electro Motoric Module and Designation of Stability Mikulas Hajduk and Jozef Varga	
15:00-15:20	Resistance Feedback of a Shape Memory Alloy Wire Daniela Maffiodo and Terenziano Raparelli	
15:20-15:40	Study of 3-Jaw Gripper Architectures Giuseppe Quaglia and Luca Girolamo Butera	
15:40-16:00	Flexible Actuator for Biomorphic Applications: Performances and Energy Consumption Evaluation Andrea Manuello Bertetto, Carlo Ferraresi, Luigi Antonio Besalduch, Roberto Ricciu and Andrea Cadeddu	

Technical Session C: Advanced robot motion control

Chairmen: József Tar, Hungary

16:30-16:50	Optimizing Trajectory Points for High Speed Robot Assembly Operations Florin Anton, Silvia Anton, Silviu Răileanu and Theodor Borangiu
16:50-17:10	Cost Function-free Optimization in Inverse Kiematics of Open Kinematic Chains József Tar, László Nádai, Imre Felde and Imre Rudas
17:10-17:30	Control and Coordination System Supported by Biologically Inspired Method for 3D space "Proof of concept" Jan Zelenka and Tomas Kasanicky
17:30-17:50	Preliminary Ideas on the Odometry of an Omni-directional Mobile Robot Ioan Doroftei, Ionel Conduraru and Vasile Horga
17:50-18:10	Study of Controlled Motion of Exoskeleton Moving From Sitting to Standing Position Sergey Jatsun, Sergei Savin, Andrey Yatsun and Andrei Malchikov
18:10-18:30	Robotic System Equipped by Catapult Sergey Jatsun, Oksana Loktionova, Lyudmila Vorochaeva and Alexander Vorochaev

### THURSDAY May 28, 2015

08:30 -09:30	<b>Plenary Session 2:</b> Carl CLOOS - A Provider of Advanced Robotic Solutions for Arc Welding,
	Dr. Nicolae Joni, General Manager of Robcon TM, Romania
	Chairmen: Mircea Niţulescu, Romania

Technical Session D: Robot vision and sensory control Chairmen: Anton Ružič, Slovenia	
09:30-09:50	A Control Predictive Framework for Image-Based Visual Servoing Applications Corneliu Lazăr and Adrian Burlacu
09:50-10:10	Motion Leap Compared to Data Gloves in Human Hand Tracking Cătălin Moldovan and Ionel Starețu
10:10-10:30	Considerations for Robot Vision in Glass Production Anton Ružič
10:30-10:50	Rotation Angle Determination for Rectangular Objects Using an Infrared Sensorial System Tony Stănescu, Diana Savu and Valer Dolga

Technical Session E: Human-robot interaction and collaboration Chairmen: Carlo Ferraresi, Italy	
11:20-11:40	Individuals with Autism: Analysis of the First Interaction with Nao Robot based on their Proprioceptive and Kinematic Profiles Pauline Chevalier, Brice Isableu, Jean-Claude Martin and Adriana Jăpuş

11:40-12:00	Human Robot Collaboration for Folding Fabrics Based on Force / RGB-D Feedback
	Panagiotis Koustoumpardis, Konstantinos Chatzilygeroudis, Aris Synodinos and Nikos Aspragathos
12:00-12:20	Case Studies for Education in Robotics: From Serious Games to "Technology to Teach Technology" Platforms
	Monica Drăgoicea and Theodor Borangiu
12:20-12:40	Designing a Multimodal Human-Robot Interaction Interface for an Industrial Robot
	Bogdan Mocan, Mircea Fulea and Stelian Brad

# **Technical Session F**: Modelling and design of novel mechanisms and robotic structures **Chairmen:** Mircea Niţulescu, Romania

14:00-14:20	The Modelling of the Hexapod Mobile Robot Leg using Matlab SimMechanics Sorin Mănoiu Olaru and Mircea Niţulescu
14:20-14:40	Static Analysis of Rotary Positioning Modules for Technological Head of the Robot Jan Semjon, Marek Vagas and Vladimir Balaz
14:40-15:00	A New Hyper-Redundant Arm and its Control System Viorel Stoian, Ionel Cristian Vladu and Ileana Vladu
15:00-15:20	Dynamic Model of a Discrete Planar Tentacle Robot Mihaela Florescu and Mircea Ivănescu
15:20-15:40	How to Use 3D Printing for Feasibility Check of Mechanism Design Marco Ceccarelli, Carbone Giuseppe, Daniele Cafolla and M. F. Wang
15:40-16:00	Gibbs - Appell Equations of Motion for a Three Link Robot with Matlab Dan Marghitu and Dorian Cojocaru

#### Technical Session G: Robots in medicine and rehabilitation Chairmen: Doina Pîslă, Romania

16:30-16:50	Kinematic Behaviour of a Novel Medical Parallel Robot for Needle Placement Bogdan Gherman, Doina Pîslă, Gabriel Kacso and Nicolae Plitea
16:50-17:10	Optimal Planning of Needle Insertion for Robotic-assisted Prostate Biopsy Doina Pîslă, Bogdan Gherman, Florin Gîrbacia, Calin Vaida, Silviu Butnariu, Teodora Gîrbacia and Nicolae Plitea
17:10-17:30	Towards Robot-Assisted Rehabilitation of Upper Limb Dysfunction Irina Voiculescu, Stephen Cameron, Manfred Zabarauskas and Piotr Kozlowski
17:30-17:50	Simulation and Control of a Robotic Device for Cardio-Circulatory Rehabilitation Carlo Ferraresi, Daniela Maffiodo and Hamidreza Hajimirzaalian

#### FRIDAY May 29, 2015

Technical Session H: Tracking systems and Unmanned Aerial Vehicles		
Chairmen: Karol Dobrovodsky, Slovakia		
08:30-08:50	Aiming Procedure for the Tracking System Karol Dobrovodský and Pavel Andris	
08:50-09:10	Trajectory Generation with Way-Point Constraints for UAV Systems Florin Stoican and Dan Popescu	
09:10-09:30	Kinematics-based Localization of a Skid-Steer Vehicle Rocco Galati, Giulio Reina, Nicola Ivan Giannoccaro and Arcangelo Messina	
09:30-09:50	Dynamic Task Planning of Aerial Robotic Platforms for Ground Sensor Data Collection and Processing Grigore Stamatescu, Dan Popescu and Cristian Mateescu	
09:50-10:10	Improving Communication Efficiency in Hybrid UAV – WSN Systems Maximilian Nicolae, Dan Popescu, Radu Dobrescu and Cristian Mateescu	
10:10-10:30	Top Viewing Human Tracking in Shopping Centers Petros Vasileiou, Nefeli Lamprinou, Emmanouil Psarakis, Giannis Tzimas and Nikos Achilleopoulos	

# **Technical Session I**: Autonomous task learning, motion planning and scheduling **Chairmen:** Aleksandar Rodić, Serbia

11:00-11:20	Motion Planning and Scheduling with Stochastic Demands Elias Xidias and Philip Azariadis
11:20-11:40	Autonomous Learning of Internal Dynamic Models for Reaching Tasks Tadej Petrič, Aleš Ude and Auke Ijspeert
11:40-12:00	Adaptation of Motor Primitives to the Environment through Learning and Statistical Generalization <i>Miha Deniša, Aleš Ude and Andrej Gams</i>
12:00-12:20	Extended Kalman Filter (EKF)-based Local SLAM in Dynamic Environments. A Framework Horațiu George Todoran and Markus Bader
12:20-12:40	Motion Analysis of a Robotic Wheelchair Ionuț Geonea and Nicolae Dumitru
12:40-13:00	On Building Remotely Operated Underwater Robot-Explorer with Bi-Manual Poly-Articular System Aleksandar Rodić, Ilija Stevanović, Milos Jovanović and Đorđe Urukalo