

Mechanisms and Machine Science

Volume 49

Series editor

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DICeM: University of Cassino and South Latium

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More information about this series at <http://www.springer.com/series/8779>

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Editors

Advances in Service and Industrial Robotics

Proceedings of the 26th International
Conference on Robotics in Alpe-Adria-Danube
Region, RAAD 2017

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ISSN 2211-0984

Mechanisms and Machine Science
ISBN 978-3-319-61275-1

DOI 10.1007/978-3-319-61276-8

ISSN 2211-0992 (electronic)

ISBN 978-3-319-61276-8 (eBook)

Library of Congress Control Number: 2017943852

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Printed on acid-free paper

This Springer imprint is published by Springer Nature

The registered company is Springer International Publishing AG

The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The 26th International Conference on Robotics in Alpe-Adria-Danube Region, RAAD 2017, will be held in the *Technical University Politecnico di Torino*, Turin, Italy, on June 21–23, 2017. The conference brought together academic and industry researchers in Robotics from 30 countries, the majority of them affiliated to the Alpe-Adria-Danube Region, and their worldwide partners in a collegial and stimulating environment.

Human activities in many sectors are currently supported or replaced by robots, which range from standard robots for industrial applications to service and autonomous robots for complex activities. The great versatility and flexibility of nowadays robots allows them to be employed in numerous sectors, to perform a diversity of tasks.

According to its tradition, RAAD 2017 covered all important areas of research, development, and innovation in Robotics, including new applications and trends such as unmanned aerial vehicles, personal robots for ambient assisted living, human–robot collaboration and interaction, bio-inspired and cognitive robots, visual servoing of robot motion, and cloud robotics.

The conference was arranged with Tracks, which cover specific topics of Robotics and which originated corresponding technical sessions. Each Track was managed by chairpersons, who proposed and promoted its topic, collected the related papers, and chaired the corresponding conference sessions. This allowed enriching the conference with subjects representing the ultimate frontier of the Robotics research. The Tracks organized in RAAD 2017 were as follows:

- *Optimization-based methods for planning and control of environment-aware robotic systems*
- *Exoskeletons and body shells: prospective with new materials, design and brain control*
- *UAV: innovation and new application fields in the next future*
- *Technological rehabilitation*
- *Safety related devices and applications*
- *Automation and robotics for vehicles*

- *Control, identification and calibration of robotic systems*
- *Wearable robotic systems for motion assistance*
- *Humanoids & cognitive systems*

Therefore, a special acknowledgment is due to all Track Chairs which gave their valuable collaboration to this task:

Marco Gabiccini, Alberto Rovetta, Marco Piras, Paolo Maggiore, Alberto Borboni, Giuseppe Carbone, Med Amine Laribi, Francesco Timpone, Mauro Velardocchia, Andreas Müller, Marina Indri, Hubert Gattringer, Tadej Petrič, Karsten Berns, Aleksandar Rodić.

The total number of papers was completed with articles authored by researchers from the RAAD community but also from other European and extra-European Countries, bringing further enrichment of conference topics.

Consequently, the following subjects completed the whole of the conference:

- *Robot kinematics and dynamics*
- *Vision systems*
- *Mobile robots and path planning*
- *Industrial applications*
- *Robotic grippers*
- *Biomedical applications*

This book collects 111 scientific papers and is articulated in 16 chapters, which reflect the 24 technical sessions of the conference. All papers have been selected through an accurate peer review process, which considered their relevance, novelty, clarity, and which guaranteed the high quality level of this work.

The topics are presented in a sequence starting from the classical robotic subjects, such as kinematics, dynamics, structures, control, and ending to frontier topics, such as human–robot interaction and biomedical applications.

We are confident that any researcher involved in the robotic field will find this book an extraordinary and up-to-date window on the last findings in this area.

June 2017

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Contents

Robot Kinematics and Dynamics

Comparative Analysis of Quasi-Differential Approaches in Inverse Kinematics	3
Bertalan Csanádi, János F. Bitó, Imre J. Rudas, and József K. Tar	
A Novel Single-Loop Decoupled Schoenflies-Motion Generator: Concept and Kinematics Analysis	11
Raffaele Di Gregorio	
A Comparative Study of Three Manipulator Performance Measures	19
Vassilis C. Moulitanitis, Eleftherios F. Katrantzis, Nikos A. Stravopodis, and Nikos A. Aspragathos	
Analysis of Constraint Singularities of a 2-DOF Spatial Parallel Mechanism	28
Stefano Mauro and Gabriele Biondi	
Central Active Mechanism for Unmanned Space Docking	36
Stefano Mauro, Tharek Mohtar, Stefano Pastorelli, and Massimo Sorli	
On the Mechatronic Design of a Low-Cost 6-DoFs Parallel Kinematic Manipulator	46
Hermes Giberti, Enrico Fiore, and Alessandro Saccomani	
Behaviour-Based Inverse Kinematics Solver on FPGA	55
Alexander Köpper and Karsten Berns	
A Novel Reconfigurable 3-URU Parallel Platform	63
Luca Carbonari, David Corinaldi, Matteo Palpacelli, Giacomo Palmieri, and Massimo Callegari	
Mechatronic Design and Control of a 3-RPS Parallel Manipulator	74
Giorgio Figliolini, Chiara Lanni, Pierluigi Rea, and Tommaso Gallinelli	

Control, Identification and Calibration of Robotic Systems

Force Analysis for the Impact Between a Rod and Granular Material	85
Memduh Arsalan, Hamid Ghaednia, Dan B. Marghitu, and Dorian Cojocaru	
Cooperative Distance Measurement for an Anti-aircraft Battery	95
Karol Dobrovodský and Pavel Andris	
Collision Avoidance of Robots by Artificial Force Field Around Geometric Primitives Using Two Range Image Sensors	102
Christian Thormann and Alexander Winkler	
Using Compliancy for Autonomous Execution of Path Following Tasks	113
Leon Žlajpah and Nejc Likar	
Study Concerning a Robotic System with Matlab/OpenCV Post-processing	121
Victor Constantin, Ciprian Ion Rizescu, Mihai Ciocan, and Dana Rizescu	
Output Control of a Class of Hyper-redundant Robots	130
Mircea Ivanescu, Mircea Nitulescu, Nguyen Van Dong Hai, and Mihaela Florescu	
Using Virtual Sensors in Industrial Manipulators for Service Algorithms Like Payload Checking	138
Marina Indri and Stefano Trapani	
Robust Motion Control of a Soft Robotic System Using Fractional Order Control	147
Bastian Deutschmann, Christian Ott, Concepcion A. Monje, and Carlos Balaguer	
FloBaRoID — A Software Package for the Identification of Robot Dynamics Parameters	156
Stefan Bethge, Jörn Malzahn, Nikolaos Tsagarakis, and Darwin Caldwell	
Implementation of a Fractional-Order Control for Robotic Applications	166
Luca Bruzzone, Vittorio Belotti, and Pietro Fanghella	
Real-Time Computation of Inexact Minimum-Energy Trajectories Using Parametric Sensitivities	174
Alexander Reiter, Hubert Gattringer, and Andreas Müller	

Sensor-Based Loops and Branches for Playback-Programmed Robot Systems	183
Michael Riedl, Eric M. Orendt, and Dominik Henrich	
On Latencies and Noise Effects in Vision-Based Control of Mobile Robots	191
Mohammad M. Aref, Juho Vihonen, Reza Ghabcheloo, and Jouni Mattila	
A Novel Method for Geometric Robot Calibration Using Laser Pointer and Cameras	200
Hubert Gattringer, Matthias Neubauer, Dominik Kaserer, and Andreas Müller	
Redundant Robotic Manipulator Path Planning for Real-Time Obstacle and Self-Collision Avoidance	208
Tuomo Kivelä, Jouni Mattila, Jussi Puura, and Sirpa Launis	
A Low-Cost Experimental Device for Compliant Physical Human-Robot Interaction	217
Daniel Rácz, Máttyás Takács, Péter Galambos, and János Somló	
Using Spring-Damper Elements to Support Human-Like Push Recovery Motions	227
Ruth Malin Kopitzsch Schemschat and Katja Mombaur	
Validation of Relevant Parameters of Sensitive Manipulators for Human-Robot Collaboration	242
David Kirschner, Andreas Schlotzhauer, Mathias Brandstötter, and Michael Hofbaur	
Optimization-Based Methods for Planning and Control of Environment-Aware Robotic Systems	
Preliminary Design of an Electropneumatic Automatic Machine for Herbaceous Grafting	255
Guido Belforte, Gabriella Eula, Terenziano Raparelli, Silvia Sirolli, Pietro Piccarolo, Paolo Gay, Davide Ricauda Aimonino, and Lorenzo Comba	
A Falling Motion Strategy for Humanoids Based on Motion Primitives of Human Falling	264
Libo Meng, Zhangguo Yu, Weimin Zhang, Xuechao Chen, Marco Ceccarelli, and Qiang Huang	
Legged Robot Strategies for Climbing Stairs	273
M. Nițulescu, M. Ivănescu, S. Mănoiu-Olaru, and V.D.H. Nguyen	
Kinematic Path Control of a Redundant Robot Arm in Sliding Mode	281
Evgeniy Krastev	

Precise Positioning of a Robotic Arm Manipulator Using Stereo Computer Vision and Iterative Learning Control 289
Kaloyan Yovchev, Denis Chikurtev, Nayden Chivarov, and Nedko Shivarov

A Receding Horizon Push Recovery Strategy for Balancing the iCub Humanoid Robot 297
Stefano Daffar, Francesco Romano, and Francesco Nori

Neural Networks for Real-Time, Probabilistic Obstacle Detection 306
Tobias Werner, Josua Bloß, and Dominik Henrich

Vision Systems

Cloud Robot Vision Services Extend High-Performance Computing Capabilities of Robot Systems 317
Florin Daniel Anton, Theodor Borangiu, Silvia Anton, and Silviu Raileanu

A Robotic 3D Vision System for Automatic Cranial Prostheses Inspection 328
Maria Cristina Valigi, Silvia Logozzo, and Gabriele Canella

Automated, Depth Sensor Based Object Detection and Path Planning for Robot-Aided 3D Scanning 336
Jakob Ziegler, Hubert Gattringer, Dominik Kaserer, and Andreas Müller

Collision Avoidance System for Collaborative Robotics 344
Stefano Mauro, Leonardo Sabatino Scimmi, and Stefano Pastorelli

Mobile Robots and Path Planning

Design and Construction of a Demonstrative HeritageBot Platform 355
Marco Ceccarelli, Daniele Cafolla, Matteo Russo, and Giuseppe Carbone

Estimation of the Traversal Time for a Fleet of Industrial Transport Robots 363
Clemens Mühlbacher, Stefan Gspandl, Micheal Reip, and Gerald Steinbauer

Adapting Edge Weights for Optimal Paths in a Navigation Graph 372
Clemens Mühlbacher, Stefan Gspandl, Micheal Reip, and Gerald Steinbauer

Advanced Modelling Techniques for Flexible Robotic Systems 381
Mariapaola D’Imperio, Cristiano Pizzamiglio, Daniele Ludovico, Darwin G. Caldwell, Giancarlo Genta, and Ferdinando Cannella

Autonomous Mobile Manipulation Using ROS 389
Heiko Engemann, Patrick Wiesen, Stephan Kallweit, Harshavardhan Deshpande, and Josef Schleupen

Automation and Robotics for Vehicles

Team of Pneumatic ASi-Controlled Climber Robots for Ships Inspection	405
Enrico Ravina	

Elasto-Kinematic Characteristics of Car Suspensions with Magneto-Rheological Bushings	414
Renato Brancati, Giandomenico Di Massa, Ernesto Rocca, Cesare Rossi, Sergio Savino, and Francesco Timpone	

Delay-Dependent Criteria for Robust Dynamic Stability Control of Articulated Vehicles	424
Mojtaba Sharifzadeh, Arash Farnam, Adolfo Senatore, Francesco Timpone, and Ahmad Akbari	

Comparison of Modelling Tools for the Assessment of the Parameters of Driving Assistance Solutions	433
Flavio Farroni, Guido Fusco, Luigi Pariota, Sebastian Rosario Pastore, Aleksandr Sakhnevych, and Francesco Timpone	

Modeling, Simulation and Control of a 4WD Electric Vehicle with In-Wheel Motors	444
Raffaele Iervolino and Aleksandr Sakhnevych	

Path Tracking Control for Autonomous Driving Applications	456
Antonio Tota, Mauro Velardocchia, and Levent Güvenç	

UAV: Innovation and New Application Fields in the Next Future

Electromagnetic Characterization of Installed Antennas Through UAVs	471
Irene Aicardi, Pietro Bolli, Andrea Maria Lingua, Fabio Paonessa, Marco Piras, and Giuseppe Virone	

Remote Sensing from RPAS in Agriculture: An Overview of Expectations and Unanswered Questions	483
Enrico Borgogno Mondino	

A Self-adapting Method for 3D Environment Exploration Inspired by Swarm Behaviour	493
Ján Zelenka, Tomáš Kasanický, and Ivana Budinská	

Analysis & Modelling of Powertrain Components for an Efficient UAV Design	503
Mario Silvagni, Marcello Chiaberge, and Federico Tessari	

Camera Selection and Flight Planning for Post Processing 3D Reconstruction Automatization	516
Mario Silvagni, Marcello Chiaberge, and Abdalla Osman	

A Modular Cloud Robotics Architecture for Data Management and Mission Handling of Unmanned Robotic Services	528
Mario Silvagni, Marcello Chiaberge, Claudio Sanguedolce, and Gianluca Dara	
Application of an Inspection Robot Composed by Collaborative Terrestrial and Aerial Modules for an Operation in Agriculture	539
Roberto Grassi, Pierluigi Rea, Erika Ottaviano, and Paolo Maggiore	
Industrial Applications	
Airbrush Robotic Painting System: Experimental Validation of a Colour Spray Model	549
Lorenzo Scalera, Enrico Mazzon, Paolo Gallina, and Alessandro Gasparetto	
Spring Design for Motor Torque Reduction in Articulated Mechanisms	557
Paolo Boscariol, Giovanni Boschetti, Paolo Gallina, and Chiara Passarini	
A Robotic Design for a MIM Based Technology	565
Hermes Giberti and Luca Sbaglia	
Robust One-Shot Robot Programming by Demonstration Using Entity-Based Resources	573
Eric M. Orendt, Michael Riedl, and Dominik Henrich	
The “Robot Mechanics” Course Experience at Politecnico di Milano.	583
Hermes Giberti and Enrico Fiore	
Mechatronic Design and Prototype of a 4-DOFs Hot-Wire CNC Cutting Machine	591
Giorgio Figliolini, Pierluigi Rea, and Carlo Cocomello	
Robotic Grippers	
Development of a NEMS-Technology Based Nano Gripper.	601
Andrea Veroli, Alessio Buzzin, Rocco Crescenzi, Fabrizio Frezza, Giampiero de Cesare, Vito D’Andrea, Francesco Mura, Matteo Verotti, Alden Dochshanov, and Nicola Pio Belfiore	
A 3-Finger Robotic Gripper for Grasping Fabrics Based on Cams-Followers Mechanism	612
Panagiotis N. Koustoumpardis, Sotiris Smyrnis, and Nikos A. Aspragathos	
Experimental Results for QuBu Gripper: A 3-Jaw Electric Gripper.	621
Giuseppe Quaglia and Luca Girolamo Butera	

Experimental Evaluation and Comparison of Low-Cost Adaptive Mechatronic Grippers. 630
Giovanni Carabin, Ilaria Palomba, Dominik Matt, and Renato Vidoni

The Experience at University of L'Aquila on Shape Memory Alloys Actuators 638
Francesco Durante, Pierluigi Beomonte Zobel, and Terenziano Raparelli

Humanoids & Cognitive Systems

Human Robot Interaction Using Dynamic Hand Gestures 649
Zuhair Zafar, Daniel Alejandro Salazar, Salah Al-Darraj, Djordje Urukalo, Karsten Berns, and Aleksandar Rodić

Ability of Humanoid Robot to Perform Emotional Body Gestures 657
Djordje Urukalo, Ljubinko Kevac, Zuhair Zafar, Salah Al-Darraj, Aleksandar Rodić, and Karsten Berns

Supporting a Human-Aware World Model Through Sensor Fusion. 665
Dominik Riedelbauch, Tobias Werner, and Dominik Henrich

Interactive Communication Between Human and Robot Using Nonverbal Cues 673
Salah Al-Darraj, Zuhair Zafar, Karsten Berns, Djordje Urukalo, and Aleksandar Rodić

Building of Hyper-redundant Under-Actuated Soft Robotic Arm with 20 DOF. 681
Ilija Stevanović, Aleksandar Rodić, Miloš Jovanović, and Marija Tomić

Safety Related Devices and Applications

Structure Optimization of the Cable Driven Legs Trainer. 691
Houssein Lamine, Med Amine Laribi, Sami Bennour, Lotfi Romdhane, and Said Zegloul

A Novel Kinematic of a 4 d.o.fs Haptic Device Based on the Delta Robot Architecture 699
Housseem Saafi, Celestin Preault, Med Amine Laribi, and Said Zegloul

Design and Operation of a Novel Hexapod Robot for Surveillance Tasks 707
Fernando Gomez-Bravo, Pablo Villadoniga, and Giuseppe Carbone

Exoskeletons and Body Shells: Prospectives with New Materials, Design and Brain Control

Design and Lab Tests of a Scaled Leg Exoskeleton with Electric Actuators 719
Cristian A. Iancu, Marco Ceccarelli, and Erwin-Christian Lovasz

Textile Rotary Pneumatic Actuator for Rehabilitation 727
Terenziano Raparelli, Alexandre Ivanov, and Fabio Eduardo Palladino

Neural and Physiological Measures to Classify User’s Intention and Control Exoskeletons for Rehabilitation or Assistance: The Experience @NearLab 735
Simona Ferrante, Emilia Ambrosini, Claudia Casellato, Marta Gandolla, Alessandra Pedrocchi, and Giancarlo Ferrigno

Lower Limb Exoskeleton with Hybrid Pneumatically Assisted Electric Drive: Models 746
Igor Orlov, Anton Aliseychik, Elena Kolesnichenko, Vladimir Pavlovsky, Dmitry Gribkov, and Alexey Podoprosvetov

Wearable Robotic Systems for Motion Assistance

Exoskeleton for Gait Training in Spinal Cord Injured People: Clinical Analysis and Ethical Dilemmas 759
Luciano Bissoletti, Paola Zuccher, Andrea Zenorini, Sonia Chiari, Paolo Gaffurini, Armando Pasini, and Federico Nicoli

Wearable Hearing Support System Tapping Toward Sound Source . . . 766
Ryuichi Shimoyama and I. Syou

Qualitative Assessment of a Clutch-Actuated Ankle Exoskeleton 778
Miha Dežman, Jan Babič, and Andrej Gams

Shared Control for Human-Robot Cooperative Manipulation Tasks . . . 787
Tadej Petrič, Mišel Cevzar, and Jan Babič

Open Source EMG Device for Controlling a Robotic Hand 797
Mišel Cevzar, Tadej Petrič, and Jan Babič

Assistive Strategies for a Back Support Exoskeleton: Experimental Evaluation 805
Stefano Toxiri, Jesús Ortiz, and Darwin G. Caldwell

FEX a Fingers Extending eXoskeleton for Rehabilitation and Regaining Mobility 813
Patrizio Sale, Giovanni Stellin, Stefano Masiero, Francesco Becchi, and Wiktor Sieklicki

Ankle Prosthesis with an Active Control of the Pitch and the Release of the Energy	825
Michele Gabrio Antonelli, Stefano Alleva, Francesco Durante, and Pierluigi Beomonte Zobel	
Development of an Active Orthosis for Inferior Limb with Light Structure	833
Francesco Durante, Pierluigi Beomonte Zobel, and Terenziano Raparelli	
Technological Rehabilitation	
P.I.G.R.O.: An Active Exoskeleton for Robotic Neurorehabilitation Training Driven by an Electro-Pneumatic Control	845
Katuscia Sacco, Guido Belforte, Gabriella Eula, Terenziano Raparelli, Silvia Sirolli, Elisabetta Geda, Giuliano Carlo Geminiani, Roberta Virgilio, and Marina Zettin	
Study and Experimentation of Innovative Textile Pneumatic Muscle Prototypes	854
Guido Belforte, Gabriella Eula, Alexandre Ivanov, Terenziano Raparelli, and Silvia Sirolli	
Design and Control of Linkage Exoskeletons in Wheelchair	862
Gao Huang, Marco Ceccarelli, Weimin M. Zhang, Fei Meng, Tao Sun, and Qiang Huang	
An Ethical Reflection on the Application of Cyber Technologies in the Field of Healthcare	870
Adelaide Conti, Elena Azzalini, Cinzia Amici, Valter Cappellini, Rodolfo Faglia, and Paola Delbon	
Hand Robotic Rehabilitation: From Hospital to Home	877
Alberto Borboni, Mauro Serpelloni, Michela Borghetti, Cinzia Amici, Francesco Aggogeri, Davide Fausti, Massimo Antonini, Maurizio Mor, Emilio Sardini, and Rodolfo Faglia	
Cardiopulmonary Resuscitation Devices: Preliminary Analysis	885
Riccardo Adamini, Francesco Aggogeri, Manuela Baronio, Alberto Borboni, Elisabetta Dal Gal, Nicola Pellegrini, and Carlo Remino	
ERRSE: Elbow Robotic Rehabilitation System with an EMG-Based Force Control	892
Monica Tiboni, Giovanni Legnani, Matteo Lancini, Mauro Serpelloni, Massimiliano Gobbo, and Davide Fausti	
Path's Slicing Analysis as a Therapist's Intervention Tool for Robotic Rehabilitation	901
Mozafar Saadat, Alireza Rastegarpanah, Che Zulkhairi Abdullah, Hamid Rakhodaei, Alberto Borboni, and Marco Maddalena	

Surface EMG for Human-Machine Interfaces: New Knowledge and Open Issues	911
Marco Gazzoni, Alberto Botter, and Taian Vieira	
Upper Limb Rehabilitation Robotic System Requirements Analysis . . .	919
Dorin Popescu, Florin Manta, Ligia Rusu, Taina Elena Avramescu, and Mihaela Zavaleanu	
Biomedical Applications	
Human Energy Involved in Manual and Mechanically Facilitate Harvesting of Saffron Flowers	931
Andrea Manuello Bertetto, M. Garau, R. Ricciu, Gianmario Satta, P. Chiappori, and Alberto Concu	
Stiffness Characterization of Biological Tissues by Means of MEMS-Technology Based Micro Grippers Under Position Control	939
Alvise Bagolini, Pierluigi Bellutti, Paolo Di Giamberardino, Imre J. Rudas, Vito D'Andrea, Matteo Verotti, Alden Dochshanov, and Nicola P. Belfiore	
Bio-Mechatronic Modules for Robotic Massage	948
Maksim Arkhipov, Igor Orlov, Vadim Golovin, Liudmila Kocherevskaya, Vzhesnevsky Evgeny, and Uglev Aleksander	
Control of Force Impulse in Human-Machine Impact	956
Carlo De Benedictis, Walter Franco, Daniela Maffiodo, and Carlo Ferraresi	
Dionis Surgical Positioner	965
Jeremy Olivier, Jerry Biemann, Mohamed Bouri, and Hannes Bleuler	
Method for Measuring the Displacement of Cadaveric Elbow After the Section of Medial Collateral Ligament Anterior and Posterior Bundles	972
Daniele Borzelli, Laura Gastaldi, Cristina Bignardi, Alberto Audenino, Mara Terzini, Arman Sard, and Stefano Pastorelli	
A New Testing Device for the Role of the Trunk in Force Production and in Balance Control in Disabled Sitting Athletes	980
Valeria Rosso, Laura Gastaldi, Walter Rapp, Benedikt Fasel, Yves Vanlandewijck, Stefan Lindinger, and Vesa Linnamo	
Two-Segments Foot Model for Biomechanical Motion Analysis	988
Elisa Panero, Laura Gastaldi, and Walter Rapp	
Validation of Three KUKA Agilus Robots for Application in Neurosurgery	996
Marko Švaco, Petar Koren, Bojan Jerbić, Josip Vidaković, Bojan Šekoranja, and Filip Šuligoj	

A New Bone Fixation Device for Human Joint Test Rig Machine	1007
Luca Luzi, Nicola Sancisi, Michele Conconi, and Vincenzo Parenti Castelli	
Cesare Rossi, Ad Memoriam	
Performance Analysis of the Automata in a Blossoming Flower Clock in the 18th Century	1017
Yu-Hsun Chen, Marco Ceccarelli, and Hong-Sen Yan	
Design Issues for an Inherently Safe Robotic Rehabilitation Device	1025
Giuseppe Carbone, Bogdan Gherman, Ionut Ulinici, Calin Vaida, and Doina Pislă	
Influence of the Tendon Design on the Behavior of an Under-Actuated Finger	1033
Vincenzo Niola, Cesare Rossi, and Sergio Savino	
Author Index.	1043