

Table of Contents

Preface and Technical Committee

Chapter 1: Invited Papers

Spherical Ultrasonic Motor for Pipe Inspection Robot S. Toyama	3
Multi-Agent Robotic System – Robotic Soccer in Category Mirost M. Hajduk and M. Sukop	12
Dynamic Thermal Analysis of Laminated Cylinder with a Piezoelectric Layer Based on Three-Dimensional Elasticity Solution A.R. Daneshmehr, S. Akbari and A. Nateghi	16
Optimizing the Global Dynamic Compliance by Using the Smart Damper and LabVIEW Instrumentation A. Olaru, S. Olaru and D. Paune	26
Advanced Rehabilitation Technology I. Ciobanu and M. Berteau	35
The Command and Control Software Implementation of a CCD Video 2 Axis Gyrostabilized Payload Used by a Fixed Wing UAV Configuration Platform C. Axente, L. Coşoreanu and D.I. Suteu	46
Machining with Image Recognition Using Industrial Robot T. Mikolajczyk and P. Wasiak	50
Validation of the Mathematical and Numerical Models for Artillery Barrels Autofrettage Based on Hydrostatic Procedure G. Bârsan, S.M. Petrişor and L. Giurgiu	58
A 6-DoF Satellite Virtual Simulator Design and Development M. Mirshams, A. Nahvi, M. Khosrojerdi, H. Tae and A. Vahid	70
Experimental Study of Vortex Shedding Control Using Plasma Actuator M. Mirzaei, A.S. Taleghani and A. Shadaram	75
Three-Dimensional Elasticity Study of Vibration of a Composite Shell Panel with Embedded Piezoelectric Sensors A.R. Daneshmehr, S. Nili, A.R. Nateghi and S. Hussaini	87
Dynamic Force-Position Control of the Walking Robots Motion on Slope L. Vladareanu and D.O. Melinte	98

Chapter 2: Mechanical Engineering

Theoretical and Experimental Contact Stiffness Characterisation of Nominally Flat Surfaces I. Piscan, A.P. Ompusunggu, T. Janssens and N. Predinca	107
Optimal Design of the Mechanical Device for a Photovoltaic Tracking Mechanism M.A. Ioniță and C. Alexandru	114
Remote Control Testing Consumer Products for Durability and Performance A.N. Cuta and A.O. Trufasu	124
Flammability Behavior of Composite Mixed with Retardant Agents A.I. Al-Mosawi, M.A. Rijab, A.J. Salaman, N.A. Alwash and N.S. Aziz	129
Infrared Detection for Surveillance System C.I. Rizescu, B.R. Vlad and D. Rizescu	132
Mechatronic Designed Hydraulic Positioning System M. Avram, D. Duminiță, V. Gheorghe and C. Bucşan	137
Effect of Dry Binders on Mechanical Properties of Ketoprofen-Cyclodextrin Extended Drug Release Systems M.C. Stamate, C. Gafitanu, C. Stamate and E. Gafitanu	143

About the Study of Bending Beam on Elastic Environment by Transfer-Matrix Method M. Suciu	149
Evaluation Flame Retardancy of Epoxy Composite by Using Design of Experiments A.I. Al-Mosawi, J.K. Ahmed and H.A.H. Al-Ethari	156

Chapter 3: Manufacturing Systems

Measuring the Flanks of a Bevel Gear Made by Heidenreich-Harbeck Cutting Machine F. Erzsebet, M. Csaba Zoltan and C. Luciana	163
Ultrasound Examination – Mean of Analysis of the Layers Properties Deposited Through Different Thermal Spraying Methods D.B.S. Constantin, G.M. Dumitru, B. Dumitru and D. Viorel-Cristian	169
VBA for Tracking Manufacturing Process in SME A. Dobra	176
Analytical Calculation of the Position Loop Gain for Linear Motor CNC Machine Tool Z. Pandilov and V. Dukovski	182
Possibilities of Use of Virtual Reality in the Field of Manufacturing Systems L. Koukolová, M. Hajduk and A. Belovezcik	188
Torsor Evaluation of the Tooth during the Milling Process C. Bisu, E.L. Olteanu, C. Minciu and M. Zapciu	194
The Preliminary Study of Machinability during Milling of Titanium Alloy (Ti-6Al-4V) C. Serboi, S. Velicu, P. Darnis, R. Laheurte and C. Ionescu	200
Thermal Shock in Sprayed Layers Observed Using Infrared Thermography D. Viorel-Cristian, G.M. Dumitru, D. Bogdan, C. Dumitrascu and D.B.S. Constantin	208
Device Used for Magnetic Treatment of Fuel Fluids before Burner R. Ciobanu, M. Repetto, O. Dontu, F. Freschi and T. Prisecaru	214

Chapter 4: Robotics

Mathematical Simulation of Leg's a 5-Dof a Biped Robot M. Csaba Zoltan, F. Erzsebet and C. Luciana	221
A Pneumatically Driven Stewart Platform Used as Fault Detection Device M. Ramsauer, M. Kastner, P. Ferrara, R. Naderer and H. Gattringer	227
Modelling and Kinematic Analysis of a Built Up Linear Delta Robot E. Uyar and L. Mutlu	234
Functional and Constructive Optimization of a Serial-Modular Industrial Robot Implemented within a Single Purpose Flexible Manufacturing Cell S.M. Petrişor and G. Bârsan	239
Establishing the State of Operation on Vibration Behavior of the Industrial Robot D. Niculescu, M. Vagaş, A. Olaru, M. Hajduk and A.L. Ghionea	247
Research on Correlation between any Plantar Diseases and Stability B.C. Braun, M.I. Baritz and D.L. Cotoros	254
Eye Tracking Used to Evaluate the Human Behavior M.I. Baritz, D.L. Cotoros and B.C. Braun	260
Adaptive Drive of Manipulator Module K.S. Ivanov and G.K. Balbayev	266
Design and Implementation of an Improved Real-Time Tracking System for Navigation Surgery by Fusion of Optical and Inertial Tracking Methods A. Soroush, F. Farahmand and H. Salarieh	273
Development and Optimization of Perimeter Traversing Robot S. Mohanty, S. Mahapatra, S.K. Panda, P.K. Rath, M.K. Sarangi and O.I. Bylya	280

Chapter 5: Aerospace

Miniature Flexible Pneumatic Actuator M. Ionescu, I.C. Roca and B.C. Braun	291
--	-----

Nonlinear Aeroelastic Behavior of Slender Wings Considering a Static Stall Model Based on Wagner Function	
D. Badiei, M.H. Sadr and S. Shams	297
Simulation on the Distribution of Forces under the UAV's Specific Profiles	
D. Florescu and I. Florescu	305
An Architecture Design of Navigation Solution Using Signal Information from Global Navigation Satellite System	
N.N. Abbas, W. Xin, C.Y. An and Y.J. Li	310