

ISRM 2019 Technical Sessions

Session 1 - Industrial and Service Related Robotics and Mechatronics

Monday 28 October, 10:40-12:20 @ IB 201

Session Chair: Professor Yusuke Sugahara, Tokyo Institute of Technology, Japan

Paper 27: Development of an Automated and Adaptive System for Robotic Hybrid-Wire Arc Additive Manufacturing (H-WAAM)

A.G. Dharmawan, Y. Xiong, S. Foong, G.S. Soh

Paper 06: Intelligent Automation Module-Based Gear Edge Grinding System

C.-K. Huang, Y.B. Guu, C.Y. Yang, Y.-Y. Lin, C.H. Chen

Paper 44: Robot-Assisted Double-Pulse Gas Metal Arc Welding for Wire and Arc Additive Manufacturing

J. Greebmalai, E. Warinsiriruk, Y.-T. Wang

Paper 46: Development of a Close-Fitting Assistive Suit with Adjustable Structure for Arm and Back as Needed - e.z.UP®

Y.-T. Liao, T. Ishioka, K. Mishima, C. Kanda, K. Kodama, E. Tanaka

Paper 56: An experimental characterization of the BIT astronaut robot

M. Ceccarelli, H. Li, T. Zheng, M. Yang

Session 2 - Kinematics and Dynamics of Multibody Systems

Monday 28 October, 10:40-12:20 @ IB 202

Session Chair: Prof. Dr.-Ing. Mathias Hüsing, RWTH Aachen University, Germany

Paper 14: On Kinetostatics and Workspace Analysis of Multi-Platform Cable-Driven Parallel Robots with Unlimited Rotation

T. Reichenbach, P. Tempel, A. Verl, A. Pott

Paper 15: Kinematics of a Planar Parallel Robot via Screw Theory: Details not Mentioned

A.L. Balmaceda-Santamaría, M.A. García-Murillo

Paper 24: Dynamic Modeling for Spatial Revolute Joint with Clearances in Multibody Systems Based on HLCP

L. Li, S. Lyu, X. Ding

Paper 39: Kinematic Analysis of (2-RRU)-URR Parallel Mechanism Performing 2R1T Output Motion

W.-h. Choi, Y. Takeda

Paper 43: Development of an Innovative 2-DOF Continuous–Rotatable Mechanism

C. Liu, T.-H. Wang, P.-C. Lin

Session 3 - Novel Robotic Systems

Monday 28 October, 13:30-15:10 @ IB 202

Session Chair: Professor Gim Song Soh, Singapore University of Technology and Design, Singapore

Paper 11: Development of an Interactive System for a Companion Robot Based on Telepresence Technology

S. Chen, L. Yao, Y. Hsu, T. Chen

Paper 18: Development and Optimization of an Intelligent Parking Slot Allotter and Billing System Based on Machine Learning and OCR

B.P. Dandumahanti, G.-c. Chen

Paper 45: Learning Emotion Recognition and Response Generation for a Service Robot

J.-Y. Huang, W.-P. Lee, B.-W. Dong

Paper 47: Design and Testing of 2-Degree-of-Freedom DOF Printable Pneumatic Soft Finger

E. Shahabi, Y.-T. Yao, C.-H. Chuang, P.T. Lin, C.-H. Kuo

Paper 55: Dynamic Analysis and Motion Simulation of the 3 DOFs Waist Mechanism for Humanoid Robots

M. Penčić, B. Brkić, M. Čavić, M. Rackov

Session 4 - Mechanism Synthesis, Analysis, and Design

Monday 28 October, 15:30-17:30 @ IB 201

Session Chair: Professor Giuseppe Carbone, University of Calabria, Italy

Paper 10: Stiffness Analysis of a Semi-symmetrical Three-Translation Delta-CU Parallel Robot

H. Shen, Y. Wang, G. Wu, Q. Meng

Paper 09: An Experimental Test Procedure for Validation of Stiffness Model: A Case Study for R-CUBE Parallel Mechanism

I. Görgülü, M. I. C. Dede, G. Carbone

Paper 26: Performance Evaluation of a Class of Gravity-Compensated Gear-Spring Planar Articulated Manipulators

N. Vu Linh, C.-H. Kuo

Paper 51: Design and Analysis of a Mechanism for Spherical Surface Processing

A. Fomin, W. Ivanov, V. Glazunov

Paper 54: A Short Note on Equivalent Four-Bar Linkages of Direct-Contact Mechanisms

W.-T. Chang, D.-Y. Yang

Paper 32 : A Motion Control System to Use Robots at 100 Times the Earth's Gravity

V.M. Cedenno-Campos, U. Martinez-Hernandez, A. Rubio-Solis

Session 5 - Modelling and Simulation

Monday 28 October, 15:30-17:30 @ IB 202

Session Chair: Professor Chao-Chieh Lan, National Cheng Kung University, Taiwan

Paper 33: Computationally Efficient Cable Force Calculation outside the Wrench-Feasible Workspace

R. Boumann, T. Bruckmann

Paper 53: Towards Grey Box Modeling in Modelica

F. Bruder, L. Mikelsons

Paper 20: Workspace Modelling of a Parallel Robot with Relative Manipulation Mechanisms Based on Optimization Methods

D. Malyshev, L. Rybak, L. Behera, S. Mohan

Paper 28: Disk Cam Mechanisms with a Translating Follower Having Double Oblique Flat Faces

K.-L. Hsu, Y.-N. Chen

Paper 40: A 3-dimensional Dynamic Model of the Aerotrains and the Horizontal Tail Effect on the Longitudinal Stability

Q. H. Luong, J. Jong, Y. Sugahara, D. Matsuura, Y. Takeda

Paper 07: Dynamic Model of a Crank Press in the Process of Braking

A. Jomartov, A. Tuleshov, M. Kumatova

Session 6 - Special Session on Advances in Medical Robotics I

Tuesday 29 October, 10:00-11:40 @ IB 201

Session Chair: Professor Med Amine Laribi, University of Poitiers, France

Paper 49: Autonomous Robot-Assistant Camera Holder for Minimally Invasive Surgery

J. Sandoval, M.A. Laribi, S. Zegloul

Paper 38: Kinematic Design of a Six-Degrees of Freedom 3-RRPS Parallel Mechanism for Bone Reduction Surgery

S. Nguyen Phu, T. Essomba

Paper 48: Multi-Objective Optimization of a Reconfigurable Spherical Parallel Mechanism for Tele-Operated Craniotomy

T. Essomba, J. Sandoval, M.A. Laribi, S. Zegloul

Paper 37: Kinematic Design of a Double Pantographic Mechanism for the Intracranial Echography on Incubated Newborns

T. Essomba, J.-Y. Hsieh

Paper 41 : Current Signature Fault Analysis on Industrial Machines

W.-T. Hsu, C.-Y. Lan, M.-K. Liu, S.-T. Chang

Session 7 - Sensors and Actuators

Tuesday 29 October, 10:00-11:40 @ IB 202

Session Chair: Professor Huiping Shen, Changzhou University, China

Paper 36: Motion Experiment of Reducer-Integrated Motor Using Inscribed Planetary Gear Mechanism

T. Terakawa, M. Komori, R. Kataoka, Y. Morita, S. Tamura

Paper 30: A Linear Series Elastic Actuator for Accurate Force Control with High Torque-to-Weight and Torque-to-Rotor-Inertia Ratios

C.-H. Lin, K.-Y. Lin, C.-C. Lan

Paper 08: Parallel Mechanism Designs for Humanoid Robots

M. Ceccarelli, M. Russo

Paper 42: Conductive Fabric Strain Sensor Design and Electromechanical Characterization

J.L. Lau, H.C. Liaw, G.S. Soh

Paper 52: Based on a Calibration Machine and Process to Develop a Six-axis Force/Torque Sensor

Y.-J. Wang, C.-W. Hsu, P.-H. Huang, L.-C. Wu, C.-Y. Sue, C.-C. Lin

Session 8- Special Session on Advances in Medical Robotics II

Wednesday 30 October, 10:00-11:40 @ IB 201

Session Chair: Professor Terence Essomba, National Central University, Taiwan

Paper 19: Multi-camera Vision-guided Manipulation: Application to Acne and Wrinkles Treatment

H.-Y. Chuang, J.-Y. Chang

Paper 21: A Novel Three Degrees of Freedom Haptic Device for Rendering Texture, Stiffness, Shape, and Shear

V.K. Pediredla, K. Chandrasekaran, S. Annamraju, A. Thondiyath

Paper 35: Real-Time Resolution of the Forward Kinematic Model for a New Spherical Parallel Manipulator

H. Saafi, M.A. Laribi, S. Zeghloul

Paper 50: A Low-Cost 6-DoF Master Device for Robotic Teleoperation

J. Sandoval, M.A. Laribi, S. Zeghloul

Paper 17: Review on Domestic Powered Mobility and Meal Preparing Assistive Devices for Physically Disabled Persons

S. Masroor, H. Bulut, Bahrudin, C.-Y. Lin

Session 9 - Historical Development in Robotics and Mechatronics

Wednesday 30 October, 10:00-11:40 @ IB 202

Session Chair: Professor Marco Ceccarelli, University of Rome Tor Vergata, Italy

Paper 13: Current Research Topics in Robotics at IGMR

B. Corves, M. Huesing, N. Mandischer, M. Schmitz, A. Shahidi, M. Lorenz, S.C. Eddine

Paper 12: The Exhibit of Industrial Robots Based on Concepts of Technology Education: Take "Smart Manufacturing Experience Zone" at National Science and Technology Museum as an Example

J.-L. Lin, C.-Y. Lin

Paper 23: Ancient Chinese Puzzle Locks

K.H. Hsiao, Y. Zhang, K. Shi, Y.H. Chen, H. An

Paper 25: A Historical Study of Rope Applications in Mechanical Devices in Three Ancient Eastern Countries

Y.-H. Chen

Paper 34: Design and Requirements for a Mobile Robot for Team Cooperation

L. Di Nunzio, G. Cardarilli, M. Ceccarelli, R. Fazzolari