



Advance Program

The International Symposium on Measurement, Control, and Robotics (ISMCR 2022)

Theme: Robotics and Virtual Tools for a New Era

28-30 September 2022

On-Line Virtual Video Event

Organized by

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IEEE Robotics and Automation Society

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IEEE Galveston Bay Section



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[All registered attendees will be provided ZOOM information to log in and a soft copy of the proceedings]

WEDNESDAY, 28 SEPTEMBER 2022

WEDNESDAY, 28 SEPTEMBER 2022	Times shown are US-Central. CHECK corresponding time for your zone
8:00 AM US-Central	Welcome: Dr. Zafar Taqvi , IMEKO TC17 Chair, Executive Chair ISMCR2022 Welcome: Dr. Simone Keller Füchter , Chair ISMCR2022
8:10 – 9:00 AM US-Central	Keynote1: From VR to Telexistence Speaker: Susumu Tachi, Ph.D., Professor Emeritus of The University of Tokyo. Chair: Dr. Zafar Taqvi, USA
9:10-10:10 AM US-Central	SESSION A1: Title - Robotics for Human Performance and Rehabilitation and Medical Applications I Chair/Co-Chair: Prof Andrzej Masłowski- Poland / Prof Giovanni Muscato – Italy Paper A1-1: Study on Palpation Robot System - Reproduction Method by Deep Neural Network of Skin Palpation Judgment Focusing on Softness Classification. Authors: Fumihiro Kato, Takumi Handa and Hiroyasu Iwata / Waseda University; Takeya Adachi /Keio University – Japan Paper A1-2: Study on Attention Distribution for Supernumerary Limbs in Dual-task —Effectiveness Verification of Haptic Feedback for Supernumerary limb Proprioceptive Sensation. Authors: Kaito Kamishima, Fumihiro Kato, Yukiko Iwasaki, Nonoka Nishida and Hiroyasu Iwata / Waseda University - Japan Paper A1-3: Applying NASA’s Human Systems Integration Methodology in Implementing Voice-Control of Future Spacecraft Systems. Authors: George Salazar /NASA - USA

<p>10:20- 11:20 AM US-Central</p>	<p>SESSION A2: Title – Methods of Artificial Intelligence, Augmented Intelligence and VR in Robotics, Robots and Various Topics <i>Chair/Co-Chair: Prof. Simone Keller Füchter- Brazil /Prof. Goekcen Bas - Austria</i></p> <p>Paper A2-1: Artificial intelligence applied to microbiome genetic mapping – Authors: Kátia Lombardo / Colegio Logosófico unidade Florianópolis; Lia Back / Laboratório de Biogenética -Brazil; Thaís Guerra Braga / Department of Production Engineering -Federal University of Santa Catarina - Brazil; Fernanda Luiza Ferrari / Department of Biological Sciences - Federal University of Santa Catarina, Brazil</p> <p>Paper A2- 2: Metaverse: Virtual and Augmented Reality Presence. Authors: Mário Sérgio Schlichting, Márcio Sérgio Schlichting, Simone Keller Füchter /University of Estácio de Santa Catarina – Brazil and Karen Alexander XrconnectED – USA</p> <p>Paper A2-3: Robot Localization and Uncertainty Control with intermittent range-only measurements. Authors: Farhad Shamsfakhr, Luigi Palopoli, and Daniele Fontanelli / University of Trento – Italy</p>
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THURSDAY, 29 SEPTEMBER 2022

<p>THURSDAY, 29 SEPTEMBER, 2022 8:00 AM-8:50 AM</p>	<p>Keynote 2: Next steps on Mars exploration Speaker: Dr. Ivair Gontijo. Systems Engineer at NASA/JPL-Jet Propulsion Laboratory <i>Chair: Dr Simone Keller Füchter, Brazil</i></p>
<p>9:00 AM 10:00AM US-Central</p>	<p>SESSION B1: Title - Flying and Swarm Robots <i>Chair/Co-Chair: Dr. A. Vimala Juliet – India /Prof Jaromir Volf – Czech Republic</i></p> <p>Paper B1-1: Visual Drone Detection and Tracking for Autonomous Operation from Maritime Vessel. Authors: Timothy Halleux, Tien-Thanh Nguyen, Charles Hamesse, Geert De Cubber and Bart Janssens / Royal Military Academy – Belgium</p> <p>Paper B1-2: Visual SLAM for Autonomous Drone Landing on a Maritime Platform. Authors: Thomas Dutrannois, Tien-Thanh Nguyen, Charles Hamesse, Geert De Cubber and Bart Janssens / Royal Military Academy - Belgium</p> <p>Paper B1-3: Control of a differentially flat 2D overhead crane using the ADRC philosophy Authors: Barnabás Finta and Bálint Kiss/ Budapest University of Technology and Economics – Hungary</p>

<p>10:10 -11:10 AM US-Central</p>	<p>SESSION B2: Title - Control and Sensors for Robots Chair/Co-Chair: Prof. Jagdish Shukla- India / Prof. Trung Pham -USA</p> <p>Paper B2-1: Novel Transmission Mechanism “Shaft-following Gear Mechanism” - Application to a puncture robot for Three Dimensional punctures. Authors: Takuma Ogawa, Ryohei Saito, and Hiroyasu Iwata / Graduate School of Creative Science and Engineering - Waseda University - Japan</p> <p>Paper B2-2: Power-Based Gravity Compensation for Flexible Joint Manipulators - Authors: Austin Greisman, Arjun Ivimey, Laura Connolly, and Keyvan Hashtrudi-Zaad / Queen's University, Kingston – Canada</p> <p>Paper B2-3: Using Swarm Intelligence to Coordinate a Fleet of Drones in a Search and Rescue Mission Authors: Trung Pham /United States Air Force Academy; Larry Marine / Department of the Air Force and Kumar Krishen University of Houston - USA</p>
<p>11:20 – 12:20 PM US-Central</p>	<p>SESSION B3: Title – Mobile Robots and Applications and Computer Vision Chair/Co-Chair: Prof. Dr. Geert De Cubber- Belgium / Prof Geraldo Gurgel-Brazil</p> <p>Paper B3-1: Development of an environment mapping robot, using polygonal map representation. Authors: András Izsó and István Harmati / Budapest University of Engineering and Economics – Hungary</p> <p>Paper B3-2: Path planning for data collection multiagent system in a sensing field with obstacles. Authors: Sára Olasz-Szabó and István Harmati / Dept. of Control Engineering and Information Technology Budapest University – Hungary</p> <p>Paper B3-3: Self-Supervised Occlusion Detection and Avoidance using Differentiable Rendering. Authors: Mátyás Szántó and Márton Szemenyei / Budapest University of Technology and Economics – Hungary</p>
<p>FRIDAY, 30 SEPTEMBER 2022</p>	
<p>FRIDAY, 30 SEPTEMBER, 2022</p> <p>8:00 AM-8:50 AM US-Central</p>	<p>Tutorial: Intelligent Analysis of Data with Robotic Application in Perception of the Workspace</p> <p>Speaker: Dr. Trung T. Pham Chief Scientist, Federal Aviation Administration Chair: Prof Kiss Balint, Hungary</p>

<p>9:00-10:00 AM US-Central</p>	<p>SESSION C1: Session Title: Navigation, Path Planning, Communication for Robots, and Neural Network <i>Chair/Co-Chair: Prof. Yvan Baudoin- Belgium / Dr. Goekcen Bas - Austria</i></p> <p>Paper C1-1: Business network lifecycle model: construct validity using structural equation model (SEM). Authors: Thais Braga, Anny Key Mendonça ; Nelson Casarotto Filho / Universidade Federal de Santa Catarina and Douglas Wegner /Fundação Dom Cabral – Brazil</p> <p>Paper C1-2: Efficient Neural Network Pruning Using Model-Based Reinforcement Learning. Authors: Blanka Bencsik and Márton Szemenyei /Budapest University of Technology and Economics – Hungary</p> <p>Paper C1-3: Successfully Developing Problem-Solving and Computing Programming Competences in Children Using Arduino. Authors: Cristian Vidal-Silva, Claudia De la Fuente and Pablo Rojas-Valdés / Universidad de Talca - Chile</p>
<p>10:10– 10:40 AM US-Central</p>	<p>SESSION C2: Title - Robotics for Human Performance and Rehabilitation and Medical Applications II <i>Chair/Co-Chair: Prof. Andrzej Maslowski-Poland/ Prof. Jeromir Volf- Czech Republic</i></p> <p>Paper C2-1: Proposal for a Multi-Objective Optimization Information System for Referral of Patients from the Emergency Unit. Authors: Leopoldo Lopez / Universidad de Talca; Lorena Bearzotti / Pontificia Universidad Católica de Valparaiso and Raymundo Forradellas / Universidad Nacional de Cuyo – Chile/ Argentina</p> <p>Paper C2-2: The Importance Of Using Fantomas In The Dosimetry Of Radiological Protection. Authors: Monaliza Almeida, Carlos Henrique Sousa and José Guilherme Peixoto /IRD – Brazil</p>

<p>10:50- 11:50 AM US-Central</p>	<p>SESSION C3: Title - FPGA Chair/Co-Chair: Prof. Marcia Alves – Brazil / Prof. Andrej Babinec- Slovakia</p> <p>Paper C3-1: Configurable Binary Designs on FPGA. Authors: Mario Vega, Mukesh Chowdary Madineni, Benjamin Garrett, Xiaokun Yang / University of Houston Clear Lake; and Hailu Xu / California State University, Long Beach</p> <p>Paper C3-2: Evaluating FPGA Acceleration on Binarized Neural Networks and Quantized Neural Networks. Authors: Sarala K Surapally, Xiaokun Yang, Thomas L Harman and Liwen Shih / University of Houston Clear Lake -USA</p> <p>Paper C3-3: FPGA-based graphical pipeline for virtual depth image generation. Authors: Dániel Szabó and Emese Gincsiné Szádeczky-Kardoss / Budapest University of Technology and Economics - Hungary</p>
<p>12:00-12:10 PM US-Central</p>	<p>ISMCR2022 Summary- Dr. Kiss Balint, Cochair ISMCR2022 ISMCR Concluding Remarks - Dr. Zafar Taqvi- TC17 Chair</p>
<p>12:10 PM- 12:30 PM US-Central</p>	<p>Virtual Tour YDUQS/Estácio.</p> <p>Attendees will be treated with a 15 minute tour of Estacio showing how technology tools are supporting the educational transformation. It will be interesting to observe the implementation of some of the Data Analysis and Virtual Strategies.</p>