17 - 18 SEPTEMBER 2026
Rio de Janeiro • Brazil
IMEKO
TC17
ISMCR2026
27th International Symposium on
Measurement and Control in Robotics
Hosted by
Estácio
Institutional Partner
INMETRO
Supported by
YDUQS
institut YDUQS
IDOMED
PROMOVE
algetec
TECHNICAL PROGRAM
Around 50 scientific papers • 4 on-site keynote speakers

ISMCR 2026

27th International Symposium on Measurement and Control in Robotics

Rio de Janeiro, Brazil • September 17–18, 2026

TECHNICAL PROGRAM

DAY 1 — THURSDAY, SEPTEMBER 17, 2026

Time	Main Auditorium — Track 1	Mode	Authors	Institution / Country
07:30	Registration Desk Opens			
07:30–08:30	Registration / badge & conference material pickup			
08:30	First call / participants directed to Main Auditorium			
08:40–08:50	Opening Ceremony	ON-SITE	MCs: Danielle Gaspar & Larissa Pochmann Opening - General Chairs Prof. Flavio Murilo Oliveira de Gouvêa & Prof. Geraldo Gurgel	Universidade Estácio de Sá (UNESA) / Rio de Janeiro / Brazil
08:50–09:50	Institutional Addresses / Tribute	ON-SITE	1. Rector Prof. Flavio Murilo Oliveira de Gouvêa & Prof. Geraldo Gurgel & Prof. Larissa Pochmann 2. Dr. Danielle Assafin 3. Dr. Simone Keller Füchter Tribute to Dr. Zafar Taqvi (In Memoriam) Announcement of the Dr. Zafar Taqvi Best Paper Award	1. Universidade Estácio de Sá/Rio de Janeiro/Brazil 2. Director of Scientific and Industrial Metrology, INMETRO/Rio de Janeiro/Brazil 3. IMEKO TC17 Vice-Chair, TC17 Measurement in Robotics, IMEKO - International Measurement Confederation
09:50–10:30	**Keynote 1 – CHALLENGES CERTIFYING HUMAN-COMPUTER INTERFACES FOR DEEP SPACE MISSIONS** **Human-rating certification. Human performance testing. Autonomy. HCI. Digital Twins.**	ON-SITE	George A. Salazar	NASA (retired)/Houston/USA
10:30–10:50	**Coffee Break**			
10:50–11:30	**Keynote 2 - WHEEL-LEGGED ROBOTICS FOR CHALLENGING TERRAINS** **Hybrid locomotion. Wheels and legs. Mobility. Unstructured environments. Robotic systems.**	ON-SITE	Marco Antonio Meggiolaro	Pontifícia Universidade Católica/Rio de Janeiro/Brazil
11:30–12:30	**TS1 — Technical Session**	ON-SITE	**Chairs – Dr. Lana Rego (UNESA/YDUQS) and Dr. Paulo F. Rosa (IME)**	
11:30–11:50	**ID 03 - Measurement-Driven Adaptive Control of Difficulty in Large-Scale Human-in-the-Loop Systems**	ON-SITE	Gurgel Filho, G., Lemos de Oliveira, M., Murilo de Gouvêa, F., Abreu Borges, A., Cordeiro Soares, W.	Universidade Estácio de Sá/Rio de Janeiro/Brazil

DAY 1 — THURSDAY, SEPTEMBER 17, 2026				
Time	**Main Auditorium — Track 1**	**Mode**	**Authors**	**Institution / Country**
11:50–12:10	**ID 114 - Validation of BeamNG.tech as a Digital Twin Platform for OBD-II Vehicle Data Acquisition toward Autonomous Systems Testing**	ON-SITE	Nascimento, P., Borba, E., Gomes, R., Valente, E., Melo Jr., W.	Instituto Nacional de Metrologia, Qualidade e Tecnologia (Inmetro)/Rio de Janeiro/Brazil
12:10–12:30	**ID 18 - A Self-Healing Somatosensory Skin for Robotic Hands - Integrated Perception of Force, Temperature, and Nociception**	ON-SITE	Kato, F., Zhou, Z., Zhao, J., Jo, H., Nagahama, S., Akiyama, Y., Iwata, H., Sugano, S.	Future Robotics Organization, Waseda University/ Tokyo/Japan
12:30–12:45	**Official Hybrid Group Photo (on-site audience and online authors/co-authors via Zoom, with cameras on, whenever possible) Main Auditorium**			
12:45–13:45	**Lunch**			
14:00–14:40	**Keynote 3 - NEXT STEPS IN THE ROBOTIC EXPLORATION OF MARS** **Mars exploration. Robotic missions. Autonomous systems. Scientific discovery. Future missions.**	ON-SITE	Ivair Gontijo	NASA/JPL (retired)/Los Angeles, CA/USA
14:40–15:20	**TS2 — Technical Session**	ONLINE	**Chairs – Dr. Lana Rego (UNESA/YDUQS) and Dr. Simone Keller Füchter (IMEKO)**	
14:40–15:00	**ID 27 - Design and Implementation of a Proof-of-Concept Excavating Rover Platform for Lunar Regolith Collection and Transportation**	ONLINE	Nguyen, L., Garcia, M.	University of Houston-Clear Lake/Houston, TX/USA
15:00–15:20	**ID 36 - A Lightweight Telemetry Platform for Measurement and Replay in Mobile Robotics**	ONLINE	Chagas, F., Simic, V.	Norwegian University of Science and Technology/ Trondheim/ Norway
15:20–16:00	**Keynote 4 - PERFORMANCE ASSESSMENT OF INERTIAL NAVIGATION SYSTEMS** **Inertial navigation. Performance assessment. Sensors. Accuracy. Navigation systems.**	ON-SITE	Waldemar de Castro Leite Filho	CLC Consultoria/São José dos Campos/Brazil
16:00–16:20	**Coffee Break**			
16:20–17:00	**TS3 — Technical Session**	ON-SITE	**Chairs - Dr. Larissa Pochmann and Dr. Gustavo P. Ripper (Inmetro)**	
16:20–16:40	**ID 78 - Measurement-Oriented Middleware Selection for Cooperative UAV Swarms**	ON-SITE	López-Flores, M., Botelho, W., Chagas, F., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
16:40-17:00	**ID 20 - Traceable Visual Sensing for Subsea Robotic Inspection of Bell Mouths on Offshore Oil Platforms with Multicriteria Prioritization for Integrity Management**	ON-SITE	Pereira, R., Dos Santos, M.	Universidade Federal Fluminense (UFF)/Rio de Janeiro/Brazil
17:00	**End of Day 1**			
19:00–22:00	**Social Dinner — Windsor Marapendi Hotel** *For confirmed attendees (Shuttle Transport Coordinator – Prof. Roberto Vianna)*			

DAY 2 — FRIDAY, SEPTEMBER 18, 2026				
Time	**Main Auditorium — Track 1**	**Mode**	**Authors**	**Institution / Country**
07:30–08:00	Registration Desk Opening & Welcome Coffee			
08:00–09:40	**TS5 — On-site Session**	ON-SITE	**Chairs – MSc. Rodrigo Augusto B. P. Dias (UNESA) and Dr. Paulo F. Rosa (IME)**	
08:00–08:20	ID 10 - VR and Robotic Rehabilitation: Results of a Systematic Review Following PRISMA Guidelines	ON-SITE	Kato, F., Snow, P., Jing-Chen, H.	Future Robotics Organization, Waseda University/ Tokyo/Japan
08:20–08:40	ID 30 - Iterated Invariant EKF for 3D Landmark-Aided Inertial Navigation	ON-SITE	Souza Santana, H., Virgolino Soares, J., Meggiolaro, M.	Pontifícia Universidade Católica/Rio de Janeiro/Brazil
08:40–09:00	ID 32 - ResNet+IMU Sensor Fusion for Frame-to-Frame Visual-Inertial Translation Estimation in UAVs	ON-SITE	Nascimento, G., López-Flores, M., Baldivieso, T., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
09:00–09:20	ID 87 - Covert System Identification Under Timing Constraints: A Static Linear Model and Its Detectability Implications	ON-SITE	Mattos, V., Sobreira, G., Bhaya, A., Oliveira de Sa, A., Prado, C., Machado, R., Srivastava, G., Menasche, D.	Universidade Federal do Rio de Janeiro (UFRJ)/Rio de Janeiro/Brazil
09:20–09:40	ID 108 - EmbodiedAI: A Hardware Abstraction Layer for the Unitree G1 EDU	ON-SITE	Souza, V., Sá, H., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
09:40–10:00	Coffee Break			
10:00–11:20	**TS7 — On-site Session**	ON-SITE	**Chairs - MSc. Rodrigo Augusto B. P. Dias (UNESA) and Dr. Marlon Lópes-Florez (IME)**	
10:00–10:20	ID 45 – Measurement-Driven Evaluation of Physics-Informed Multi-Agent Reinforcement	ON-SITE	N. Arruda-Oliveira, D., W. Duarte, G., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
10:20–10:40	ID 52 - A Reproducible 3D-Printed Robotic Fixture with Potentiometric Feedback and Vision-Based Readout for Handheld Multimeter Calibration	ON-SITE	Augusto Martins, A., Poiani Lopes Mendes, A.	Instituto de Pesquisas Tecnológicas (IPT)/São Paulo/Brazil
10:40–11:00	ID 82 - Experimental Evaluation of UAV-Based Multimodal Imaging System for Produced Water Detection in Offshore Environments	ON-SITE	Mendanha, R., Alves, C., Rodrigues, D., Motta, M., Mattos, M., Santos, J., Muskardin, T.	OceanPact/Rio de Janeiro/ Brazil
11:00–11:20	ID 104 - BMS-Based Arm Energy Characterization of the Unitree G1 EDU	ON-SITE	Souza, V., Sá, H., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
11:20–12:00	Technical buffer / transition			
12:00–13:00	Lunch			

DAY 2 — FRIDAY, SEPTEMBER 18, 2026				
Time	**Main Auditorium — Track 1**	**Mode**	**Authors**	**Institution / Country**
13:00–14:40	**TS9 — On-site Session**	ON-SITE	**Chairs – MSc. Maria Claudia Roenick Guimarães (UNESA) and Dr. Paulo F. Rosa (IME)**	
13:00–13:20	**ID 15 - Development of a Portable Process Multicalibrator for Measurement and Signal Simulation with BLE Connectivity for Metrological Automation**	ON-SITE	Pardo, M.	Metrotec-Parsensors/Santo André, SP/Brazil
13:20–13:40	**ID 04 - Trustworthy Intelligent Measurement for Industrial Weighing: A Context-Aware Framework for Reliability, Auditability, and Metrological Traceability**	ON-SITE	BAJRAKTARI, I.	TDI Metrology Calibration Laboratory/Elbasan/Albania
13:40–14:00	**ID 101 - Measurement-Driven Evaluation of Drone-Based Augmented Reality for Georeferenced Object Placement at Long Range**	ON-SITE	de Oliveira Carvalho, B., López-Flores, M., Junior, F., De Oliveira, J., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
14:00–14:20	**ID 84 - Pedestrian Multi-HMD with Relative Pose Estimation Using Interactive QR Codes: Using GNSS and VPS Data Encoded in Real-Time in QR Codes**	ON-SITE	Kataoka, I.	Tokai University / Hiratsuka & Tokyo / Japan
14:20–14:40	**ID 105 - Temporal Characterization of IMU and LiDAR Data in the Unitree G1 EDU**	ON-SITE	Souza, V., Sá, H., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
14:40–15:00	**Coffee Break**			
15:00–17:00	**TS11 — On-site Session**	ON-SITE	**Chairs - MSc. Maria Claudia Roenick Guimarães (UNESA) and Dr. Marlon Lópes-Florez (IME)**	
15:00–15:20	**ID 37 - Efficient RGB-IR Fusion for UAV Object Detection with Mamba-2**	ON-SITE	Tonon, R., López-Flores, M., Goldschmidt, R., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
15:20–15:40	**ID 49 - Comparative Evaluation of Low-Cost Sensing and Mapping Solutions for Teleoperated Ground Robots in USAR**	ON-SITE	Peccini Machado, F., Silva Mendes, K., Tavares Pariz, J., Amorim, P., Mota Alves, L., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
15:40–16:00	**ID 83 - Distributed Observer Design for Multi-Agent Systems with Time-Varying Communication Delays: A Lyapunov-Krasovskii Approach**	ON-SITE	MORENO, A., Pellanda, P., Sá, H.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
16:00–16:20	**ID 107 - YOLO Benchmarking for Obstacle Detection on Unitree G1**	ON-SITE	Souza, V., Sá, H., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
16:20–16:40	**ID 110 - BehaviorEngine: Natural Language Rules for Humanoid Robots**	ON-SITE	Souza, V., Sá, H., López-Flores, M., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
16:40–17:00	**Technical buffer / transition**			
17:30	**Technical Closing Ceremony - Main Auditorium**			

DAY 2 — FRIDAY, SEPTEMBER 18, 2026				
Time	**Mini Auditorium — Track 2** **Online sessions will be chaired on-site from the Mini Auditorium**	**Mode**	**Authors**	**Institution / Country**
07:30–08:00	**Registration Desk Opening & Welcome Coffee**			
08:00–09:40	**TS4 — Online Session — Asia/Europe**	**ONLINE**	**Chairs on-site – Dr. Thiago Alvarenga (UNESA) and Dr. Eliana Sgarbi Potascheff (UNESA)**	
08:00–08:20	**ID 22 - Conceptual Design and Biomechanical Analysis of a Semi-Active Shoulder–Elbow Exoskeleton for Industrial Applications**	**ONLINE**	Zhetenbayev, N., Madikhov, S., Zikirbay, K., Bizhanov, D.	Almaty University of Power Engineering (AUPET) /Almaty/ Kazakhstan
08:20–08:40	**ID 28 - Design, Modeling and Finite Element Analysis of a Robotic Spine Exoskeleton for Active Deformity Correction**	**ONLINE**	Zhetenbayev, N., Tassybayeva, U., Orazaliyeva, S., Zhauyt, A.	Almaty University of Power Engineering (AUPET) /Almaty/ Kazakhstan
08:40–09:00	**ID 35 - Selecting Vision Systems for Industrial Applications: A Multi-Criteria Decision Framework**	**ONLINE**	Khamis Alhajj Abdallah, M., Pšenka, R., Štubňa, M.	Slovak University of Technology in Bratislava/Bratislava/Slovakia
09:00–09:20	**ID 93 - Tactile Knocker: Gaze Steering via Physical Stimuli for Safe Alerting in an Educational Workshop**	**ONLINE**	Suenaga, T., Miyataka, A., Sasaki, M., Okumura, T., Fujiwara, K.	National Institute of Technology, Sendai College/Sendai/Japan
09:20–09:40	**ID 115 - Robotic Pencil Drawing: Improving Shade Reproduction Through Optical Measurement**	**ONLINE**	Dobiš, M.	Slovak University of Technology in Bratislava/Bratislava/Slovakia
09:40–10:00	**Coffee Break**			
10:00–12:00	**TS6 — Online Session — Europe**	**ONLINE**	**Chairs on-site – Dr. Thiago Alvarenga (UNESA) and Dr. Eliana Sgarbi Potascheff (UNESA)**	
10:00–10:20	**ID 57 - Preliminary Single-Subject Comparative Evaluation of sEMG Acquisition Systems for Hand Gesture Recognition in Neuroprosthetic Control**	**ONLINE**	Sandu, R., Doroftei, I., Ciocoiu, I.	"Gheorghe Asachi" Technical University of Iasi/Iasi/Romania
10:20–10:40	**ID 58 - Software-in-the-Loop Validation of a Real-Time sEMG Control Pipeline for a Five-Finger Prosthetic Hand**	**ONLINE**	Sandu, R., Doroftei, I., Ciocoiu, I.	"Gheorghe Asachi" Technical University of Iasi/Iasi/Romania
10:40–11:00	**ID 69 - HMI and Visualization Layers for Soft PLC-Oriented Industrial Control Systems: Requirements and a Node-RED Case Study**	**ONLINE**	Pšenka, R., Lukáč, M., Khamis Alhajj Abdallah, M., Sedlačko, Š., Schvarc, M., Štubňová, Ž.	Slovak University of Technology in Bratislava/Bratislava/Slovakia
11:00–11:20	**ID 76 - Hand–Eye Calibration as a Hierarchical Screw-Axis Procrustes Problem: Exact Compatibility, SVD, and Davenport Solvers**	**ONLINE**	Condurache, D.	"Gheorghe Asachi" Technical University of Iasi/Iasi/Romania
11:20–11:40	**ID 112 - Measurement-Aware Reinforcement Learning for UAV Downlink Resource Control under Communication Uncertainty**	**ONLINE**	Haq, I., Lamonaca, F.	Università della Calabria, Cosenza, Italy
11:40–12:00	**ID 51 - Flatness-Based Exact Linearization and Model Predictive Control for Collision-Free Navigation of Mobile Robots**	**ONLINE**	Gyenes, Z., Finta, B., Kiss, B., Gincsainé Szádeczky-Kardoss, E.	Budapest University of Technology and Economics/Budapest/Hungary
12:00–13:00	**Lunch**			

DAY 2 — FRIDAY, SEPTEMBER 18, 2026				
Time	**Mini Auditorium — Track 2** **Online sessions will be chaired on-site from the Mini Auditorium**	**Mode**	**Authors**	**Institution / Country**
13:00–14:40	**TS8 — Online Session — Europe/Americas**	ONLINE	**Chairs on-site –Dr. Eliana Sgarbi Potascheff (UNESA) and MSc. Kellem Correa Santos, CFA (BIS, Germany)**	
13:00–13:20	**ID 08 - A Tactical CubeSat Architecture for LiDAR-Based Lunar Landing Risk Assessment**	ONLINE	Cubillos, X., Lamas Samanamud, G., Santos, L., da Rocha Ilardino, C., Antunes, V.	Opencadd Advanced Technology/São Paulo/Brazil
13:20–13:40	**ID 23 - Real-Time Evaluation of an Electric Vehicle Traction System Based on Indirect Field-Oriented Control on a Typhoon HIL Platform**	ONLINE	Silva, V., Luiz, R., Henrique Silva Morais, T., Silva, W., Fioravante da Silva Diniz, W., de Almeida, W., Pugliese, L., Bernardes Vitor, G.	Universidade Federal de Itajubá, UNIFEI/Itabira/Brazil
13:40–14:00	**ID 42 - Measurement-Driven Self-Healing LR2021 Mesh: ETX–Q-Score Comparison and Near-Margin Airborne-Relay Evaluation**	ONLINE	Moore, C., López-Flores, M., Batista da Silva, L., De Souza, F., Vaz dos Anjos Santos, A., De Souza, B., Da Silva Teixeira, A., Ferreira Rosa, P.	Instituto Militar de Engenharia (IME)/Rio de Janeiro/Brazil
14:00–14:20	**ID 94 - Cascaded Model-Free Dynamic Compensation for Trajectory Tracking of Cooperative Mobile Robot Formations**	ONLINE	Amagua, D., Andaluz, G., Leica, P., Camacho, O.	Escuela Politécnica Nacional/ Quito/Ecuador
14:20–14:40	**ID 98 - An Error-Dependent Nonlinear Sliding Mode Controller for Robust Trajectory Tracking of an Aerial Manipulator**	ONLINE	Andaluz, G., Leica, P., Proaño, P., Chamorro, W., Morales, L., QUITO, A.	Escuela Politécnica Nacional/ Quito/Ecuador
14:40–15:00	**Coffee Break**			
15:00–17:20	**TS10 — Online Session — Europe/Americas**	ONLINE	**Chairs on-site – Dr. Eliana Sgarbi Potascheff (UNESA) and Irena Bajraktari (TDI Metrology, Albania)**	
15:00–15:20	**ID 12 - LiDAR Scout Rover: A Distributed ROS 2 Architecture for Robust Multi-Layer Autonomous Navigation**	ONLINE	Nguyen, L., Boggs, N., Rodriguez, R., Patino, A., Montano, Z.	University of Houston-Clear Lake/Houston, TX/USA
15:20–15:40	**ID 43 - Methodology for Ranking UGCVs for the Brazilian Armed Forces Based on a Hybrid Approach of the LOPCOW and OPARA Multicriteria Decision-Making Methods**	ONLINE	Diniz, B., Pereira, D., Farias, D., Santos, J., Santos, V., Gomes, E., Moreira, M., Dos Santos, M., Araújo, D.	Universidade Federal Fluminense (UFF)/Rio de Janeiro/Brazil
15:40–16:00	**ID 102 - Impact of Velocity Observers on Friction Compensation and Energy Reconstruction in Motor-Side Sensed Haptic Interfaces**	ONLINE	Moreira, P., Caurin, G., da Silva Harrison, A., de Castro Martins, T.	Universidade de São Paulo (USP)/ São Carlos-São Paulo/Brazil
16:00–16:20	**ID 113 - Robust Impedance Control Synthesis within a Generalized Output Regulation Framework for a 1-DOF Mechanical System**	ONLINE	Araujo Fernandes, A., Cruz Neto, H., Neves Maitan, L., G. Vergamini, E., Zanette, C., F. dos Santos, L., Boaventura, T.	Universidade de São Paulo (USP)/ São Carlos-São Paulo/Brazil
16:20–16:40	**ID 61 - Characterization of Soft-Robot-Induced Variability in Ultrasonic Thickness Measurement**	ONLINE	Lantyer Cordeiro de Araujo Sobrinho, N., do Patrocínio Dias, P., Santana Queiroz, R., Mendes, J., Silva, L.	SENAI CIMATEC/Salvador/Brazil
16:40–17:00	**ID 38 - Dynamic Timed Elastic Band Based Trajectory Planning for Car-Like Mobile Robots**	ONLINE	Kádár, A., Szádeczky-Kardoss, E	Budapest University of Technology and Economics/Budapest/Hungary
17:00–17:20	**ID 48 - Perimeter Defense Game with Obstacle**	ONLINE	Szénási, S., Harmati, I.	Budapest University of Technology and Economics/Budapest/Hungary
17:30	**Technical Closing Ceremony - Main Auditorium**			