ICAAS 2025 – International Conference on Advanced Autonomous Systems (2nd Edition)

November 14, 2025 – Univ. Politehnica Bucharest – U.N.S.T.P.B.

Organized by: Department of Mechanism Theory and Robotics, Faculty of Industrial Engineering and Robotics, **JC106 Room** or **on-line**: https://teams.microsoft.com/l/team/19%3Ax9MgtjdHsrPu_UNMV_UwT5Hpt31kpT2zJiia8RjpgOc1%40thread.tacv2/conversations?groupId=20fd46db-0c1c-4f8a-a31a-70667ac3c386&tenantId=2d8cc8ba-8dda-4334-9e5c-fac2092e9bac

Conference Programme

09:45 – 10:15 | Registration & Welcome Coffee

Arrival of guests, participants, and networking session.

10:15 – 10:45 | Opening Ceremony

- Welcome Address by **Assoc. Prof. Dr. Eng. Liviu-Marian Ungureanu**, *Conference President*
- Opening Remarks by **Lecturer Univ. Dr. Eng. Iulian-Sorin Munteanu**, *Conference Vice-President*
- Festive Opening and Group Photo

10:45 – 11:00 | Keynote Speaker Section I

Time	Keynote Presentation	Speaker
10:45 – 11:00	**State of the Art into robots, Sensor Systems for Humanoid Robots and AI integration for Industry 5.0**	*Lecturer Univ. Dr. Iulian-Sorin Munteanu* (UNSTPB, Romania)

Section I – Intelligent Systems, Eco-Technologies and Smart Mobility

Conference moderators: *Assoc. Prof. Dr. Liviu-Marian Ungureanu, Lecturer Univ. Dr. Iulian-Sorin Munteanu*
11:00 – 13:15

Time	Paper Title	Authors
11:00 – 11:15	**The Evolution of Energy Consumption in Electric Mobility in Bucharest in 2024: Between Efficiency and Renewable Potential**	Anca-Florentina Popescu, Alexandra Bădiceanu, Ecaterina Matei, **Georgiana-Miana Andriciuc,** Andra-Mihaela PREDESCU
11:15 – 11:30	**Intelligent Eco-Technologies for End-of-Life Photovoltaic Modules**	**Valentina-Daniela Băjenaru**, Roxana-Mariana Nechita, Simona-Elena Istrițeanu (*Recently Published MDPI-Q1 Technologies*)

Time	Paper Title	Authors
11:30 – 11:45	**SMART AIR QUALITY MONITORING AUTONOMOUS SYSTEMS and AI**	**Alexandra Bădiceanu** – Doctoral School of Biotechnical Systems Engineering, UPB
11:45 – 12:00	**From Innovation to Regulation: A Legal-Technical Framework for Trustworthy Autonomous Vehicles**	**Simona Istrițeanu**, Valentina Băjenaru, Roxana Nechita
12:00 – 12:15	**Wave Energy Conversion into Electrical Power via a Propeller–Cable–Spring–Dynamo Mechanism**	**Marian-Alin Bănică** (INCDMTM)
12:15 – 12:30	**Eco-Innovation and Circular Economy in the Automotive Industry: Sustainable Strategies and Metaheuristic Approaches for Process Optimization**	**Simona Istrițeanu**, Valentina Băjenaru, Roxana Nechita
12:30 – 12:45	**Using Artificial Intelligence to Develop a Biped Exoskeleton: A Review (Online, Republic of Moldova)**	**Mihaela Rusanovschi**, Galina Marusic, Iulian-Sorin Munteanu*(corespondent), Diana Marusic, Gelu Onose, Andrei Bragarenco (Rep. Moldova – Online)
12:45 – 13:00	**Smart Simulation and AI-Driven Innovation with Ansys Mechanical. Case studies on artificial intelligence in mechanical simulation using OptiSLang**	**Radu Văduva**, Emilian Pîrvu (INAS S.A.)
13:00 – 13:15	**Connecting the Digital Thread of Industry 4.0 with Thingworx PTC. Building intelligent, connected factories through AI and Digital Thread integration.**	**Radu Văduva**, Emilian Pîrvu (INAS S.A.)

13:15 – 13:45 | Coffee Break & Networking Session

Time	Keynote Presentation	Speaker
13:45 – 14:00	**Possible adaptation of Mechatronics Research Areas in various Engineering applications and needs**	*Prof. Dr. Thangaraj Muthuramaligam* (India – Online)

Section II – Robotics, AI and Mechatronic Systems

Conference moderator: *Lecturer Univ. Dr. Iulian-Sorin Munteanu*
13:45 – 17:00

Time	Paper Title	Authors
14:00 – 14:15	**Calibration and Frequency Compensation of an AD8319-Based EMF Analyzer Sensor for IoT and General EMF Monitoring Systems**	**Anghel Constantin**
14:15 – 14:30	**STEM-Oriented Educational Applications Based on C++ Programming and Arduino Uno Platforms**	**Mircea Daniel Popescu**, Iulian-Sorin Munteanu, Elisabeta Niculae, Ana-Maria Munteanu

Time	Paper Title	Authors
14:30 – 14:45	**Intelligent Fault Detection in the Mechanical Structure of a Wheeled Mobile Robot**	**Viorel Gheorghe**, Laurențiu Cartal, Daniel Comeagă, Bogdan Mocanu, Alexandra Rotaru, Mircea Nistor, Mihai Vlad Vârtic, Ștefana Arina Țăbușcă
14:45 – 15:00	**Mobile Robot Endowed with an Impact Mitigation System**	**Viorel Gheorghe**, Iulian Munteanu*, Alexandra Rotaru, Cătălin Negru, Laurențiu Cartal, Alexandra Tiron, Ioana Udrea, Alexandru Stan
15:00 – 15:15	**Determination of the Mechanical Tensile Characteristics of 3D-Printed NYLON 12 Carbon Fiber Specimens**	Claudiu Babiș, Andrei Dimitrescu, Sorin Alexandru Fica, **Ovidiu Antonescu**, Daniel Vlăsceanu, Constantin Stochioiu (*Recently Published MDPI- Q1 Technologies*)
15:15 – 15:30	**Natural Language Interface for CAD Systems**	**Drd. Stelian-Florin Bârdeş** (U.K. – Online)
15:30 – 15:45	**Application Protocols for IoT — A Review**	**Ionel Petrescu**, Elisabeta Niculae, Viorel Vulturescu, Andrei Dimitrescu, Liviu-Marian Ungureanu (Online)
15:45 – 16:00	**Advanced Information Capture and AI-Assisted Transfer Modules for Autonomous Robotic Control During Dental Implant Surgery**	**Săteanu Claudiu-Constantin,** Moroșan Teodor, Turturea Petre Gabriel, Liviu-Marian Ungureanu
16:00 – 16:15	**Vibration Measurement and Monitoring in Railway Vehicles**	Gabriel Popa, Răzvan-Andrei Oprea, Emil Tudor, Marius-Alin Gheti, **Iulian-Sorin Munteanu** (*Recently Published MDPI-Q1 Technologies*)
16:15 – 16:30	**Sustainable Swarm Intelligence: Assessing Carbon-Aware Optimization in High-Performance AI Systems**	**Vasileios Alevizos**, Nikitas Gerolimos, Eleni-Aikaterini Leligkou, Giorgos Hompis, Georgios Priniotakis, George A. Papakostas (**MDPI Paper Online**)
16:30 – 16:45	**Enhancing the A Algorithm for Efficient Route Planning in Agricultural Environments with a Hybrid Heuristic Approach**	**Antonios Chatzisavvas**, Minas Dasygenis (**MDPI Paper Online**)
16:45 – 17:00	**Tsukamoto Fuzzy Logic Controller for Motion Control Applications: Assessment of Energy Performance**	Luis F. Olmedo-García, José R. García-Martínez, **Juvenal Rodríguez-Reséndiz**, Brenda S. Dublan-Barragán, s.o. (**MDPI Paper Online**)

17:00 –17:20 | Closing Remarks and Certificates of Participation
- **Summary and conclusions**
- **Group photo and farewell**

After 17:20 | Informal Networking & Farewell Coffee