

Special Session proposal for IEEE International Conference on Automation, Quality and Testing, Robotics, AQTR 2024

Title: *Emerging Technologies for the Future of Sustainability*

Organizers:

- Roxana Rusu-Both (*Technical University of Cluj-Napoca, Faculty of Automation and Computer Science, Cluj-Napoca, Romania*),
- Iulia-Cristina Stanica (*University POLITEHNICA of Bucharest, Faculty of Engineering in Foreign Languages, Bucharest, Romania*)
- Alexandra Cernian (*University POLITEHNICA of Bucharest, Faculty of Automation and Computer Science, Bucharest, Romania*)

Contact:

Roxana Both (roxana.both@aut.utcluj.ro)

Motivation and Relevance:

In an ever-changing and rapidly evolving world, technology and innovation play a significant role in shaping the future. Studies have shown that new technologies such as Artificial Intelligence (AI), Big Data, Blockchain, Cyber-physical system, Virtual Reality, or Internet of Things (IoT) have the potential to make an impact on sustainability efforts across the globe. The World Economic Forum and PwC estimate that these technological innovations can enable 70% of the 169 targets of the United Nations' Sustainable Development Goals.

The global adoption of emerging technologies is transforming many sectors, including healthcare, agriculture, energy, economy, education and transport. These technologies offer the potential to improve efficiency, effectiveness and productivity. But, at the same time, they introduce new risks and concerns that must be addressed. Such disruptive technologies should be the subject of new research studies, essential for the evolution and well-being of society.

The special session is intended to promote the exchange of experiences and scientific collaboration among researchers worldwide working with emerging technologies in many sectors. This session will also provide a great opportunity to discuss pragmatic approaches of artificial intelligence, big data analysis, blockchain, virtual reality and internet of things or other practical challenges in this field, to stimulate the opening of new research areas.

Submitted manuscripts may present theoretical, numerical or experimental findings within the context of emerging technologies. Interesting topics considered may include, but are not limited to, the following:

- Sustainable energy and environment
- Green transport and green production
- Health – prevention, diagnostic and advanced treatment
- Water – energy – health balance
- Biomaterials
- Economic growth

Component papers:

1. Machine-learning based Elastography analysis in predicting lymph node metastasis

Authors: Roxana Rusu-Both, Adrian Palagos, Cristian Socaci

Affiliation: Automation Department, Technical University of Cluj-Napoca, Cluj-Napoca, 400114, Romania

2. Enhancing Energy Efficiency in Electric Vehicles: A Comprehensive Review of Advanced Control Strategies

Authors: Bianca Todorean, Ioan Nascu

Affiliation: Automation Department, Technical University of Cluj-Napoca, Cluj-Napoca, 400114, Romania

3. Design of Virtual Reality games for eHealth: immersive exercises to reduce anxiety and improve pain management

Authors: Iulia-Cristina STANICA, Simona Magdalena HAINAGIU, Alberta MILICU, Maria-Iuliana DASCALU

Affiliation: Department of Engineering in Foreign Languages, University Politehnica of Bucharest, Bucharest, Romania

4. Sustainability in hip replacement bearings: a study of research and modern trends

Authors: Ionuț Cristian PEREDERIC, Nicoleta Luminița CĂRUȚAȘU, Patricia Isabela BRĂILEANU, Nicoleta Elisabeta PASCU

Affiliation: Faculty of Industrial Engineering and Robotics, University Politehnica of Bucharest, Bucharest, Romania

5. The impact of testing in robotics business for sustainable economic growth

Authors: Crina DUȚĂ, Nicoleta Luminița CĂRUȚAȘU, Robert BREZOAIE

Affiliation: Faculty of Industrial Engineering and Robotics, University Politehnica of Bucharest, Bucharest, Romania

6. A review of the methods used for the detection and identification of marine plastic waste

Authors: Alexandra Cernian

Affiliation: Faculty of Automatic Control and Computers, University Politehnica of Bucharest, Bucharest, Romania