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(Eds.)

Proceedings of the 2nd International Conference on

Smart Automation & Robotics for Future Industry

(SMARTINDUSTRY – 2025)

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April, 2025

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This volume represents the proceedings of the 2nd International Conference on **Smart Automation & Robotics for Future Industry**, held in Lviv, Ukraine, in April 2025. It comprises 32 contributed papers that were carefully peer-reviewed and selected from 46 submissions.

Preface

We are pleased to present to you the proceedings of the 2nd International Conference on International Conference on Smart Automation & Robotics for Future Industry (SMARTINDUSTRY-2025), held in Lviv, Ukraine, on April 03-05, 2025.

The SMARTINDUSTRY-2025 conference aims to discuss the recent research results focusing on the technical and practical aspects of the latest research and results from international academics, scientists, and industry experts in the field of intelligent automation and robotics for the future industry. Participants presented their research, demonstrated new ideas, and engaged in discussions with leading experts in the field.

SMARTINDUSTRY-2025 creates a platform for exchanging knowledge and experience to address current challenges related to the application of intelligent technologies in industrial production and robotics.

The central themes of the conference revolved around the challenges of recovery and development in postwar Ukraine. In addition to the main conference sessions, a series of specialized workshops were organized to delve deeper into addressing these pressing issues.

The Conference is soliciting research papers including, while not limited to, the following areas of interest:

- Robotics for Manufacturing Processes
- Artificial Intelligence and Machine Learning in Robotics
- Automation of Production Lines and Processes
- Utilization of IIoT in Automation Systems
- Cyber security and safety of industrial systems and smart manufactures
- Intellectual technologies for the "smart enterprise"
- Intelligent Systems and Technologies in Industry
- Efficient Management of Production Processes and Complexes

The Conference joined scientists from Ukraine, the United Kingdom, Portugal, Poland, Turkey, and Spain.

The official language for the SMARTINDUSTRY-2025 Conference is English.

The Organizing Committee received 45 submissions. Submitted papers were peer-reviewed by three scholars based on technical quality, relevance, originality, significance, and clarity. Only 31 papers were accepted for presentation as short and regular papers. These papers were published in this volume of SMARTINDUSTRY-2025 proceedings.

Two workshops were organized as part of the conference:

1. the 2st International Workshop on Artificial Intelligence for the Future of Construction (AI4Construction-2025)

2. the 2st International Symposium & Workshop on Cobots and Industrial Robots (CIR-2025)

Within the first workshop, issues concerning the application of artificial intelligence in the field of civil engineering were discussed. The AI4Construction workshop, funded by the European Union's Horizon Europe research and innovation program under grant agreement No 101138678, as part of the ZEBAI project (Innovative methodologies for the design of Zero-Emission and cost-effective Buildings enhanced by Artificial Intelligence).

During the second workshop, leading companies from Ukraine, Czech Republic, Germany, USA specializing in the development of industrial and collaborative robots, showcased their innovations.

We want to thank the Program Chairs, organization staff, and the Technical Program Committee members for their excellent and tireless work. We sincerely wish that all attendees benefited scientifically from the Conference and wish them every success in their research. The humble wish of the conference organizers is that the professional dialogue among the researchers, scientists, and engineers, continues beyond the event and that the friendships and collaborations forged will linger and prosper for many years to come.

April 2025

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Organizers

Lviv Polytechnic National University, Ukraine

http://www.lp.edu.ua/en

Kingston University London

https://www.kingston.ac.uk/

Partners

Enterprise of «Electron» engineering corporation
http://spheros.electron.ua/

IT Planet Group, solutions provider in Ukraine and Europe
https://itplanet.lv/

Software Engineering & Product Development Services
https://www.epam.com/

The development and production of unmanned systems
https://www.automotivecluster.org.ua/

Software development and consulting company
https://geekscode.dev/

Digital services company providing software product design and development services
https://www.globallogic.com/ua/

Comercial Cleaning Robotics
https://getsomatic.com/

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