Cobots and Industrial Robots*

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Abstract

In the era of rapid technological transformation, collaborative robots, industrial robots, artificial intelligence, and smart automation have become essential components of modern industrial development. These technologies are reshaping manufacturing, construction, logistics, healthcare, energy, education, and other applied domains by enabling higher productivity, improved safety, more flexible production processes, and new forms of human-machine cooperation. Addressing the need for international dialogue between research, industry, and education, the 3rd International Symposium & Workshop on Cobots and Industrial Robots (CIR-2026) took place in Lviv, Ukraine, on March 26–27, 2026, in conjunction with the 3rd International Conference on Smart Automation & Robotics for Future Industry (SMARTINDUSTRY-2026). CIR-2026 provided a platform for companies, researchers, engineers, educators, technology developers, and industry professionals from different countries to present recent achievements, demonstrate innovative solutions, and discuss the future of collaborative and industrial robotics. The event focused on the practical implementation of cobots, industrial robots, smart manufacturing methods, physical AI, autonomous systems, intelligent monitoring, and digital transformation in real industrial and social contexts. A dedicated robots exhibition enabled participants to explore emerging robotic technologies, products, and prototypes, while technical sessions and panel discussions supported the exchange of best practices and applied experience.

The programme of CIR-2026 reflected the interdisciplinary character of contemporary robotics and automation. The workshop covered key themes such as smart manufacturing, industrial implementation challenges, quality assessment at the final stage of production, workforce efficiency in manufacturing processes, robotics education, medical devices, drone technologies for humanitarian and emergency applications, nuclear safety and technological monitoring, voice technologies for structured industrial data, and the transition of neural-network-based solutions from laboratory results to real production environments. These topics highlighted not only the technological potential of robotics and artificial intelligence, but also the practical barriers that must be addressed when deploying intelligent systems in complex, safety-critical, and economically demanding environments.

Special emphasis was placed on collaboration between universities, industrial enterprises, technology companies, and innovation ecosystems. By bringing together academic leaders, business representatives, engineers, researchers, and students, CIR-2026 supported knowledge transfer between scientific research and industrial practice. The event also underlined the importance of modern engineering education, interdisciplinary training, and applied research in preparing specialists capable of designing, implementing, and managing intelligent robotic systems.

Together, the symposium, workshop sessions, panel discussions, and exhibition created a comprehensive environment for professional dialogue, learning, networking, and collaboration. CIR-2026 contributed to the development of smarter, safer, and more adaptive industrial systems, reinforcing the role of robotics, artificial intelligence, and engineering education in shaping the future of industry.

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