

AtkinsRéalis and Oxford University Robotics Institute to Scale up Physical AI for Nuclear

2 hours ago



[AtkinsRéalis](#), a world-class engineering services and nuclear company, and Oxford Robotics Institute (ORI), the University of Oxford's world-leading centre for robotics and artificial intelligence, have announced a new global partnership to accelerate the adoption of autonomous robotic solutions for the nuclear and energy sectors.

Through the partnership, advanced autonomous robotic solutions will be developed and tested, supporting the emerging field of physical AI, where intelligent systems are deployed safely and reliably in real-world, safety-critical environments.

This collaboration builds on a successful period of joint work in the UK, where ORI systems have been integrated into AtkinsRéalis robotics platforms for autonomous navigation, advanced mapping, and hotspot detection at nuclear sites, including Sellafield. The new partnership expands this work internationally – focusing on improving safety by reducing the time people need to spend in hazardous environments while enhancing capability and efficiency.

Initially, the partnership will focus on scaling proven UK deployments, including autonomous mobile inspection platforms and robotic manipulation systems. Solutions will be tested and refined within Oxford's state-of-the-art robotics facilities before transitioning into deployable systems through AtkinsRéalis' nuclear engineering expertise.

This approach reflects the growing adoption of physical AI, where robots can be built and trained to seamlessly interact with and adapt to their surroundings in the real world. Through this partnership,

autonomous systems will be developed through tightly coupled simulation, AI-enabled perception and decision-making, and real-world validation. By linking academic research, advanced testing environments, and operational deployment, the partnership helps accelerate the safe adoption of autonomous robotics in safety-critical nuclear environments.

The partnership provides AtkinsRéalis with expanded access to frontier robotics research, advanced autonomous systems, and specialist engineering expertise across robotic perception, navigation, manipulation, inspection, digital twin development, and physical AI systems that combine simulation, AI models, and real-world robotics. This enables AtkinsRéalis engineers to collaborate directly with ORI researchers and leverage specialised testing infrastructure to accelerate the validation and deployment of solutions designed to meet the safety and regulatory requirements of the nuclear sector.

Sam Stephens, Head of Digital – Nuclear at AtkinsRéalis, said: “This partnership allows us to rapidly move autonomous robotics from research to operational deployment on nuclear power plants around the world. Working directly with the Oxford Robotics Institute’s teams means we can test solutions in their facilities, refine them based on real nuclear challenges, and deploy them across our international operations. The result is safer working environments and better data to inform critical decisions on nuclear sites.”

Professor Nick Hawes, Director, Oxford Robotics Institute, University of Oxford, said: “Our collaboration with AtkinsRéalis demonstrates how academic research translates into practical solutions for the nuclear sector. As part of the University of Oxford, ORI combines robotics research capabilities with the engineering focus needed to develop technologies that meet demanding operational requirements. This partnership allows us to advance autonomous inspection and digital technologies that address real challenges across the nuclear industry.”

AtkinsRéalis is a leading provider of digital services and technologies in nuclear, with a focus on solutions that reduce risk and unlock the cost, carbon, safety and productivity benefits of digital for the nuclear sector. This includes the development and implementation of advanced robotic technologies; AI-enabled platforms to automate processes, streamline major project delivery and incorporate technology and robotics for the remote access and monitoring of sites; and digital design and engineering methods for projects across the lifecycle.

This partnership strengthens AtkinsRéalis’ portfolio of robotics innovation and collaboration in the nuclear sector, including the industry-first trial with Sellafield Ltd of remote robot operation in early 2025 and, more recently, the extension of its global partnership with Kinova for robotic technology deployment. The collaboration also aligns with AtkinsRéalis’ recent collaboration with NVIDIA, reflecting a shared focus on physical AI, advanced simulation, and AI-enabled autonomy. Together, these partnerships help connect academic research, industrial deployment, and AI technology platforms to accelerate the development and validation of autonomous systems for safety-critical applications.