NTU Partners With Germany's Schaeffler to Build AI-Driven Humanoid Robotics Hub

NTU and Schaeffler join forces to develop next-generation AI-powered humanoid and collaborative robots

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TLDRs;

- NTU and Schaeffler open a major AI robotics lab to advance humanoid systems.
- New 900 sqm facility focuses on cobots, mobile robots, and assistive automation.
- The joint lab extends Singapore's RIE2025 strategy for advanced robotics innovation.
- Students gain hands-on training with Schaeffler engineers on next-gen robotic platforms.

Nanyang Technological University (NTU) Singapore has launched a new AI-powered robotics facility in partnership with German motion technology giant Schaeffler, marking a significant expansion of the university's long-running collaboration in automation, human-machine interaction, and advanced manufacturing.

The newly unveiled corporate laboratory, a 900-square-meter, industry-funded research space on NTU's campus, will serve as a development hub for humanoid and collaborative robotics designed for real-world deployment across manufacturing, logistics, and healthcare.

The facility represents the latest phase of the NTU–Schaeffler partnership, which began in 2017 and has since produced several notable breakthroughs, including a real-time touch and force visualization tool for robotic arms and a universal soft gripper optimized for flexible manufacturing environments.

The new lab builds directly on this foundation, aiming to integrate artificial intelligence more deeply into robot perception, mobility, and decision-making.

A Core Pillar of Singapore's Robotics Ambitions

The initiative aligns with Singapore's Research, Innovation and Enterprise 2025 (RIE2025) plan, under which the National Research Foundation and Economic Development Board are supporting large-scale corporate laboratories anchored at local universities.

NTU's industry labs typically operate with budgets between S$45 million and S$66 million, running multi-year projects with parallel research streams, a model that has enabled long-term collaboration with companies such as Continental, Delta Electronics, and Rolls-Royce.

The Schaeffler-NTU Corporate Lab is valued at S$49 million, placing it alongside Singapore's largest university-industry research platforms.

It also forms part of Schaeffler's global research ecosystem, connecting the Singapore lab with international partners in Europe and Asia and positioning NTU as a regional hub for advanced robotics R&D.

Focus on Collaborative Robotics and Autonomous Mobility

According to NTU, the new lab will spearhead work across three key areas, collaborative robotic systems (cobots) designed to safely work alongside humans in production lines and service environments, autonomous mobile robot platforms, enabling next-generation logistics automation and indoor delivery systems and assistive robotic technologies for healthcare and rehabilitation applications.

These efforts are expected to accelerate the deployment of AI-enabled humanoid robotics in environments where human-robot collaboration is becoming increasingly common.

As factories, hospitals, and warehouses adopt more robotic automation, demand for standardized safety protocols and interoperable systems continues to rise.

Rising Need for Safety and Compliance Expertise

The timing of the NTU–Schaeffler expansion coincides with a surge in global cobot adoption, a shift that brings new regulatory demands. Singapore treats SS ISO 10218, the national adaptation

of the international robot safety standard, as an Approved Code of Practice.

This gives manufacturers and service providers a formal reference for designing, installing, and operating collaborative robots.

Local institutions such as Nanyang Polytechnic, A*STAR's Singapore Institute of Manufacturing Technology (SIMTech), and industrial safety specialists like Pilz are already seeing increased enrollment in training programs centered on ISO 10218 and ISO/TS 15066, which covers force-limited collaborative applications.

Safety PLCs certified under IEC 61508 and ISO 13849, along with PLd-rated LIDAR systems, are increasingly in demand for turnkey safety evaluations and risk assessments.

Training the Next Generation of Robotics Talent

Beyond research, the new lab will serve as a training ground for students pursuing robotics, AI, and mechatronic engineering. NTU researchers will work side-by-side with Schaeffler engineers, offering students exposure to industrial tools and real-world use cases.

The previous SHARE@NTU program hosted 10–15 researchers and supported PhD training, the new, larger facility is expected to broaden that talent pipeline significantly.

As the global race to develop commercial humanoid robotics accelerates, NTU's expanded partnership with Schaeffler positions Singapore as a rising center for advanced robot design, safety innovation, and AI-driven mobility systems.

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