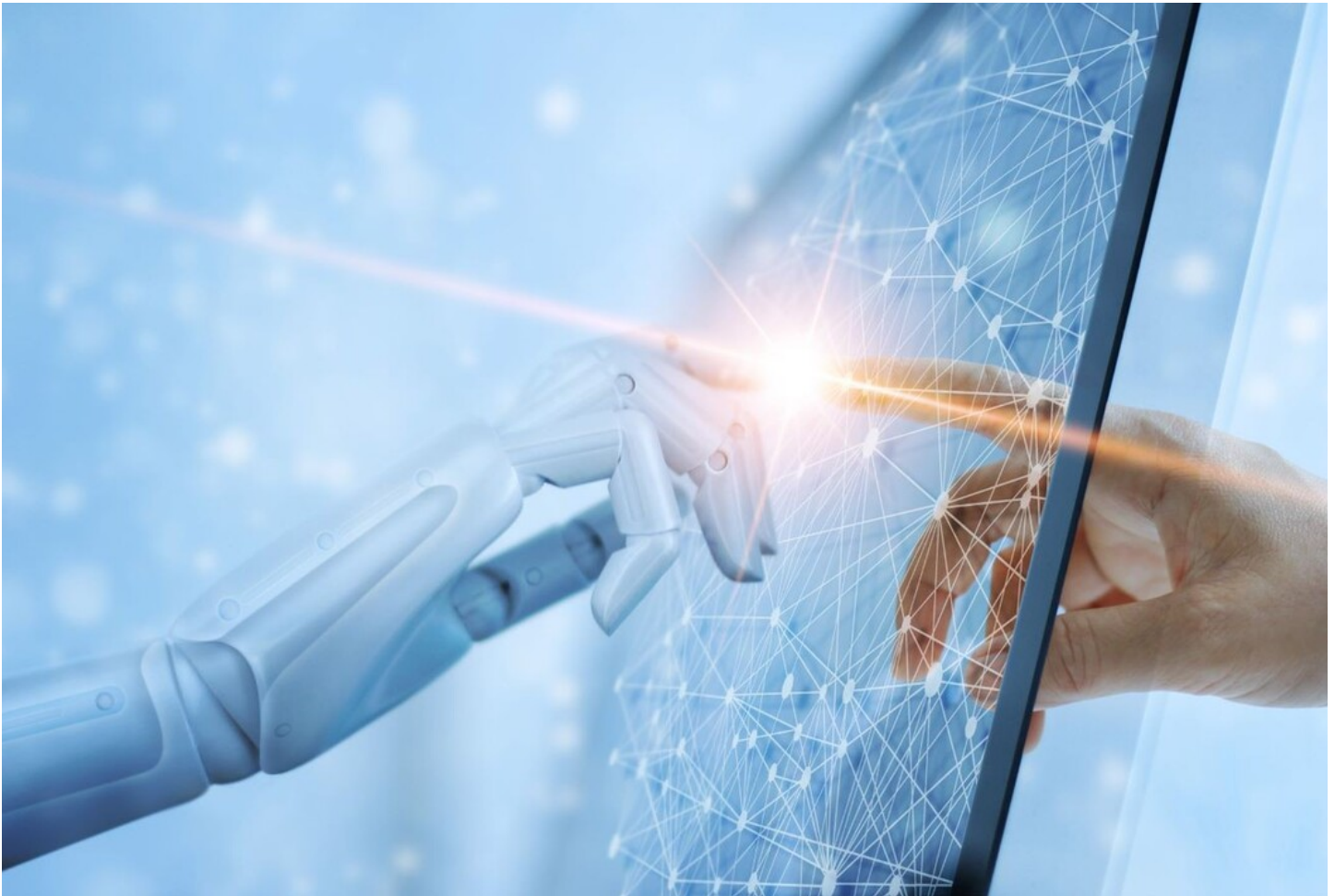


NTU's Corporate Lab for Advanced Robotics

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An SG\$ 24 million (US\$ 17.8 million) Corporate Lab for Advanced Robotics has been established (<https://www.ntu.edu.sg/news/detail/ramping-up-robotics-research-with-new-corporate-lab>) through a co the Nanyang Technological University (NTU Singapore) and a leading private global provider of IoT-based sma joint lab was launched in a ceremony attended by the Minister of State for the Ministry of Trade and Industry, A

The lab is supported by Singapore's National Research Foundation's Research Innovation and Enterprise (RIE) three years, the lab will concentrate on developing next-generation technologies to address the challenges pos the manufacturing and intralogistics industries. Intralogistics refers to the internal flow of goods and material: company's site.

According to a press release (<https://www.ntu.edu.sg/news/detail/ramping-up-robotics-research-with-new-singapore>), as businesses transition into Industry 5.0, collaborative robotic systems will become an essential co-driven by the need to address the challenges posed by an ageing workforce and declining birth rates, which have driven a manpower crunch globally. The adoption of collaborative robotic systems offers a solution to this manpower crunch by robot collaboration and enhancing productivity across industries.

These systems encompass a variety of innovative technologies including human-touch-inspired robots capable of picking up a range of materials, from fragile glassware to volatile chemicals. Meanwhile, smart sensing, radar, and autonomous mobile robots (AMRs) to navigate and operate in a dynamic environment with human traffic like a

The lab creates opportunities to transform the university's research efforts into meaningful and practical innovations that make a real difference in the world, an official from NTU Singapore noted. It aligns with NTU's strategic vision for 2025, leveraging the potential of digital and advanced technologies to drive the exploration of new knowledge and new experiences.

An official from the National Robotics Programme (NRP) said that NRP welcomes the partnership and looks forward to the commercialisation of more differentiated robotics capabilities for the manufacturing and logistics domains in the

NTU is a leading institution in the field of robotics research. Last year, NTU researchers developed a tough and self-repairing soft robots (<https://www.ntu.edu.sg/research/research-hub/news/detail/soft-but-tough-robot>) inspired by elephant and crocodile skins. Soft robots have great potential to be used in applications requiring a gentle touch, such as medical rehabilitation. However, their softness makes them vulnerable to damage.

NTU's tough and self-healing material called 2-ureido-4-pyrimidinone-based-carboxylated polyurethane (UPy-CPU) could revolutionise the field of soft robotics. Self-healing, soft and tough robots could aid in rescue missions to navigate inaccessible environments, such as collapsed buildings, for locating trapped individuals.

The material was developed by making modifications to the chemical structure of polyurethane, a versatile and widely used in medical devices and construction materials. To repair cracks in the material, the researchers used acetone, and isopropyl alcohol. When applied to the damaged areas, the material healed on its own within 12 hours. The exceptional toughness of UPy-CPU was demonstrated when a crawling robot made from this material continued to move after being crushed by a load that was 4,000 times its weight.