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## Singapore Unveils Centre for Innovative Robotics Technologies

Yen Ocampo | August 17, 2022



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The Centre for Advanced Robotics Technology Innovation (CARTIN) was recently [established](#) by Nanyang Technological University, Singapore (NTU Singapore) with the goal of creating cost-effective, secure, and usable robotics technologies that will revitalise and reimagine various industries in Singapore.

“The launch of the Centre for Advanced Robotics Technology Innovation (CARTIN) is a timely and natural extension of NTU’s work to add to the existing robotics and autonomous systems research efforts in Singapore and create a critical mass for the development and deployment of ground-breaking and innovative technologies,” says Professor Subra Suresh, President, NTU.

He added that expanding NTU’s impact on industry and society by translating inventions and creativity into outcomes that enhance economic benefits and quality of life is one of the key pillars of the University’s five-year strategic plan.

He continued by saying that one of the main tenets of NTU2025, the university’s five-year strategic plan, is to increase NTU’s influence on business and society by transforming innovations and creative ideas into products that improve economic advantages and quality of life.

<https://opengovasia.com/singapore-unveils-centre-for-innovative-robotics-technologies/>

Researchers at the S\$45 million research centre will develop collaborative and human-centred robotics and autonomous system technologies that will be used in logistics, manufacturing, and eldercare. This fits with Singapore's plans for Research, Innovation, and Enterprise 2025, where robotics is one of the country's top priorities.

In addition, CARTIN seeks to establish an ecosystem that combines research organisations with business partners and government organisations that can identify the gaps that need to be filled and act as a testing ground for robotics solutions. In such an ecosystem, basic research can be seamlessly converted into technology that can be used in industry.

Likewise, the NTU scientists will collaborate closely with academics from the National University of Singapore (NUS) and the Agency for Science, Technology, and Research (A\*STAR) to develop collaborative and human-centred robots and autonomous systems for use in logistics, manufacturing, and eldercare industries.

Furthermore, automated guided vehicles in shipping ports and warehouses are guided by infrastructure-based navigation systems, such as magnetic tracks installed on the ground. These systems are expensive to install and maintain, as well as inflexible.

As an alternative, CARTIN scientists are investigating how they may design an innovative and robust navigation system for outdoor and interior autonomous ground vehicles.

On the other hand, collaborative robots, or cobots, are meant to function securely alongside humans. Cobots can be taught to carry out repetitive tasks like product assembly and "pick and place" (the process of picking up objects and placing them onto a surface in a set position and orientation).

CARTIN will examine how to develop algorithms and techniques that enable multiple robots and humans to work together in factories to manipulate and assemble parts efficiently and safely. This will increase the productivity of cobots and combine the dexterity of humans with the precision and speed of robots.

Robotic companions can assist in meeting the social, emotional, and physical needs of an ageing population, enabling the elderly to age freely and relieving caregivers of some of their work. However, the assistive robots designed for this purpose still lack robustness and flexibility in human-centric contexts, making it impossible for them to engage in practical physical interactions with humans.

To embed such robotic aides to care for the elderly at home and in clinical settings, CARTIN scientists are designing, developing, and testing solutions.

The National Research Foundation of Singapore supports CARTIN through its Medium-Sized Centre funding scheme, which aims to consolidate research activities across departments, faculties, and universities to create a critical mass of top researchers in strategic study areas for Singapore.