JOINT NEWS RELEASE

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NTU Singapore and Canaan partner in S$7 million initiative to advance sustainable computing and edge AI

The collaboration will develop energy-aware algorithms and privacy-preserving edge systems for applications such as smart retail

Nanyang Technological University, Singapore (NTU Singapore) and computing technology company and semiconductor/chip developer **Canaan Inc. (Canaan)** have launched a S$7 million joint research initiative to advance green intelligent computing technologies and edge artificial intelligence (AI).

The **NTU-Canaan Green Intelligent Compute (GIC) Collaboration** will focus on the research theme ***"Towards Green Intelligent Compute for Advanced Systems and Applications".***

Hosted by **NTU's Centre in Computational Technologies for Finance (CCTF)**, the four-year initiative addresses the surge in global demand for computing resources spurred by rapid advances in AI. As model sizes expand and industry applications grow, computing systems must balance operational capacity with power efficiency and environmental sustainability.

The research aims to benefit enterprises, consumers, and developers by making AI workloads more energy-aware, secure, and ready for deployment. In sectors such as smart retail, the solutions will allow devices to process video and sensor data locally, cutting network strain and strengthening data privacy.

Bridging algorithmic design and physical hardware

Professor Shirley Meng, Vice President (Industry), NTU Singapore, said: "As artificial intelligence expands across every sector, managing its environmental footprint has become a critical global challenge. This partnership with Canaan reflects NTU's commitment to translating scientific breakthroughs into viable industrial solutions. By co-developing energy-efficient edge computing systems and establishing joint training modules, we are strengthening Singapore's position as a hub for

sustainable digital innovation and equipping our talent to meet future technological demands."

Nangeng Zhang, Founder, Chairman and CEO of Canaan, said: "As AI moves beyond centralised data centres and into more diverse real-world environments, computing efficiency is becoming a system-level challenge - spanning chips, software, workload scheduling and energy use. Our collaboration with NTU brings together academic research and Canaan's engineering experience to explore how computing systems can become more energy-efficient, adaptive and practical for deployment. We also see this collaboration as part of our long-term commitment to Singapore's research and technology ecosystem."

Industry expertise meets academic research

The partnership pairs Canaan's industrial track record in application-specific integrated circuit (ASIC) design, specialised computing, and systems engineering with NTU's research capabilities in AI, computer engineering, and data science.

NTU researchers will provide scientific leadership and academic testbeds, while Canaan will supply hardware platforms, engineering expertise, computing infrastructure, and practical deployment scenarios.

Four core research directions

The research programme focuses on four areas to connect algorithm development with real-world system deployment:

- **Green and energy-aware computing:** The joint team will investigate energy prediction, dynamic resource management, and scheduling for energy-intensive workloads. Drawing on Canaan's operational computing expertise, researchers will explore how tasks can adapt to grid energy availability, system loads, and task priorities.

- **Privacy-preserving edge AI for smart retail:** Retail environments generate continuous camera and sensor data feeds. Instead of transmitting raw visual data to central cloud servers, the team will develop local edge inference and data minimisation methods aligned with Singapore's Personal Data Protection Act (PDPA).

- **Cloud-edge-end collaborative inference:** Because purely cloud-based or device-based models cannot meet every operational requirement, the team will examine model partitioning and workload allocation. This approach allows complex AI tasks to run across cloud servers, edge gateways, and endpoint devices.

- **Edge-AI education and curriculum development:** The collaboration will translate research outcomes into educational software development kits, laboratory modules, and teaching materials. These tools will be incorporated into NTU's academic curriculum to train students in chip architectures, system constraints, and software deployment.

Deliverables and talent development

The project establishes a direct feedback loop between university research and industrial engineering over its four-year course.

The initiative will support four PhD researchers and aims to generate approximately 10 academic papers. The joint team also plans to produce four technical work-package reports, develop functional industrial prototypes, and file patents where commercially applicable.

Supporting Singapore's national digital agenda

The collaboration aligns with Singapore's national priorities for sustainable digital infrastructure and AI development. Following the updated National AI Strategy in 2026, Singapore has expanded investments in AI research, talent development, and enterprise adoption.

The project also supports national green computing frameworks, such as the Green Data Centre Roadmap and Singapore Standard SS 715:2025, which prioritise energy efficiency across digital facilities and IT equipment. By advancing low-power edge computing and distributed inference, the partnership supports Singapore's transition towards a sustainable digital economy.

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About Nanyang Technological University, Singapore

Nanyang Technological University, Singapore (NTU Singapore) is a premier technological university that develops leaders and creates societal impact through education, research, and service.

Ranked amongst the world's top universities, NTU has 40,000 undergraduate and postgraduate students in the Business, Computing & Data Science, Engineering, Humanities, Arts, & Social Sciences, Medicine, Science, and Graduate colleges.

NTU is also home to world-renowned autonomous institutes – the National Institute of Education and S Rajaratnam School of International Studies – and various leading research centres such as the Earth Observatory of Singapore, Nanyang Environment & Water Research Institute, Energy Research Institute at NTU, and Singapore Centre for Environmental Life Sciences Engineering.

The University aspires to shape an AI-enabled future. By bringing together global talent across disciplines and combining technology with human creativity, NTU nurtures AI-ready graduates, drives breakthrough discoveries, and forges partnerships that tackle the challenges of our time.

For more information, visit www.ntu.edu.sg

About Canaan Inc.

Canaan Inc. (NASDAQ: CAN), founded in 2013, is a global technology company focused on high-performance computing chips and intelligent computing technologies. The Company has deep expertise in application-specific integrated circuit (ASIC) design, high-performance computing systems and related infrastructure, and is expanding into artificial intelligence chips, edge intelligence, green computing, and the integration of computing infrastructure with energy resources.

As an early pioneer in ASIC computing technologies, Canaan launched its Avalon series of computing systems powered by proprietary ASIC chips in 2013, helping drive the transition from general-purpose hardware to high-performance, energy-efficient specialised computing architectures. Over the past decade, the Company has built extensive capabilities in chip architecture, engineering implementation, hardware-software co-design, power optimisation and large-scale production.

Building on this foundation, Canaan is extending its core technologies into artificial intelligence and intelligent computing. The Company is advancing research and development in AI chips, edge computing, energy-efficient computing, and cloud-edge-end collaboration. At the same time, Canaan is exploring closer integration between computing infrastructure and energy resources, with the aim of improving

energy utilisation, deployment flexibility and the sustainability of large-scale computing systems.

Canaan was listed on the Nasdaq Global Market in 2019. Today, the Company operates a global business spanning chip development, systems engineering, computing equipment and computing infrastructure. Looking ahead, Canaan aims to further connect chips, computing capacity and energy resources, providing more efficient, intelligent and sustainable foundational computing capabilities for the global digital economy and the AI era.

For more information, visit www.canaan.io/