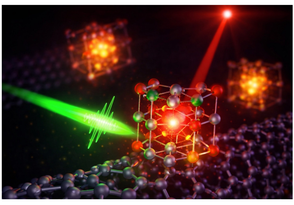
A MONTHLY E-NEWSLETTER BY NSCC SINGAPORE

# NEWSBYTES

## CORPORATE NEWS

*A snapshot of NSCC Singapore's key updates and ongoing collaborations*



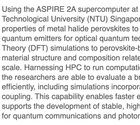
**Featured Read of the Month!**

### Designing Perovskite Quantum Emitters through Large-Scale High Performance Computing (HPC) Simulations

Using the ASPIRE 2A supercomputer at NSCC Singapore, researchers at Nanyang Technological University (NTU) Singapore are modelling the electronic and optical properties of metal halide perovskites to support the development of solid-state quantum emitters for optical quantum technologies. By applying Density Functional Theory (DFT) simulations to perovskite-based systems, the team is examining how material structure and composition relate to light emission behaviour at the atomic scale. Harnessing HPC to run computationally demanding DFT models in parallel, the researchers are able to evaluate a broad range of perovskite configurations efficiently, including simulations incorporating spin polarisation and spin–orbit coupling. This capability enables faster exploration of material design space and supports the development of stable, high-performance perovskite quantum emitters for quantum communications and photonic applications.

*Read more*

### Supporting Singapore's Student Teams at the SC25 Student Cluster Competition



NUS Team Kent Ridge at SC25

NTU Team Supernova at SC25

The Student Cluster Competition (SCC) at Supercomputing Conference 2025 (SC25) challenges undergraduates to design, deploy and optimise a computing cluster under strict real-world constraints. At SC25 in St. Louis, Singapore was represented by Team Kent Ridge (NUS) and Team Supernova (NTU), with NSCC Singapore supporting their in-person participation. By enabling the teams' in-person participation, NSCC Singapore helped provide students with hands-on exposure that extended far beyond technical theory. From infrastructure setup and cabling to hardware configuration, tuning and logistics, students gained first-hand experience working with real systems. Being on site also allowed the teams to engage directly with industry leaders, hardware vendors and the global HPC community—an experience difficult to replicate remotely.

*Read more*

EARLY BIRD REGISTRATION EXTENDED!

**Early Bird Registration**
- Extended to 5 January 2026 (AoE)

**Standard Registration**
- Closes 23 January 2026 (AoE)

**Onsite Registration**
- Closes 29 January 2026 (JST)

REGISTER NOW

### SCA/HPCAsia 2026 Early Bird Registration Deadline Extended To 5 January 2026

Early Bird registration for SCA/HPCAsia 2026 has been extended to 5 January 2026 (AoE), giving interested attendees additional time to secure discounted rates for the upcoming conference in Osaka, Japan. Taking place from 26–29 January 2026, SCA/HPCAsia 2026 is themed "Everything with HPC – AI, Cloud, QC and the Future Society". The theme reflects the evolving role of high performance computing as it converges with artificial intelligence, cloud computing, and quantum technologies to enable new scientific, industrial, and societal outcomes.

*Read more*

### Data Centre Visits: Supporting Research, Talent and Collaboration

This month, NSCC Singapore hosted a series of data centre visits to support research, talent development and collaboration across Singapore's HPC ecosystem and beyond. Delegations included representatives from the National Research Foundation (NRF), the National University of Singapore (NUS), SingHealth, and a Finnish delegation.

*Read more*

### Empowering ASPIRE 2A Users with Advanced Workshop in Profiling and Debugging

NSCC Singapore wrapped up the year with its final advanced ASPIRE 2A workshop, equipping users with practical profiling and debugging skills essential for running efficient HPC workloads at scale. Through hands-on demonstrations, participants learned to identify performance bottlenecks, optimise memory usage, and troubleshoot CPU and GPU applications across common programming environments.

*Read more*

## THE LAST BYTE

*Shared reads and cool finds from the HPC world*

### Singapore commits record $37 billion to drive research, innovation and enterprise over next five years

Image credit: A*STAR

As its research prowess moves from strength to strength, Singapore is looking to ride the next wave of innovation, with $37 billion committed over the next five years to transform discoveries into both money-makers as well as solutions to national problems. A special focus will be on keeping the population healthy and sharp as the nation steadily grays. The new tranche is a 32 per cent increase from the current RIE2025 funding of $28 billion. It kicks in from April 2026 and, like in previous years, amounts to around 1 per cent of the nation's gross domestic product (GDP).

*Read more*

### Horizon Quantum deploys Singapore's first commercial quantum computer

Image credit: The Tech Buzz

Singapore-based Horizon Quantum Computing just made quantum computing history, becoming the first private company to deploy a quantum computer for commercial use in the city-state. The milestone comes as the startup prepares for a $503 million Nasdaq listing and positions Singapore as Asia's quantum computing hub. The startup announced that its quantum computer is now fully operational, making it the first private company to deploy commercial quantum computing in the city-state - and the first pure-play quantum software firm to own its own quantum hardware.

*Read more*

### AI materials discovery now needs to move into the real world

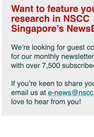


Image credit: CODY O'LOUGHLIN

The idea of using AI for materials discovery is not exactly new, but it got a huge boost in 2020 when DeepMind showed that its AlphaFold2 model could accurately predict the three-dimensional structure of proteins. Then, in 2022, came the success and popularity of ChatGPT. The hope that similar AI models using deep learning could aid in doing science captivated tech insiders. Why not use our new generative AI capabilities to search the vast chemical landscape and help simulate atomic structures, pointing the way to new substances with amazing properties?

*Read more*

### Want to feature your research in NSCC Singapore's NewsBytes?

We're looking for guest contributors for our monthly newsletter, shared with over 7,500 subscribers.

If you're keen to share your work, email us at e-news@nscc.sg – we'd love to hear from you!

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