

The logo for NSCC ASPIRE is displayed in white text on a red background. The background features a stylized circuit board pattern with glowing red nodes and lines.

NVIDIA and NSCC to Set Up First Shared AI Platform for Singapore National Programmes



October 24, 2017

NVIDIA and Singapore's National Supercomputing Centre (NSCC) today signed an agreement to establish a platform to bolster artificial intelligence (AI) capabilities among its academic, research and industry stakeholders and in support of AI Singapore (AISG), a national programme set up in May to drive AI adoption, research and innovation in Singapore.

Called AI.Platform@NSCC, it will provide AI training, technical expertise and computing services to AISG, which brings together all Singapore-based research and tertiary institutions, including the National University of Singapore (NUS), Nanyang Technological University (NTU), Singapore University of Design and Technology (SUTD), Singapore Management University (SMU), as well as research institutions in the Agency for Science, Technology and Research (A*STAR). In line with AISG's broader aims to nurture a local community of doers and thinkers in AI, AI.Platform@NSCC is an example of a "makerspace" environment. Using shared resources and intentionally designed facilities, the ecosystem will maximise community interaction and collaboration, and encourage adoption of intellectual property generated by AISG.

The platform will be launched early next year and located at NSCC's Data Centre in Connexis Building, Fusionopolis. For training and research, it will be equipped with six NVIDIA® DGX-1™ deep learning supercomputers, which deliver the highest levels of computing power to drive next-generation AI applications, allowing researchers to dramatically reduce the time to train larger, more sophisticated deep neural networks to meet the computing demands of AISG. The supercomputers are packed with 48 NVIDIA Tesla® V100 GPUs, which provide up to 99x more throughput than

standard CPUs – offering up to six Tensor teraflops of AI computing power for AISG’s researchers and collaborators to run AI frameworks and algorithm, and conduct proofs of concept.

The agreement also covers the provision of intensive deep learning training for at least 400 persons through NVIDIA’s Deep Learning Institute (DLI). The planned workshops offer hands-on training for developers, data scientists and researchers looking to solve some of the world’s most challenging problems with deep learning. Through self-paced labs and instructor-led workshops, DLI provides training on the latest techniques for designing, training and deploying neural networks across a variety of application domains. Participants will explore widely used open-source frameworks as well as NVIDIA’s latest GPU-accelerated deep learning platforms.

Inaugural Supercomputing Asia 2018 at Resorts World Sentosa, Singapore



March 27, 2018

Organised by National Supercomputing Centre (NSCC) Singapore, SCA18 is the inaugural annual conference that will encompass an umbrella of notable supercomputing and allied events in Asia.

The new flagship conference has its roots in Supercomputing Frontiers (SCF) since 2015. NSCC aims to build on the success of the global Supercomputing Frontiers conference series and make the SCA series Asia's HPC nexus, by gathering the best and the brightest under the SCA umbrella to share and promote HPC in Asia. Artificial Intelligence (AI) wave, a key high-growth area, will headline the theme of the inaugural SCA18 with "The Convergence of AI and HPC Bringing Transformation".

The theme is underpinned by the number of distinguished speakers, all luminaries in the fields of AI and HPC, and the wide selection of workshops and panel discussions held over the three-day event. Besides the presence of our Guest-of-Honour, Senior Minister of State, Dr Janil Puthuchery from the Ministry of Communications & Information and Education, SCA18 also hosted several prominent speakers, including:

1. Hewlett Packard Enterprise's Dr Goh Eng Lim, who is known as the Singaporean who, with NASA, put a supercomputer in space.
2. Dr Satoshi Sekiguchi from the National Institute of Advanced Industrial Science and Technology, and known for driving developments in HPC and applying IT-based solutions to solve society's problems on AI.
3. Professor Joe Mambretti and Professor Thomas DeFanti, both distinguished pioneers of advanced Internet networking from the United States.
4. Mr Gilad Shainer from the HPC & AI Advisory Council and an HPC evangelist.

Alongside co-located HPC events, attendees were treated to the following conferences in session:

1. **Asia Pacific Advanced Network Meeting (APAN45)** – The largest and longest-standing community of advanced network experts that pioneers and strategises research network connectivity and platforms for research and innovative projects in Asia Pacific.
2. **Conference on Next Generation Arithmetic (CoNGA)** – An innovation invented by supercomputing veteran Professor John Gustafson who has a law named after him (Gustafson's Law), and whose latest unum incarnation called "posits" has the potential of changing the entire landscape of computing.
3. **Singapore-Japan Joint Sessions** – Talks and panel discussions centering energy efficiency and data centre cooling, aerospace and smart city concepts that aim to foster collaborations between Singapore and Japan.
4. **Supercomputing Frontiers Asia (SCFA)** – The technical sessions for SCA18, that has received over 40 papers, out of which 16 papers will be presented in the areas of Big Data, Graphics Processing Units (GPU) and Field Programmable Gate Arrays (FPGA), Performance Tools and Linear Algebra.
5. **Towards an Asia Pacific Research Platform (APRP)** – HPC and networking experts will knock heads together and lay the groundwork for building the planned Asia Pacific Research Platform (APRP), another innovation to bridge researchers and HPC/Networking facilities over a large geographical region.

SCA18 also covered a rich selection of workshops and sessions, including:

- **Enabling Government Innovations Session**; sharing GovTech's innovation programme and AI & HPC related government projects that were funded under this programme.
- **Industry Tracks**; 14 exciting talks on HPC technologies and roadmaps by leading HPC vendors and sponsors who will stargaze and discuss the possibilities and potential of AI and HPC.
- **Precision Medicine Track**; Talks and panel discussions on the precision medicine landscape in Singapore today and what lies ahead for Precision Medicine in Singapore.
- **Start-up Tracks**; Panel discussions in the areas of Fintech, Biotech and Automation.
- **18 exhibition booths** from sponsors including representation from supercomputing centres in Wuxi and Australia, as well as a combined booth by Japan's RIKEN and Research Organisation for Information Science and Technology (RIST).

Another key highlight at the SCA18 opening ceremony was the SCA18 Awards, which was presented by Dr Puthuchery. The Awards aim to promote excellence in HPC, networking, storage and visualisation in the areas of Asia's research, innovation, education and enterprise.

Recipients of the SCA18 Awards were:

1. **Asia HPC Leadership Award, Dr Satoshi Sekiguchi, Vice President & Director General at Japan's National Institute of Advanced Industrial Science and Technology (AIST).** Dr Sekiguchi has driven major developments in high performance computing from its system architecture to applications. His expertise also includes applying IT-based solutions to many of society's problems related to global climate change, environmental management and

resource efficiency. Over the past three decades, he has played key leadership and founding roles in international organisations and projects such as the PRAGMA, GEO and the Global Grid Forum. His latest outstanding role has been in initiating the world's fastest supercomputer for artificial intelligence research, known popularly as the AI Bridging Cloud Infrastructure (ABCI).

2. **Asia HPC Outstanding Innovation Award, The National Supercomputing Centre in Wuxi**
The National Supercomputing Centre in Wuxi houses the world's most powerful supercomputer, the Sunway TaihuLight, hosted by Tsinghua University. It has kept its top position in the TOP500 supercomputer list for 4 times in a row since 2016. TaihuLight is based on a Chinese home-grown processor, the Shenwei SW26010, which has a completely different architecture compared to any existing processors. Projects on this supercomputer have been nominated five times for the highly coveted Gordon Bell Prize. They have the honour of achieving the rare feat of winning the Gordon Bell Prize for two consecutive years.
3. **Singapore Distinguished Service Award, Professor Lam Khin Yong**
Professor Lam is being recognised for his distinguished and pioneering efforts and contributions towards shaping the HPC landscape in Singapore since the 1980s. In the 1990s, he founded the Centre for Computational Mechanics and expanded it as the founding Executive Director of Singapore's Institute of Higher Performance Computing (IHPC). Today, Professor Lam continues to be an active advocate of aligning research with industry applications. His latest achievement for Singapore is clinching a multimillion dollar research collaboration in Artificial Intelligence with Chinese e-commerce giant, Alibaba.
4. **Singapore Visionary Award, Dr Goh Eng Lim**
Dr Goh has been a veteran of the high performance computing industry for nearly three decades, first with SGI and now with Hewlett Packard Enterprise as Vice President and CTO for HPC and AI. He is known as the Singaporean who put a supercomputer in space with NASA in the United States, to study high performance computing hardware for long duration space travel. He has won numerous awards for his achievements and visionary ideas, including the most recent HPCwire's "Readers' Choice Top Supercomputing Award 2017" with HPE, and was twice listed in HPCwire's "People to Watch". He is the first and only Singaporean to make it to the prestigious Scientific Advisory Board of the Singapore National Research Foundation (NRF).
5. **Outstanding Technical Paper Award, Kesheng Wu, Junmin Gu, Scott Klasky, Norbert Podhorszki & Ji Qiang (Lawrence Berkeley National Laboratory, USA)**
Paper Title: Querying Large Scientific Data Sets with Adaptable IO System ADIOS
This award aims to recognise an outstanding individual or team deemed to have presented the best research technical paper at SCFA in the areas of Big Data, GPU/FPGA, Performance Tools and Linear Algebra.

SCA18 was attended by over 800 delegates from 24 countries around the world. SCA19 will be taking place 11 to 14 March 2019 in Singapore.

Pawsey enters its first international agreement with Singapore's National Supercomputing Centre



April 03, 2018

The National Supercomputing Centre (NSCC) Singapore, and the Pawsey Supercomputing Centre have signed a Memorandum of Understanding (MOU) to collaborate in the fields of supercomputing, networking, data analytics, scientific software applications and visualisation.

Pawsey and NSCC have worked together to sign an MOU that will underpin the beginning of the two Centres' collaboration to deliver better, faster and more innovative scientific outcomes for the benefit of both nations. The signing ceremony took place last week at the Resorts World Convention Centre, Sentosa, Singapore, as part of SupercomputingAsia 2018 (SCA18). NSCC's Chief Executive, Professor Tan Tin Wee (left) and Pawsey's Data Technical Specialist, Mr Mark Gray (right), engage in an arm shake during SCA18, to mark the start of an international collaboration between Singapore and Australia.

The two supercomputing centres will collaborate in areas such as strategy, best practice and shared experiences in planning, defining, administering, and supporting industry engagement, outreach activities, training and stakeholder management. Governance matters on resource access and sharing, resource allocation, export control, infrastructure accreditation; user support tools and methods; HPC software development and cybersecurity will also be considered.

The two supercomputing hubs are located in the world's most heavily populated time zone. This

international initiative will drive deep and interactive dialogues for both centres, thus allowing a good flow of knowledge transfer to occur between the two neighbouring nations. This will in turn benefit the HPC community within each country. Both parties have plans in the pipeline which include joint initiatives to optimise researchers' activities, such as training and code optimisation.

Pawsey hosted a booth as part of SCA18, which is the first achievement of this engagement between the supercomputing hubs.

This is the first international agreement entered into by the Pawsey Supercomputing Centre. It is expected that before the end of the year the Centre will engage in more international alliances, to provide improved services to the Australian research community.

2018 HPC-AI Competition



March 27, 2018

Co-organised by HPC-AI Advisory Council and NSCC (Singapore, the APAC HPC-AI Competition encourages international teams from tertiary institutions in the APAC region who wish to demonstrate their programming ability in the traditional and emerging disciplines, including High Performance Computing (HPC) and Artificial Intelligence (AI).

The competition was launched during the inaugural SCA18 which took place at Resorts World Sentosa on March 27, 2018.

This is the first-ever APAC HPC-AI competition that aims to educate, empower, and bring together the next generation technology leaders. Participants will get the unique opportunity to showcase their HPC and AI expertise.

16 teams have been shortlisted for the competition, including some renowned teams who have demonstrated to be formidable such as Tsinghua University (China), Tianjin University (China), Nanyang Technological University (Singapore) amongst others.

The winning team will receive a cash prize and represent APAC at the Student Cluster Competition (SCC) at ISC 2019, a global HPC conference, in Germany.

Student team from Nanyang Technological University to participate at ISC 2018, Frankfurt



Since its inception in 2015, NSCC has been participating in two of the world's largest marketplace for HPC professionals with a "Singapore Pavilion" exhibiting space. Both annual events are held in Germany (ISC High Performance) and the United States (SC).

NSCC has also been a supportive main sponsor for competing students from Nanyang Technological University (NTU) at the Student Cluster Competition (SCC) at ISC High Performance and SC.

In 2016, Team NTU participated in the SCC at ISC High Performance for the first time. The following year, they were co-winners of a deep learning challenge and came into the top three for overall performance. At SC 2017, the team finished first, beating 16 other teams from globally renowned universities. NSCC will exhibit at ISC High Performance from 24 to 28 June in Frankfurt, Germany and 12 to 15 November in Dallas, Texas.