Singapore launches supercomputer resource to support national AI Healthcare Initiatives

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Singtel and NUHS to set up a 5G Indoor Network at NUHS, a first for a public healthcare institution in Singapore with a boost from RIE funding

On Dec 3rd, 2021, Singapore's NSCC (National Supercomputing Centre Singapore) and NUHS (National University Health System) inked a collaborative agreement, **to build the national infrastructure for supercomputing to support AI programmes at public healthcare institutions** by middle of next year. The announcement was made at the sideline of the opening session of **4th Singapore Healthcare AI Datathon & Expo 2021**(27 Nov to 5 Dec).

The five-year Research, Innovation and Enterprise 2020 (RIE2020) plan had allocated funds for research and development (R&D) in three high-impact areas, including healthcare. The collaboration will provide the infrastructure and operational components. The new system by NSCC and NUHS will benefit clinical researchers who will be able to train and run complex computations of healthcare models.

The **supercomputing infrastructure, named "PRESCIENCE"**, will be used to train AI models that predict patient health trajectories and recommends when a patient's condition may deteriorate.

"The National University Health System sees a large number of patients per day and generates large amounts of data which can be used to train AI models that improve the quality of care. The new supercomputer could help to cut our training times down to hours allowing our medical and para-medical staff to optimise patient trajectories and to improve the quality of patient care" said Associate Professor Ngiam Kee Yuan, Group Chief Technology Officer, NUHS.

Hospitals around the world produce an average of 50 petabytes of data per year or a staggering 50 million GB of storage space. Research into modern medical technologies and applications that rely on tools such as artificial Intelligence (AI), machine learning and automation, helps to make sense of the massive amounts of data to improve patient outcomes. The development of such tools can be exponentially enhanced using supercomputers as it allows medical researchers to build more complex AI models that can accommodate the large amounts of data. However, to run AI and machine learning at scale, it requires massive amounts of computing power to train the models

Key announcements:

- National Supercomputing Centre Singapore (NSCC) and National University Health System (NUHS) finalise an

agreement to build a petascale national supercomputing resource that will serve Singapore's medical and healthcare research needs by middle of next year.

- NUHS and Singtel are building the first 5G indoor network with Multi-Access Edge Compute Capabilities at NUH by middle of next year.

- First real-time vein mapping device using the Microsoft HoloLens2, devised by NUH clinicians and NUS engineers, to aid blood taking.

A petascale supercomputer refers to computing systems capable of performing at least 1 quadrillion floating-point operations per second (FLOPS), which is the measurement of the number of calculations that can be performed in one second.

Photo Caption: *From Left to Right, NUHS Grp Chief Technology Officer, A/Prof Ngiam Kee Yuan, NUHS CE, Prof Yeoh Khay Guan, NSCC CE, A/Prof Tan Tin Wee and NSCC Director of Strategy Planning, Mr Bernard Tan*