MEDIA RELEASE

A Glimpse into Hospitals of the Future

Healthcare professionals, data scientists and medical innovators are coming together to showcase innovative healthcare technologies and Artificial Intelligence (AI) tools at a first-of-its-kind public sector symposium and exhibition in Singapore. The National University Health System (NUHS) will also launch its own healthcare AI system: DISCOVERY AI – a learning data-driven platform that can assist the healthcare team by refining data and information to enhance clinical diagnoses, flag higher-risk patients, and automate hospital processes to deliver better value based healthcare

Singapore, [06 July 2018] – Smart beds, advanced telehealth equipment for remote patient monitoring, and smart wards that are connected to medical devices, patients and hospital care teams via the Internet of Things (IoT) complemented by a 'brain' or command centre with a learning AI that processes, analyses and churns out useful insights. Such technologies may seem futuristic but some of these innovations are already being applied in hospitals today.

These technologies, conversations about healthcare AI and innovations, and a data analytics 'datathon' are the focal point of Singapore's first ever public Healthcare AI Datathon and Expo. About 500 participants from both public and private organisations are expected to attend the event organised by the National University Health System (NUHS) and partners from National University of Singapore (NUS), AI Singapore, and Massachusetts Institute of Technology (MIT).

"The inaugural Healthcare AI Datathon and Expo is an opportunity for partners who share the same vision to develop workable AI-powered solutions for better health and healthcare," said Professor John Eu-Li Wong, Isabel Chan Professor in Medical Sciences, Chief Executive, NUHS and Senior Vice President (Health Affairs), NUS. "Challenges such as a rapidly ageing population, rising incidence of chronic diseases, and finite resources are an opportunity for technology to better prevent and manage diseases with optimal outcomes and affordable costs."

An example of this is the NUHS DISCOVERY AI platform.

"DISCOVERY AI is a 'sandbox' platform that ties in different AI tools to continually make sense of the vast amounts of data that we have in our hospitals. The AI produces extremely valuable data-driven insights that augment the work of our healthcare workforce that can enhance the doctors' ability to make better decisions, predict re-admissions of high-risk patients to allow closer follow-up, facilitate better use of laboratory investigations, and increase the efficiency of processes by intelligently automating some of the common tasks present in hospitals," said Dr Ngiam Kee Yuan, NUHS's Group Chief Technology Officer.

"The development of the AI system was made very much easier because of NUHS' unique academic health structure, and the benefit of our close relationship with the National University of Singapore." Dr Ngiam added that the system's main goal was to allow the healthcare team to better focus on their core mission: providing the best care possible to patients.

"It is the perfect combination. The cross-disciplinary collaboration between doctors, nurses, data scientists and AI experts was the key element in the development of this healthcare-centric AI system," said Dr Feng Mengling, data scientist and Assistant Professor from the NUS Saw Swee Hock School of Public Health who helped develop DISCOVERY AI. "It was only by tapping on

the intimate knowledge of the professionals on the ground that we were able to design a system that catered not only to the needs of the hospital but one that focuses on achieving positive patient outcomes as the ultimate aim."

The DISCOVERY AI platform was jointly developed by NUHS and NUS, and test-bedded at the National University Hospital (NUH) before being launched on 6 July 2018. The system is expected to be deployed in phases across NUHS institutions in the coming years.

In conjunction with this milestone, the organisers are holding a parallel two-day datathon that will see some 20 teams comprising healthcare professionals, data scientists, data engineers, software engineers and students from Singapore and the region compete to develop novel healthcare AI solutions. The NUS-NUHS-MIT Datathon will be held on the 7-8 July 2018 at the NUS Saw Swee Hock School of Public Health.

More information about the **DISCOVERY AI platform, Healthcare EXPO, and NUS-NUHS-MIT Datathon** can be found in the Annex below.

- End -

For media queries, please contact:
Mr Eugene Low
Communications Office
National University Health System (NUHS)
Email: eugene_low@nuhs.edu.sg
Tel: (65) 6772 3991 / (65) 9230 9235

Mr Deror Wong
Communications Office
National University Health System (NUHS)
Email: deror_wong@nuhs.edu.sg
Tel: (65) 6772 3986 / (65) 9848 6934

Chinese Glossary

John Eu-Li Wong	黄聿立
Ngiam Kee Yuan	严居渊
Feng Mengling	冯梦凌
National University Health System	国立大学医学组织
National University of Singapore	新加坡国立大学
Chief Executive	首席执行官
Group Chief Technology Officer	集团首席技术官
datathon	数据马拉松

About the National University Health System (NUHS)

The National University Health System (NUHS) aims to transform how illness is prevented and managed by discovering causes of disease, development of more effective treatments through collaborative multidisciplinary research and clinical trials, and creation of better technologies and care delivery systems in partnership with others who share the same values and vision.

Institutions in the NUHS Group includes the National University Hospital, Ng Teng Fong General Hospital, Jurong Community Hospital and Alexandra Hospital; three National Specialty Centres - National University Cancer Institute, Singapore (NCIS), National University Heart Centre, Singapore (NUHCS) and National University Centre for Oral Health, Singapore (NUCOHS); the National University Polyclinics (NUP); Jurong Medical Centre; and three NUS health sciences schools – NUS Yong Loo Lin School of Medicine (including the Alice Lee Centre for Nursing Studies), NUS Faculty of Dentistry and NUS Saw Swee Hock School of Public Health.

With member institutions under a common governance structure, NUHS creates synergies for the advancement of health by integrating patient care, health science education and biomedical research.

As a Regional Health System, NUHS works closely with health and social care partners across Singapore to develop and implement programmes that contribute to a healthy and engaged population in the Western part of Singapore.

For more information, please visit www.nuhs.edu.sg

**About National University of Singapore (NUS)**

A leading global university centred in Asia, the National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education and research, with a focus on Asian perspectives and expertise.

NUS has 17 Faculties and Schools across three campuses. Its transformative education includes a broad-based curriculum underscored by multidisciplinary courses and cross-faculty enrichment. Over 38,000 students from 100 countries enrich the community with their diverse social and cultural perspectives. NUS also strives to create a supportive and innovative environment to promote creative enterprise within its community.

NUS takes an integrated and multidisciplinary approach to research, working with partners from industry, government and academia, to address crucial and complex issues relevant to Asia and the world. Researchers in NUS' Faculties and Schools, 30 university-level research institutes and centres, and Research Centres of Excellence cover a wide range of themes including: energy, environmental and urban sustainability; treatment and prevention of diseases common among Asians; active ageing; advanced materials; risk management and resilience of financial systems. The University's latest research focus is to use data science, operations research and cybersecurity to support Singapore's Smart Nation initiative.

For more information on NUS, please visit www.nus.edu.sg.
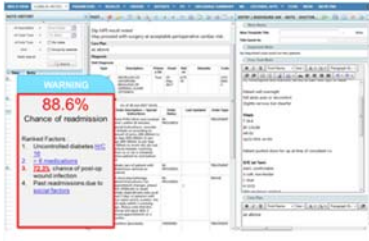
DISCOVERY AI platform

The platform is a production level, secure sandbox for building AI tools from huge multi-domain medical databases. It is a platform that is able to anonymously link multi-institution datasets yet share data securely and equitably between clinicians, researchers and data scientists. The platform is fortified by a proprietary blockchain technology coupled with enterprise-grade security. Access to this platform is unified through a cluster-wide governance policy. Multiple AI tools have been built on this platform and are integrated with the existing EMR system to alert clinicians directly. This platform and associated AI technologies are developed in-house with proprietary technology from the NUS School of Computing and partners in other institutes of higher learning. The DISCOVERY AI platform has been test-bedded at the National University Hospital (NUH) and will be officially launched on 6 July 2018.

Healthcare EXPO - A showcase for the future

A healthcare EXPO will host healthcare companies for an exhibition that demonstrates innovative healthcare-related technologies from 3 - 6 Jul 2018. This will include an NUHS showcase that is powered by AI and next generation technologies including a Virtual Care Centre (VCC) where telemedicine is augmented by the next generation AI tools; a Smart Ward where new, futuristic monitoring technologies by medical innovators will be showcased; a Next Generation Command Centre where visualisation technologies and techniques with a command view with insights and feeds from the AI tools will be displayed; and a Next Generation Outpatient Clinic (OPC) where a demonstration of technologies like facial recognition can provide a seamless patient experience in future OPCs. Some of the partners of the event include IBM, CTC, Philips, Medilot, Qritive, Nvidia, Google Cloud, Lenovo/Intel, Huawei, Medilot, Qritive, SG innovates, AI Singapore, NCS, National Supercomputing Center and A*STAR DxD.

NUS-NUHS-MIT Datathon

A parallel *NUS-NUHS-MIT Datathon* event, encompassing a workshop and a datathon, will be held from 7-8 Jul 2018 at the NUS Saw Swee Hock School of Public Health. The *Datathon*, or data-centric hackathon, uniquely brings together doctors, nurses, data scientists, data engineers, software engineers and students from Singapore and the region to develop novel healthcare solutions by harnessing the power of data analytics technologies. The increasing wealth of patient data available through electronic health records has created a valuable opportunity to extract vast amounts of data and knowledge available to benefit healthcare providers and ultimately, patients. The event is expected to draw some 20 cross-disciplinary teams to compete in developing data analytics and AI solutions for topics like critical care, general clinical care and medical imaging using sanitised, non-identifiable, healthcare data from the US and Singapore.