JOINT NEWS RELEASE

Singapore, 30 September 2024

NTU Singapore and National Healthcare Group launch centre to advance artificial intelligence in healthcare

To advance artificial intelligence (AI) in healthcare, **Nanyang Technological University, Singapore (NTU Singapore)** and the **National Healthcare Group (NHG)** are pioneering a new centre to bridge the gap between innovative AI technologies and their practical applications in medicine.

The new **Centre of AI in Medicine (C-AIM)**, spearheaded by **NTU's Lee Kong Chian School of Medicine (LKCMedicine)**, aims to revolutionise patient care and inform public health policies through its research activities.

The new centre will focus on four key clinical domains: **mental health**, **elderly frailty**, **medical imaging**, and **cancer screening**, to drive its research and innovation efforts. This is in line with Singapore's second National AI Strategy (NAIS 2.0)[1] to encourage the roll-out of AI-driven healthcare solutions and tools.

The centre was officially launched today by **Senior Minister of State, Ministry of Digital Development and Information, Mr Tan Kiat How**.

NTU Senior Vice-President (Health and Life Sciences), Distinguished University Professor and **Co-Director of C-AIM, Professor Joseph Sung** said: "While Singapore has a strong foundation for the safe growth of AI in healthcare, more needs to be done to bridge the gap between technology development and real-world clinical application."

"Our unique multidisciplinary research across fields will ensure that AI solutions are not only innovative but also accessible, affordable, and scalable. C-AIM will help build the trust, evidence, and integration needed for widespread AI adoption," said Prof Sung, who is also **Dean of LKCMedicine**.

Senior Deputy Dean of the College of Computing & Data Science, Associate Vice President, Capability Building and **Co-Director of C-AIM, Professor Miao Chun Yan** said: "In addition to technological advancements, it is crucial to prioritise human-machine interactions to create human centred AI systems that healthcare

[1] https://www.smartnation.gov.sg/nais/

professionals can trust and use in a natural and intuitive way. This will ensure that AI solutions are both impactful and widely adopted."

Professor Benjamin Seet, Group Chairman Medical Board (Research), NHG, said, "Ultimately, the patient remains on the centre-stage. The true test for AI is how its deployment in the hospital, clinic or community impacts health outcomes for patients and the population. We would want to see its impact and value in a real-world setting."

Leveraging leading expertise in healthcare

C-AIM brings together local and international academic and industry partners such as **Yale School of Medicine** and **Olympus Singapore**, to engage in multidisciplinary research across fields like medicine, computer engineering, data analytics, social science and ethics, as well as implementation science.

The collective expertise of these partners and over 100 researchers and clinicians under C-AIM will enable the centre to effectively study and translate AI solutions into clinical practice, ensuring their clinical relevance and benefit to patients and the wider population.

President and Chief Executive Officer of Olympus Corporation, Stefan Kaufmann, said: "I am excited to commence this partnership with NHG and the NTU. We believe that AI technologies have a growing role to play in MedTech and will ultimately assist in elevating the standard of care delivered to patients throughout the world and the Asia Pacific region. Together, we aim to study, accelerate, and achieve breakthroughs to grow our understanding of how to best apply AI in the medical field, as we seek to improve healthcare outcomes at scale with our partners and products."

Yale School of Medicine's Deputy Dean for Biomedical Informatics, Chair, Department of Biomedical Informatics and Data Science, Professor Waldemar von Zedtwitz Lucila Ohno-Machado, said: "We look forward to being part of this critical work to increase AI's impact on human health and transform the health care system. In addition to enhancing research and discovery and improving patient outcomes, AI will create more space for humans to be humans. By automating documentation processes and the mechanical aspects of health care, AI will provide more time for listening and interaction between clinicians and their patients."

Accelerating AI adoption in healthcare

Digital technologies such as generative AI and machine learning have already made significant strides in diagnostics and treatment.

For example, AI is used to detect abnormalities in chest X-rays, mammograms, and brain CT scans, and deep-learning models like SELENA+[2] are used to detect diabetic

[2] https://www.smartnation.gov.sg/initiatives/selena-plus/

retinopathy. Despite these advancements, the adoption of AI in clinical practice in Singapore has been slower than in other industries.

C-AIM aims to address several key challenges that have hindered the full integration of AI in healthcare. These include the lack of clinical data demonstrating the effectiveness of AI in improving patient outcomes, the uncertainty surrounding the ethical and legal aspects of AI, and the need for evidence that AI can reduce manpower and healthcare costs.

To achieve its objectives, C-AIM will conduct AI simulation and implementation studies, allowing healthcare professionals to rigorously test AI tools before they are deployed in real-world settings.

Equipped with cutting-edge GPU infrastructure, C-AIM will conduct research for accelerating AI and machine learning applications, while maintaining dedicated research facilities to ensure data privacy.

The studies will offer critical insights into how AI can be effectively integrated into clinical workflows, with a focus on addressing the specific needs of local healthcare systems.

More information about C-AIM's research projects can be found in Annex A.

Creating better healthcare in Singapore

By leveraging Singapore's AI capabilities and fostering collaboration across academia, healthcare, and industry, C-AIM is poised to transform the healthcare landscape and position Singapore as a global leader in AI-driven medicine.

The launch of C-AIM represents a significant milestone in Singapore's journey toward digital healthcare transformation.

As AI becomes increasingly integrated into clinical practice, the Centre's work will ensure that both healthcare professionals and patients benefit from the best that technology has to offer.

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About Nanyang Technological University, Singapore

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 35,000 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, S Rajaratnam School of International Studies and Singapore Centre for Environmental Life Sciences Engineering – and various leading research centres such as the Earth Observatory of Singapore, Nanyang Environment & Water Research Institute and Energy Research Institute @ NTU (ERI@N).

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

Ranked amongst the world's top universities, the University's main campus is also frequently listed among the world's most beautiful. Known for its sustainability, NTU has achieved 100% Green Mark Platinum certification for all its eligible building projects. Apart from its main campus, NTU also has a medical campus in Novena, Singapore's healthcare district.

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

About the National Healthcare Group

The National Healthcare Group (NHG) is a leader in public healthcare in Singapore recognised for delivering high value patient care. Our clinical services are provided through an integrated system of primary care polyclinics, acute care tertiary hospitals, community hospitals, national specialty centres, and community-based ambulatory care centres. Together, we provide comprehensive, holistic, and innovative healthcare to address the needs of our patients and the population we serve. As a learning organisation, we are establishing ourselves as an academic health system to drive clinical excellence, raise research intensity and grow our academic partnerships to continually improve the way we deliver care to our patients.

As the Regional Health Manager for 1.5 million residents in Central and North Singapore, NHG collaborates with private general practices, public and community health and social care providers to keep residents well and healthy.

With more than 20,000 healthcare professionals in NHG, we are committed towards building healthier and resilient communities, and Adding Years of Healthy Life to the people we serve.

More information is available at www.nhg.com.sg.

Annex A: Centre of AI in Medicine (C-AIM) research project examples

Project 1: Personalised Brain-Computer Interface-based Intervention for Anxiety

This study, led by Duke-NUS and NTU, tested a new home-based tool to help young adults manage anxiety. It combined relaxation training, biofeedback, and mindfulness through Brain-Computer Interface (BCI) technology. Participants used a special device (Muse EEG biosensor) to play a 15-minute game designed to reduce anxiety. The results showed significant improvement in their mental well-being, suggesting that BCI technology could be a promising tool for anxiety management at home and potentially for broader public use.

Project 2: Simulation Study on Artificial Intelligent Clinical Decision Support System for Acute Gastrointestinal Bleeding

In this study by LKCMedicine and Yale, researchers explored how healthcare professionals interact with an AI tool (Gut-GPT) designed to assist in making decisions for treating gastrointestinal bleeding. The goal was to see if healthcare providers would trust and accept this AI tool as part of their decision-making process. The study focuses on whether AI could be a reliable team member in clinical settings and has shown promising results in the United States.

As part of next steps, the research team will trial Gut-GPT in Singapore to study the acceptance of such a solution when it needs to adapt to local clinical workflow and physician preferences The research is supported by advanced AI technology to help improve healthcare outcomes and policies.

Project 3: Anatomy of PRIME-CXR: Novel Clinical Deployment of Imaging AI in Primary Care

Led by NHG, in partnership with NTU, PRIME-CXR is a new initiative to speed up the review process of chest X-rays at National Healthcare Group Polyclinics (NHGP). It uses an AI-powered chest X-ray (CXR) analysis solution called Lunit INSIGHT CXR to help enhance the diagnosis of lung and heart conditions by rapidly identifying and prioritising CXRs with significant abnormalities, which in turn facilitates a smooth and efficient triaging process for patients. The project also includes a collaboration with Resaro, a Temasek-backed start-up, to create a framework for evaluating and deploying radiology AI solutions.

The deployment of Lunit INSIGHT CXR is through Singapore's national radiology AI platform (AimSG), supported by Synapxe. It demonstrates the collaboration between academics, clinicians and industry partners in implementing AI tools for real-world clinical use.

Testing will begin in Q4 2024 at Geylang Polyclinic, with full deployment expected in early 2025. Depending on results, the AI system may be expanded to other NHG polyclinics.

Project 4: Senior Endoscopists Are More Likely To Trust And Accept AI-Assisted Colonoscopy For Detection And Treatment Of Polyps Compared To Junior Endoscopists

Led by LKCMedicine, the research team surveyed gastroenterologists and gastrointestinal surgeons in the Asia-Pacific region on their levels of acceptance and trust in using AI-powered tools to diagnose and assess colorectal polyps (benign growths in the colon that could become cancerous).

The team found that the number of years of experience was a crucial factor. Gastroenterologists with fewer than 10 years of clinical experience perceived a higher risk of these AI-powered medical tools than their colleagues with more than 10 years of experience.

There was no difference in levels of acceptance between the male and female doctors, between those working in public and private settings, as well as between those working in big hospital units and small group practices.

The study highlights the need for more research into what influences doctors' acceptance of AI in their medical practice.