AI and Apps: NTU's Approach to Elderly Mental Wellness

Alita Sharon | November 2, 2024

Nanyang Technological University (NTU) is taking significant strides in leveraging technology to enhance the mental well-being of the elderly, particularly in addressing cognitive decline associated with conditions like Alzheimer's disease and dementia. Recognising the importance of early intervention, NTU's initiatives aim to provide accessible tools for managing cognitive health among seniors.

Image credits: Nanyang Technological University

At the recent Cognition Awareness Day organised by NTU's Lee Kong Chian School of Medicine (LKCMedicine), the Dementia Research Centre (Singapore) introduced a suite of three mobile applications tailored to the Asian population. These apps empower users, including individuals with dementia and those at risk, to manage their cognitive health effectively.

The suite facilitates early detection and risk prediction, followed by diagnostic support and intervention strategies for cognitive decline. Through these tools, the DRSC hopes to encourage both younger and older community members to proactively assess and improve their cognitive health, thereby enhancing dementia outcomes in Singapore.

The suite of apps includes features designed for ease of use, ensuring that they are accessible to seniors who may not be technologically savvy. Each app focuses on different aspects of cognitive health, such as memory exercises, mood tracking, and social engagement activities, fostering an interactive and supportive environment.

By promoting regular engagement with these tools, the DRSC aims to create a sustainable routine that not only helps users monitor their cognitive status but also motivates them to stay active and connected with their community.

Last month it was reported that researchers at NTU have partnered with the healthcare and social sectors to develop an AI tool designed to detect early signs of depression in seniors by analysing subtle changes in their voice samples. This innovative project, known as the SoundKeepers research study, employs voice biomarkers to gauge mental health status, similar to how medical professionals assess physical health through vital signs.

Image credits: Nanyang Technological University

Researchers will analyse voice samples from participating seniors, looking for physiological changes linked to mental health deterioration, such as muscle tension in the throat and jaw that can affect vocal quality.

Seniors identified as at risk for depression through this AI tool will be referred to a pilot community-based early intervention program. This program equips participants with various strategies and techniques to combat subsyndromal depression, ultimately fostering a supportive environment for mental health management.

The collaborative efforts of NTU's LKCMedicine, along with partners from the National Healthcare Group, Fei Yue Community Services, Club HEAL, and the Lien Foundation, represent a comprehensive approach to enhancing cognitive health and addressing mental well-being in the elderly. NTU is paving the way for innovative solutions to help seniors maintain their cognitive vitality by integrating digital technology into healthcare.

An exclusive interview with OpenGov Asia explored how innovative research at the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine) is pushing

the boundaries of our understanding of brain function to enhance treatments for mental health and ageing-related disorders.

A dedicated team has developed a groundbreaking method that leverages AI and brain activity data to reconstruct visual experiences directly from brain signals. This pioneering initiative not only improves the interpretation of fMRI data but also showcases its transformative potential for early detection of brain diseases, personalised treatment plans, and enhanced learning programs.

Led by Dr Helen Zhou Juan, this multidisciplinary team is refining its methodologies while addressing the inclusivity and generalisability of its work. Open to international collaborations, the team values diverse perspectives and is committed to translating its findings into practical applications in neuroscience and medicine for a meaningful clinical impact.