

Singapore NTU Medical School Launches Centre to Predict Disease Progression With AI

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Image credit: NTU

The Lee Kong Chian School of Medicine at the Nanyang Technological University (NTU) has launched the [Centre for Biomedical Informatics](#) that will leverage data analytics and artificial intelligence (AI) to build biologically-informed models and develop “super algorithms” that predict and personalise treatment. These models could enable the early and accurate detection and prevention of chronic diseases and acute medical emergencies.

The research centre will use its expertise and state-of-the-art equipment to identify trends, patterns, and anomalies in data to derive insights that will help researchers and clinicians make better-informed decisions. It could also possibly give rise to new discoveries and the development of powerful diagnostic and treatment methods for diseases. The work at the centre is in line with the National AI Strategy under Singapore’s Smart Nation initiatives to deepen the use of AI to transform Singapore’s economy. One of the key areas outlined in the strategy is

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healthcare, where chronic disease prediction and management could help with the faster detection and treatment of diseases.

According to an official from NTU, the centre will support LKC Medicine's five flagship research programmes: population health, respiratory medicine and infectious disease, skin diseases and wound repair, neuroscience and mental health, and nutrition, metabolism, and health. Among the centre's projects is an ongoing collaboration with the Institute of Mental Health (IMH) and the Auckland University of Technology (AUT) to better understand and predict disease progression of mental health conditions in youths using data analytics and AI techniques. The centre is also working with IMH to develop algorithms that predict whether patients are at risk of developing psychosis and other mental disorders based on their speech patterns.

Apart from mental health, the centre has also undertaken projects in the area of cancer treatment. For instance, using statistical, meta-analysis, and machine learning (ML) techniques, researchers have devised a way to develop cancer biomarkers – biological molecules that are a sign of disease. They have used this method to produce a breast cancer biomarker associated with prognosis. Based on this biomarker, the researchers are now developing novel therapeutic strategies to help them discover drugs capable of 'reversing' the biomarker expression patterns in hopes of improving patient outcomes.

In addition to developing super algorithms and ML models, the centre will carry out biomedical data analytics for the scientific community at NTU to advance biomedical research. It will organise workshops and courses to build biomedical informatics capabilities among medical science researchers in Singapore and the region. The centre will draw upon the expertise of 15 researchers specialising in bio-data science, computer engineering, and AI/ML.

Earlier this month, OpenGov Asia [reported](#) that NTU researchers developed motion capture technology to aid doctors and physiotherapists in their consultations and diagnoses of patients in need of rehabilitation after an injury or recovering from an illness. Compared to conventional motion capture (mocap) labs that involve a lengthy setup process with technicians and a physiotherapist, the NTU-developed tech would allow patients to start consultations within minutes.

As it streamlines the analysis of subjects' movements by removing the need for marker placement and data post-processing, consultations would also take an hour less on average. Through capturing and analysing the movements of over 150 subjects with machine learning,

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the technology has also been shown to be more accurate than marker-less motion capture systems available in the market.