

## AI already playing bigger roles behind the scenes in healthcare: Kenneth Mak



(From left) Panel moderator May Oo Lwin, MOH director-general of health Kenneth Mak, Manpower Minister Tan See Leng, NTU School of Computer Science & Engineering chair Miao Chun Yan and MirXES co-founder and CEO Zhou Lihan. ST PHOTO: GAVIN FOO



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SINGAPORE - Artificial intelligence (AI) is emerging as a game changer in healthcare, bringing about a significant shift in the way diseases are detected, thereby providing for early interventions and hopefully better outcomes.

Such AI-supported augmented detection of abnormalities in chest X-rays, mammograms and CT scans of the brain is on the cusp of moving from a pilot phase to being used at scale and becoming mainstream, said Professor Kenneth Mak, director-general of health at the Ministry of Health (MOH).

“Most people are not aware that actually AI is already part of our normal conversations because a lot of the applications are behind the scenes, under the surface; but already (it) has a big and significant influence in how we deliver care at the population level, not necessarily to the individual level,” said Prof Mak, who was speaking at a panel discussion on the opening day of the inaugural International Conference on Artificial Intelligence in Medicine 2023.

Organised by Nanyang Technological University’s Lee Kong Chian School of Medicine (LKCMedicine) and College of Engineering, and the National Healthcare Group, the three-day conference aims to foster collaboration across disciplines and discuss the implications of AI in healthcare.

The conference kicked off on Saturday and was held at NTU LKCMedicine in Mandalay Road.

The conference expects to have about 600 attendees including clinicians, researchers, scientists, engineers, AI experts, tech innovators, policymakers and students to explore the transformative effects of AI on healthcare.

Joining Prof Mak at the panel discussion – titled Will AI affect the lives and jobs of medical professionals? – were Dr Tan See Leng, the guest of honour and Manpower Minister and Second Minister for Trade and Industry; Prof Miao Chun Yan, chair of NTU’s School of Computer Science and Engineering; and Dr Zhou Lihan, co-founder and chief executive of MiRXES, a Singapore-based cancer diagnostics company.



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Giving an example of a paradigm shift occurring in polyclinics that manage many patients with diabetes who require regular eye screening, Prof Mak said the screenings were traditionally labour-intensive, requiring the meticulous manual interpretation of each retinal photograph.

But this is changing with an AI-driven system, Selena+.

Through machine learning and deep learning algorithms, Selena+ reads these digital retinal photographs, identifying diabetic damage to the eye with an impressive accuracy rate of over 95 to 97 per cent, he said. Long-term diabetes can cause serious injuries to the eye, even leading to vision loss if left unchecked.

These accurate results are swiftly relayed back to the doctors, allowing them to act without much further processing. This has enabled clinics to save on manpower and specialist input.

What started as a pilot is now mainstream across all clinics, added Prof Mak.

He also noted the concerns over AI-driven applications, some of which relate to a lack of clarity around the medical and legal implications of allowing AI technology to take over roles and tasks from humans.

Prof Mak noted that there have been mixed feelings towards AI technology among healthcare professionals, although attitudes have overall been positive. Some concerns have surfaced, however, over the lack of institutional policies to guide doctors, nurses and healthcare professionals, on how to deal with AI.

“But I think this is really a positive evolution, because we’re struggling with evolution of technology and to some extent, sometimes it’s running ahead of the game. We often require some deliberate discussions about the ethics, the responsible use of data only to find that actually the technology is improving leaps and bounds beyond what we can do,” he said.



Manpower Minister Tan See Leng (second from left) touring the exhibition booths at the International Conference on AI in Medicine on Aug 5. ST PHOTO: GAVIN FOO

Minister Tan, who is also a qualified medical practitioner, said it is important for the Government to set the framework and policies for AI to be adopted responsibly, but the industry may not have the luxury of adopting a wait-and-see approach, given that things are moving so quickly elsewhere.

Dr Tan posited that AI could be a key advantage in the upstream monitoring of patients’ health, by helping to predict the onset of chronic conditions such as diabetes, hypertension and even cancer, which take years to develop but show early warning signs.

Overlaid with one’s family history and genetics, a doctor could know with a high degree of certainty what ailments a patient is likely to have in five to 10 years, he said. But to make this work will require a mechanism to anonymise medical data, he added.