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## Tie-up could benefit brain-injury patients



Consultant Jai Rao and radiographer Douglas Tien from the National Neuroscience Institute discussing a case as a patient undergoes a computed tomography brain scan. The institute and Nanyang Technological University are in a tie-up that will see medical practitioners and engineers working together through annual fellowships and student attachment programmes. ST PHOTO: LAU FOOK KONG

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In the future, patients with neurological conditions such as brain injuries and Parkinson's disease could get faster diagnoses and more precise treatment, due to a collaboration between the National Neuroscience Institute (NNI) and Nanyang Technological University (NTU).

The tie-up will see medical practitioners and engineers working together through annual fellowships and student attachment programmes over the next three years.

One such project aims to speed up the time taken by radiologists to interpret computed tomography (CT) scans, which could result in faster treatment. It will explore the use of artificial intelligence to identify different types of traumatic brain injuries.

An average of 2,000 CT scans are performed at the NNI's Tan Tock Seng Hospital campus every month, not all for brain injuries.

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Every week, between 20 and 30 patients with traumatic brain injuries are admitted to NNI.

The collaboration is key to plugging gaps in real-life applications of both disciplines, said Professor Chen Tsuhan, NTU's dean of the College of Engineering. "A lot of time is spent in the lab working with algorithms or engineering solutions without knowing much about the (clinical) data," he said. "So it is very important for our engineering faculty and students to know the kind of data they are dealing with - not just the amount of data, but also the structure and quality of the data."

Another project aims to improve treatment for patients with moderate Parkinson's disease, a chronic neurological disorder. Researchers will study the use of a computing algorithm that could help doctors more accurately identify where to place a brain implant, which sends electrical impulses to block abnormal nerve signals that cause tremors and movement difficulties.

If successful, the algorithm could cut down surgery time by as much as two hours, said NNI medical director Ng Wai Hoe. Currently, the process of preparing the patient for the operation and the operation itself takes around five to six hours.

NNI and NTU signed a memorandum of understanding yesterday. The one-year fellowship programme will have up to two neurosurgical residents at NNI working full time with NTU professors on campus. Residents will each receive \$100,000 to complete and commercialise their projects.

The student attachment programme will start next year. NTU engineering students will get first-hand experience in clinical medicine when working with NNI neurosurgeons.