

# Budding Doctor Finds New Brain Scanning Method



Believe it or not, there is still a lot more to the human brain that we do not know. Much of this is limited by the scanning technology available. Of course, one could not merely pry open one's skull and just 'study' how the brain functions; it is not desirable to experiment on rodents either, the human brain is much more complex and different (well, we call ourselves the most intelligent animal for a reason).

The mystery of the human brain may unveil gradually after Lai Hei Ming, a year 6 Medicine student, found a breakthrough in brain scanning, winning 1<sup>st</sup> place in the 15th Challenge Cup National College Student's Extra-Curricular Activity Science and Technology Contest.

Held to serve as a once-every-two-years platform for university students to explore and apply knowledge beyond the curriculum initially, Hei Ming took a further step in the competition, seizing the opportunity to meet minds alike. This 1000-contestant national competition in Shanghai is itself a strong enough indicator for its competitiveness, definitely a heart-caught-in-throat and butterflies-in-

stomach kind of experience. But no, not for Hei Ming. He was in his element throughout because his main goal was to participate and to interact with other young scientists. The first prize is definitely the cherry on the top for Hei Ming – just imagine how surprising it would be to be announced the 1<sup>st</sup> prize winner there and then!

Curious as to what this 1<sup>st</sup>-prize worthy study is about? Hei Ming invented a new method to study the human brain using 3-D imaging of fresh and archival human brain tissues. It is especially helpful for understanding human neuroscience and diseases as no single protocol could be used as 'the' test to be applied universally for all situations. The human brain has too much variabilities. Through a series of experiments, he finally developed a reagent for tissue clearing suitable for both fresh and archival human brain tissues, which make it easier to investigate the brain. Each brain compartment has a different refractive index, and application of compartment-selective refractive index-adjusting agents would allow one to map out the compartment as a result. His invention essentially unlocks tremendous potential in the study of the human brain.

Flushing with pride and the sense of fulfilment knowing that he won the prize representing HKU, Hei Ming humbly attributes his achievement to Professor Wutain Wu, who encouraged him to join the competition. He recalls professor Wu's granting him access to the laboratory to use it freely and answering his questions. Having studies in HKU for 6 years, skills nurtured by the university's stress on self-learning and critical feedback has come in handy: Hei Ming found himself more mature and capable of directing a research.

Read Hei Ming's journal article: <https://www.nature.com/articles/s41467-018-03359-w>

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