

The age of robotics

Out of the Box

Tony Chan Fan-cheong is president of the Hong Kong University of Science and Technology. He has spent his life pursuing his dreams relating to teaching and research, and has unique views on education, scientific and technological development, and nurturing the young.



LAST WEEK, THE headline "Driverless cart motors on after hiccup" caught my attention, as I was featured in the accompanying photo sitting on a driverless car.

The piece was actually about HKUST's Robotics Day organized by our Robotics Institute, a relatively new research institute established in 2014.

An international event, we had keynote speakers from Korea's Seoul National University, KTH Royal Institute of Technology in Sweden ("the Swedish UST") and DJI's director of intelligent navigation technologies, Shuo Yang, an HKUST alumnus.

Among the many demos on the day, we also saw prototypes from Robomasters, a national wide robots competition organized by DJI to promote young people's interest in robotics, annually drawing thousands of youngsters.

As I was leaving the talks, I was invited by a young HKUST professor named Liu Ming to try out his

driverless car. I sat in the back seat of the converted golf cart, as the front seats were occupied by computers and other equipment.

My appearance made headlines the next day, but the limelight should have been given to those who worked on the project, and the many other faculty, students and visitors who participated in Robotics Day.

The technology in the car uses LIDAR, or Light Detection And Ranging, a remote sensing method that uses light in the form of a pulsed laser to measure ranges. It differs from the optical camera-based technology used in a Tesla, which infamously had a fatal accident more than a year ago, supposedly due to the visual sensor's inability to detect a white truck against a very bright sun.

A LIDAR would not have such a blind spot because laser detection is robust regardless of brightness and weather conditions.

As there were so many enthusiastic reporters coming close to the car to take photos, the vehicle itself had to stop and go often to avoid hitting them.

I think the designers had dialed up a very safe

alert system, so the car would stop if it detected any object within some distance – such as three meters – of the car. Once the reporters were warned to keep a safe distance, the ride was smooth and relatively fast.

This driverless car can supposedly go as fast as 30 to 40 kilometers per hour.



The HKUST team who built the driverless golf cart.

A few days later, I was curious and managed to talk with Liu. It turns out he joined HKUST as an assistant professor only this past January.

Even though he has been at HKUST for less than a year, he had already built up a team of six to seven PhD students.

He told me that HKUST is well known in the robotics field, both due to our research reputation and also the success of our recent alumni, such as Frank Wang of DJI, and Zhang Yunfei of Yunzhou.

What is even more amazing to me is that with this new young professor, and a team of very young research students, they were able to produce the first driverless car built in Hong Kong in such a short time.

Liu is now working with a number of industrial partners, including BMW and SF Express.

He also said that PhD students in his lab have very wide interest and broad career options: they can pursue an academic career and eventually become professors themselves, they can work for the many robotics companies looking for talents, or increasingly, some of them would like to start their own companies.

Some reported that the government does not allow testing of driverless cars in our streets, which I checked with Liu.

He said that he has yet to make an official application, but the media apparently had found this out on its own. This should come with little surprise, which is consistent with my long-observed relatively conservative approach to new technologies by our government.

Waymo, the autonomous car development company owned by Alphabet, has already carried out multiple tests in the United States; and Chinese cities like Shanghai, Shenzhen and Changsha now all allow similar road tests.

For Hong Kong to truly become an "innovation hub," it needs not only to have great research universities, talent and financial resources, but also a government to coordinate policies and regulations, to facilitate experimentation and nurturing of new technologies, ie, to encourage "open innovation."

Without this, our aspiration to become an innovation hub will indeed encounter a roadblock!