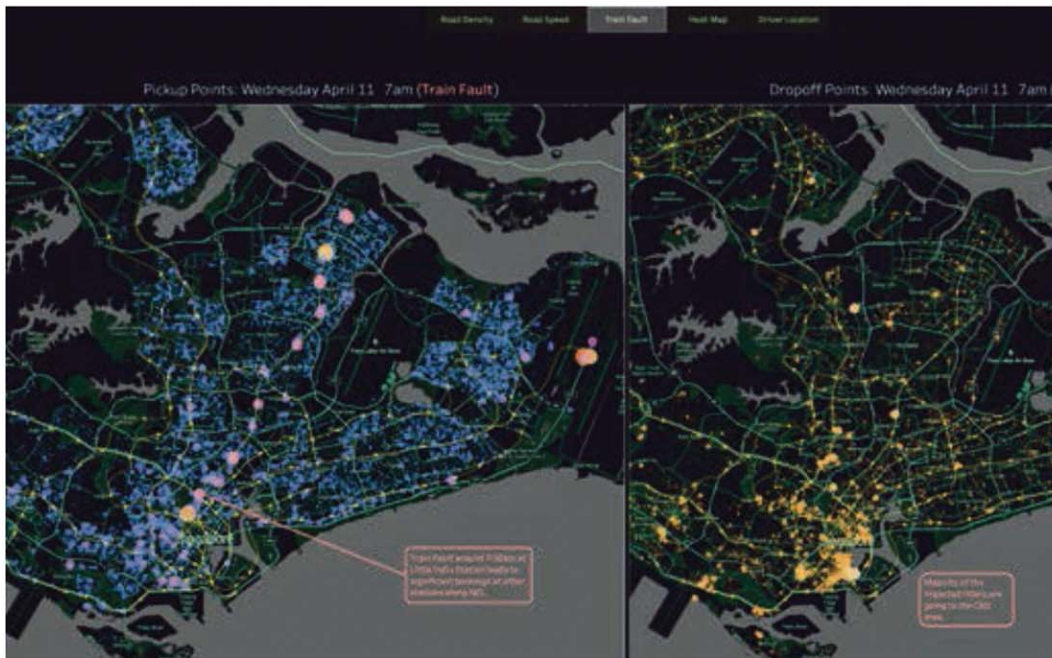**By Jacquelyn Cheok**

An AI visualisation used at the Grab-NUS AI Lab showing the demand heatmap during a train fault in Singapore. PHOTO: NUS

AI is a driving force in the region

The latest in a steady stream of AI initiatives to hit Singapore is the Grab-NUS AI Lab

MENTION artificial intelligence (AI) at a networking event, and you will get the conversation ball rolling. Everyone has a point to make about AI – it is a fad; much feared; or simply the future. Going by a latest report by Fleishman Hillard, there is a lot of positivity around AI's potential – nearly half of 2,000 respondents from the US and UK agree that the positives of AI outweigh the negatives. But AI has yet to deliver on expectations – only a third of respondents say that they have already seen the benefits, while 40 per cent have not seen a difference.

This week, Grab and the National University of Singapore (NUS) unveiled the Grab-NUS AI Lab, the latest in what has become a steady stream of AI initiatives to hit Singapore. The Lab, located at innovation 4.0 – a new building in NUS said to have the fastest Wi-Fi in town – is modest, but the collaboration between Singapore's largest unicorn and university should be anything but.

For a start, the Lab will focus on improving the efficiency and reliability of transportation on Grab's platform across South-east Asia. Next, the Lab will expand its focus to examine the larger transportation challenges facing cities in South-east Asia, such as congestion and liveability. It will leverage data from Grab's platform – three petabytes of data from the over two billion rides that Grab has facilitated since its 2012 founding – as well as data from NUS's other research units, and from Singapore's Land Transport Authority and taxi giant ComfortDelGro.

Grab and NUS have identified four projects to embark on. Lye Kong-Wei, Grab's head of data science and co-director of the Grab-NUS AI Lab, shares in detail what each of them entails:

Passenger AI

"This will enable Grab to learn passenger preferences using minimal data, and infer their trip intentions to answer questions such as: What is the purpose of a trip? Where does a passenger intend to go from the drop-off location? What will be the likely activity of a passenger at the destination? How long will he or she be staying at the destination?

These insights will enable us to offer more targeted promotions or services customised to their needs and preferences. For example, we know that there is a trade-off between cost of travel versus the time it takes to arrive at a destination.

For work-related journeys like getting to work on time or travelling between meetings, timeliness is essential so consumers may opt for GrabCar or JustGrab to get to their destination quickly. However, for rides hailed outside work hours and on weekends, passengers may be more price sensitive and prefer to use GrabShare for a more cost-effective way of getting about. The use of data and machine learning will help us balance this trade-off in an intelligent and efficient way that appeals to our consumers."

Driver AI

"This will enable Grab to learn driver preferences, such as their preferred neighbourhoods in terms of pick-up and drop-off locations and timings, so that we can serve the most desirable jobs to them.

Another aspect could be developing change detection algorithms to detect abnormal driving patterns. After spending long hours behind the wheel, every driver is prone to boredom, fatigue, repetitive stress, lower levels of alertness and in some cases, dangerous driving behaviour. Driver change detection methods can be used to detect aberrant driving behaviors for additional safeguard – through continuous monitoring."

Traffic AI

"This will help Grab detect traffic anomalies (such as traffic jams) or events (such as road lane blocking due to roadworks or accidents) in real time. This insight can be used to recalculate ETAs (estimated times of arrival) or ETTs (estimated travel times) or propose alternative routes for drivers and at the same time, help decongest the affected road network."

Location AI

"This will help Grab learn and recommend visual local landmarks at points of interest (POIs). It will also help Grab to enhance maps with local landmarks using historical trip data or photos taken from public sources (such as social media accounts of the various POIs in the city) to help drivers and passengers identify the exact pick-up points."

Dr Lye said: "At Grab, we never stop looking at how we can improve the experience for drivers and passengers – big data and AI have a huge role to play in accelerating these efforts. However, we believe that the combination of Grab and NUS's data and teams, and the research expertise of NUS, can help us do more and achieve more in a lot less time."

It is said that in the emergent war to have the best AI capabilities, academia has the most casualties. According to the National Science Foundation, 57 per cent of new computer-science doctoral graduates in the US today take industry jobs, meaning that they leave academia for the private sector, including Google, Baidu or Facebook. But these tech giants are increasingly moving from poaching to a more collaborative approach, recognising that it helps to have partners to jointly tackle tech disruption and that academics bring to the table rigour and a depth of theoretical understanding that is hard to find in the private sector. Grab is doing just that – and more companies should too.
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