

MIT Technology Review recognises five S'pore-based researchers

S'pore scientists developing next-gen tech

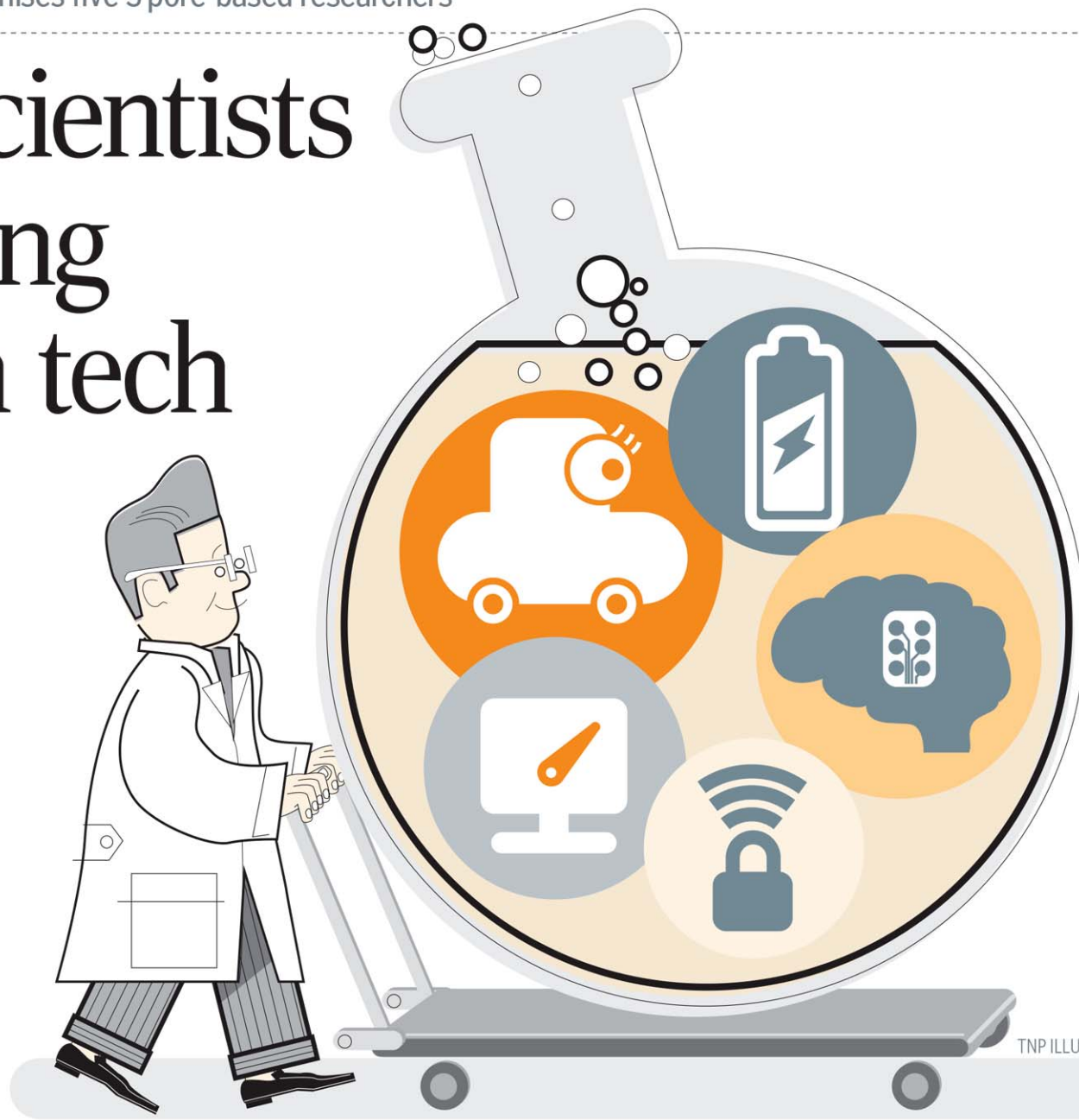
JOSEPH LEE

Imagine a world where cars automatically detect and avoid pedestrians, where batteries last five times longer and wireless devices replace your pills.

Last week, the MIT Technology Review named five scientists based in Singapore as finalists for "Innovators Under 35" in Asia, a yearly competition that recognises those who develop new technologies to solve global problems.

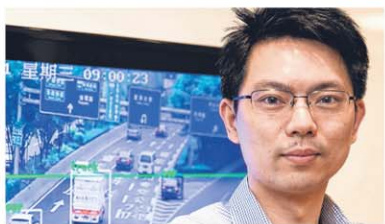
All 10 finalists will present their work at the EmTech Asia conference, an annual conference on important new technologies, to be held at Sands Expo and Convention Centre at Marina Bay Sands on Feb 14 to 15, 2017. (See report below.)

Here are the five Singapore-based finalists.



TNP ILLUSTRATION: CEL GULAPA

PHOTOS: NATIONAL UNIVERSITY OF SINGAPORE, DR ZHI WEI SEH, NANYANG TECHNOLOGICAL UNIVERSITY, DR DAWN TAN



'VISIONARY' CARS

Associate professor Gang Wang, 34, who is from Nanyang Technological University's school of Electrical and Electronic Engineering, and his team are building computer programmes and algorithms to help computers "understand" objects they "see" more accurately and quickly. Their research can make cameras in self-driving cars automatically detect pedestrians and other vehicles, avoiding accidents.

The cars will also be able to recognise the colours and models of other cars and whether they are slowing down or speeding up.



CLEAN, POWERFUL BATTERIES

Dr Zhi Wei Seh, 30, a research scientist at the Agency for Science, Technology and Research (A*STAR), designed materials for clean energy storage and conversion.

His pioneering design of lithium-sulfur batteries have five times the energy density of lithium-ion batteries today.

Dr Seh said he was motivated to start his research as scientists have reached the theoretical limits of lithium-ion batteries' energy density.

He plans to use renewable energy sources such as solar and wind power as energy for the batteries.



PILL-LESS TREATMENTS

Placing tiny, wireless implants near a patient's malfunctioning organs might become the next generation of treatment, replacing the use of pills.

Dr John Ho, 27, an assistant professor at the Department of Electrical and Computer Engineering in the National University of Singapore (NUS), said the challenge was to eliminate or reduce the size of the batteries that power these implants.

Wireless technology was the answer, and now his research aims to study the physics behind these technologies and to engineer systems that give doctors new ways to restore health.



A FASTER INTERNET

Dr Dawn Tan, 33, an assistant professor at Singapore University of Technology and Design, was nominated for developing technology that improves the transmission, capacity, cost and reliability of Internet data.

Dr Tan's research allows many individual channels of data to be transmitted within a single optic fibre.

This makes Internet cables cheaper in terms of power consumption and data transmission.



CYBER SECURITY

Assistant professor Prateek Saxena, 33, from NUS School of Computing, is building new types of web servers and browsers with improved data security.

Dr Saxena said that his work aims to place security safeguards in the web infrastructure instead of relying on security software.

He said: "Seat belts in cars save thousands of lives every year... Why can't computer systems be designed to withstand failures and co-ordinated, large-scale attacks?"

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About the Innovators Under 35 list

Now in its fourth edition, MIT Technology Review's Innovators Under 35 Asia, lists top innovators under the age of 35 from South-east Asia, Taiwan, Australia and New Zealand.

Making the list this year are 10 researchers and entrepreneurs from Singapore, Malaysia and Australia. They automatically become candidates and potential finalists for the global

Innovators Under 35 list in 2017 in Boston.

MIT Technology Review will showcase the global winners in the September and October issues and online. The 10 honou-

rees will each present a three-minute elevator pitch at EmTech Asia at Sands Expo and Convention Centre in Marina Bay Sands on Feb 14 and 15 next year.

— JOSEPH LEE