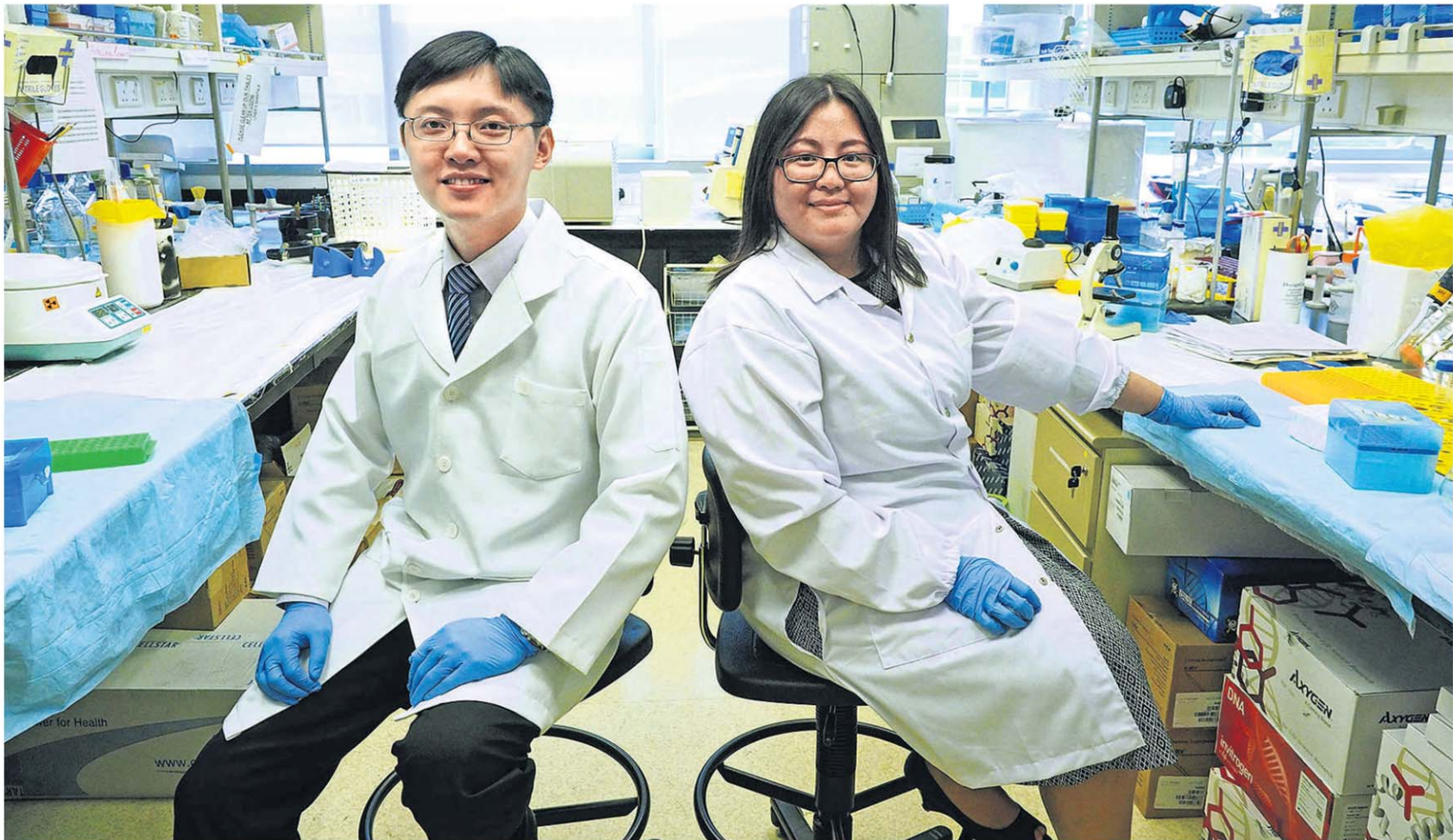


# Engineer finds cost-saving way to treat seawater



Dr Victor Sim and Dr Magdiel Ingrid Setyawati are among the 10 winners of the World Future Foundation PhD Prize, which is given to the top five completed PhD theses in NTU and NUS. ST PHOTO: NANYANG TECHNOLOGICAL UNIVERSITY

## Carolyn Khew

A local engineer has made a breakthrough which could help save millions of dollars in energy during the water desalination process.

Dr Victor Sim, a process engineer at consultancy firm CH2M Hill Singapore, has developed a “canary cell” which sits in the water in desalination plants near the membranes that are used to filter out particles from seawater.

Typically, plants clean their membranes when they lose the ability to filter effectively. By this stage, membranes can be very dirty and require a lot of energy to clean.

This cell is able to track how dirty a membrane gets over time. With the information, the membrane can be flushed before it gets too dirty, thereby saving energy.

“Right now, cleaning the membrane is an art rather than a science because it’s hard to detect when to clean the membrane and how much of it to clean, for instance,” said Dr Sim. “But with this method,

you use less chemicals and increase energy efficiency.”

Desalinated water, or treated seawater, now meets up to 25 per cent of water demand and is expected to continue to meet up to 25 per cent of demand by 2060.

The 32-year-old, who did his doctoral thesis at the Nanyang Technological University (NTU), clinched the American Water Works Association Academic Achievement Award for his work last month.

This made NTU the first university outside North America to win the award since 1966, beating universities such as Stanford and the Massachusetts Institute of Technology.

Yesterday, Dr Sim bagged another award for his doctoral thesis.

He was among the 10 recipients of the World Future Foundation (WFF) PhD Prize in Environmental and Sustainability Research, which is given to the top five completed PhD theses in NTU and the National University of Singapore.

The awardees each received US\$10,000 (S\$13,500) for their work, which was assessed on vari-

ous criteria such as novelty and commercial potential.

NTU’s Associate Provost (Graduate Education), Professor Yue Chee Yoon, said the contributions of this year’s winners will inspire the next generation of Singapore’s research scientists and engineers.

He added: “Talent is key to the success of science and R&D activities, and the WFF PhD prize continues to strengthen this by fostering a culture of research excellence.”

The award winners also include research fellow Magdiel Ingrid Setyawati, who is from the National University of Singapore’s Faculty of Engineering. She worked on nanomaterials and their effect on blood vessels.

Dr Sim, who is married to a chemist, said he will save the prize money for family expenses, especially his four-year-old son’s education.

On winning the award, he said: “Getting a doctorate is an arduous task and recognition is very important to keep your motivation up.”

kcarolyn@sph.com.sg