

NTU spin-off company taps AI to make data centres energy-efficient

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Scientists in Singapore are using artificial intelligence (AI) to help transform typically energy-sapping data centres into energy-efficient ones.

Following successful trials, the team from Red Dot Analytics, a spin-off company from Nanyang Technological University (NTU), is now looking to commercialise the technology, the company revealed at a media briefing on Tuesday.

With data centre operations accounting for 7 per cent of Singapore's total electricity consumption in 2020, and more data centres projected to be located here, there is greater impetus to reduce energy usage in data centres.

Red Dot Analytics' technology – using digital twins software and AI – helps companies evaluate the energy usage and efficiency of the operations of a data centre, and then proposes and implements energy-efficient solutions.

The digital twins software provides a framework for users to design, build and test data centre prototypes virtually, doing away with the need to construct expensive physical prototypes.

Collaborating with e-commerce and technology giant Alibaba and the National Supercomputing Centre Singapore, the Red Dot Analytics' team built virtual prototypes of its technologies before testing and verifying them in their data centres.

No new data centres have been built in Singapore since 2019.

Dr Janil Puthuchery, Senior Minister of State for Communications and Information, said in March: "Data centres are intensive users of water and electricity. Given our resource constraints, we need to manage the development of data centres sustainably."

However, by the second quarter of this year, new data centres that fulfil sustainability requirements can apply to be set up here, and because of this, Red Dot Analytics anticipates greater demand for its

technology.

A large portion of energy is used in cooling the systems in data centres. Red Dot Analytics' technology uses AI to predict the incoming data volume, which heats up the data servers, and adjusts the cooling temperatures according to demand to maximise energy efficiency.

Professor Wen Yonggang, 44, co-founder of Red Dot Analytics and associate dean (research) of NTU's engineering faculty, said the technology, which is patented and licensed to the company in 2020, can reduce carbon emissions by 5 per cent to 30 per cent.

The innovation has already benefited some of Red Dot Analytics' clients, which include BDx, one of the world's largest data centre operators with 10 centres across Asia.

Red Dot Analytics is planning to collaborate with other critical infrastructure facilities such as airports, power plants and marine ports.

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