Students as Key Digital Transformation Drivers in Singapore

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The Nanyang Technological University, Singapore (NTU Singapore) has announced that its Talent Programme (ATP) will continue for a fourth year to support exceptional undergraduate and master's graduates who wish to pursue their Doctor of Philosophy (PhD) degrees in Artificial Intelligence and other related fields.

While completing an industrial R&D project, the ATP in NTU sponsors Singapore Citizens and Permanent Residents to pursue postgraduate degrees in computer science areas at NTU Singapore. Intakes for the programme's first and second semesters, respectively, are in August 2022 and January 2023, respectively, for new applicants.

The initiative allows students to gain valuable hands-on experience at one or more of the sponsor's research facilities, including a Joint Research Institute (JRI). Each PhD candidate is mentored by at least one supervisor from NTU, and one co-supervisor from the industry sponsor.

"…the JRI was established to focus on the human-centred research and development in emerging computing technologies that supports Singapore's ambitious Smart Nation initiative and its industrial transformation. By hosting the ATP 2 students at JRI, we hope to develop budding talents that will be future captains of the digital economy," says Professor Lam Khin Yong, Senior Vice President for Research, NTU.

ATP is supported by the Industrial Postgraduate Programme (IPP) of the Singapore Economic Development Board, which aims to offer postgraduate students industry-relevant training in collaboration with various business partners and institutions of higher learning. For the IPP PhD Program, the JRI has received over 2500 applications; 65 Singaporeans and SPRs were chosen.

The programme hopes to support Singapore's role in achieving this potential because the potential for digital technologies to add new value to industry and society is greater than anything can currently fathom. Making technology more inclusive and accessible for everyone, whether they live in Singapore or elsewhere, is a goal of the city-state.

Furthermore, students are closely supervised and supported by mentors who are top researchers in their fields such as visual AI, Natural Language Processing (NLP), edge computing, and autonomous driving, in addition to working with real business intelligence and tools.

Instead of only conducting theoretical research, NTU Singapore seeks to make a difference by developing solutions that can be used in practical use cases. Working with mentors who are all interested in putting theory into practice has been really inspiring and has significantly sped up the student's learning curve for turning ideas into reality.

Both former and present ATP programme participants have the chance to realise their ideas while being supervised by their mentors. For instance, students have advanced autonomous driving-related projects, created digital twins of data centres that can replicate wind flow and temperature changes to facilitate research into effective cooling methods, and used medical imaging analysis and machine learning to predict the likelihood of dementia and Parkinson's disease in seniors.

Furthermore, over 140 research publications have been published by the IPP students and staff from JRI, and more than 70 translational research projects – projects "translating" academic findings into practical applications have also been started.

The JRI will increase the scope of its research initiatives in the future to achieve sustainable development and strives to play a significant role in allowing new breakthroughs and solutions to fulfil the Sustainable Development Goals as outlined by the United Nations by utilising AI and cloud technology.