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News Release

EMPOWERING TOMORROW'S INNOVATORS THROUGH THE YOUNG DEFENCE SCIENTISTS PROGRAMME

Students with a passion for Science, Technology, Engineering and Mathematics (STEM) were immersed in emerging technologies that are shaping today's world through the Young Defence Scientists Programme (YDSP). Jointly organised by the Defence Science and Technology Agency (DSTA) and DSO National Laboratories (DSO), YDSP provides students with insights into the careers within the Defence Technology Community. Through the out-of-classroom learning experience, students were able to connect with Singapore's top defence engineers, software developers, cybersecurity experts, and research scientists.

The YDSP Congress, held on 26 April 2024, marked the culmination of the various YDSP activities held in the past 12 months. In his address to students, Senior Minister of State for Defence Mr Heng Chee How highlighted the significance of programmes like YDSP in cultivating interest of youths in STEM for defence. He said: "Given the rapid pace of technological innovations, it is imperative that the Singapore Armed Forces continues to tap on cutting-edge technology to achieve an operational edge. It is only possible to do this if we are able to attract talents who have strong passion for technology and engineering to contribute to our Defence Technology Community and through platforms like the YDSP, we hope to inspire bright young minds like you to be part of Singapore's next generation of defence scientists and engineers."

YDSP participants were able to pursue a range of projects. Two YDSP participants, Serene Zhang and Zeaus Koh, 17-year-olds from Raffles Institution and Hwa Chong Institution respectively, developed a novel system that uses large language models

(LLMs) to programme drones during their Research@YDSP internship with DSTA. As a proof-of-concept, this project employs a team of LLM agents to convert simple prompts such as "fly in a figure of 8" into simulation-tested code that can be uploaded onto drones.

"Through YDSP, I had the experience of working alongside DSTA engineers, and gained a newfound appreciation and understanding of research. Besides learning more about the subject matter and fuelling my personal discovery and growth, I also saw how science and technology can have a lasting impact on the community around us. This experience has spurred me to continue promoting STEM to others like me," Serene shared. She is the co-founder of Y:WAIT (Young Women in AI and Technology), a student-led movement that aims to empower young women to discover their passion and potential in STEM.

Another pair of participants are 17-year-old twin brothers, James and David Chan from River Valley High School. They not only bear a striking resemblance to one another, but also share a great enthusiasm for defence technology. During their Research@YDSP internship with DSO, they delved into the security vulnerabilities of LLMs and how to better prevent others from exploiting this technology to generate harmful content or induce unethical behaviour. Their project clinched a bronze award at the Singapore Science and Engineering Fair 2023.

"YDSP provided us with plenty of opportunities to learn and explore various fields of STEM. Our curiosity was piqued by the many topics we explored in the DSO World of Science, leading us to delve deeper and participate in Research@YDSP. We not only gained valuable technical knowledge, but also fostered relationships with like-minded peers across different schools — an opportunity which no other programmes we've been to can offer," said James and David.

425 students participated in various YDSP activities in 2023, where they learnt about artificial intelligence, cryptography, quantum technology, robotics and more through project attachments, camps, lectures, and laboratory sessions. At the event, Mr Heng also presented 30 YDSP Scholarships and 35 DSTA Junior College Scholarships to students in recognition of their outstanding academic and co-curricular achievements.

Some 400 students, parents, principals, teachers, and members of the defence technology community attended the congress. *[For detailed information about YDSP, please refer to the YDSP Factsheet]*

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About Defence Science and Technology Agency

The Defence Science and Technology Agency (DSTA) is a top-notch technology organisation that drives innovation and delivers state-of-the-art capabilities to make the Singapore Armed Forces a formidable fighting force. Harnessing and exploiting science and technology, our engineers and IT professionals leverage multidisciplinary expertise to equip our soldiers with advanced systems to defend Singapore. DSTA also contributes its technological expertise to support national-level developments. To achieve our mission, DSTA excels in systems engineering, digitalised platforms, cyber, software development and more.

Visit www.dsta.gov.sg for more information.

About DSO National Laboratories

DSO National Laboratories (DSO) is Singapore's national defence research and development organisation. For the past 5 decades, DSO has been undertaking indigenous development of advanced defence and weapon systems that provide the Singapore Armed Forces (SAF) with the superior technological edge in the battlefield. While its primary focus is to support the SAF, DSO also extends its defence R&D capabilities to support homeland security.

With more than 1,600 research scientists and engineers, DSO investigates emerging technologies, matures promising ones and integrates them into innovative system concepts to meet Singapore's defence and security needs.

For more information, please visit www.dso.org.sg