Forging A
Technological Edge

Ye Danqi defends cyberspace by staying ahead of the technological curve.

Ye Danqi's introduction to engineering began at the young age of three, when he started exploring a floppy disk game that his father, a software engineer, brought home. 'I remember being enthralled by the virtual world of computers. Growing up, I became much more curious about science and technology, and the inner workings of computing systems,' he said.

At NUS High School of Mathematics and Science, Danqi took part in a research project under the Young Defence Scientists Programme organised by DSTA and DSO National Laboratories. Mentored by defence engineers, he was part of a team that experimented with optic technology for soldiers to transmit data more accurately.

This exposure to defence technology was an eye-opening experience to the fascinating possibilities and applications of engineering. It also gave him a first taste of computer programming, as he wrote the code to demonstrate his team's proposal. At the DSTA Scholarship tea session, he learned much more about the exciting opportunities and meaningful work of defence engineers, which affirmed his decision to take up the DSTA Scholarship.

Danqi pursued a bachelor's degree in Electrical Engineering at the University of Illinois, Urbana Champaign in the US – known for its diverse, multidisciplinary curriculum. He learned about machine learning, signal processing and computer architecture. 'The curriculum allowed me to explore areas outside of engineering like military history, kendo and music. It challenged me in different and unconventional ways – for instance, to build

YE DANQI

DSTA Scholarship
www.dsta.gov.sg

Age: 27

Now: Engineer, Cybersecurity Programme Centre, DSTA

Attained: MEng in Electrical & Computer Engineering from Cornell University

From: NUS High School of Mathematics and Science

"The DSTA Scholarship would also provide opportunities to interact with professionals not only within the Defence Technology Community, but also in top multinational companies."

a music interpreter that uses signal processing technology to read music scores!' he said.

Under the scholarship, Danqi took up an internship with DSTA's Cybersecurity Programme Centre, where he gained hands-on experience in countering cyber threats. The stint also provided insights into how latest technologies are applied by cyber defenders. 'The experience taught me that multidisciplinary technical knowledge and skills are needed in this field, and that I have to keep up with latest trends to pursue a career in cybersecurity,' he said.

Inspired by the internship experience, Danqi returned to the same Programme Centre after his studies and now works on the development of data analytics solutions for the next generation Cyber Security Operations Centre – a system used to monitor, detect and respond to cyberattacks on defence networks. Danqi is applying his skills to incorporate machine learning techniques into the system to automate tasks such as anomaly detection.

Danqi appreciates the culture of sharing and learning in DSTA. 'There are specialised training programmes within DSTA, such as the cybersecurity induction course organised by my Programme Centre, which provides us technical knowledge in areas like cyberattacks, infrastructures and developments,' he said.

He added: 'There was a time when I had to provide my recommendations on a product in an area that I was unfamiliar in. My colleague, who is an expert in this area, provided help in deciphering and explaining in detail how I should approach the analysis,' he shared.

With a multitude of opportunities to learn and grow, Danqi's time with DSTA has been rewarding. He looks forward to welcoming passionate, young talents to join the team. 'The field of defence engineering is seeing growing emphasis in the areas of cybersecurity, artificial intelligence and automation. These are definitely exciting times for those who are interested to pursue a career in this field,' he said.

'The DSTA Scholarship would also provide opportunities to interact with professionals not only within the Defence Technology Community, but also in top multinational companies under the Global Internship Programme. I would recommend aspiring scholars to participate in these programmes and internships to gain a deeper understanding of the work they would be doing in the future,' he added. ❏