

Lew Ee Kent
DSTA Undergraduate Scholar

Designation: Engineer, Networked Systems Programme Centre, DSTA

Studied: Master of Science (Management Science and Engineering), Stanford University, US

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DEFENCE SCIENCE AND TECHNOLOGY AGENCY

DEFENDING SINGAPORE FROM BEHIND THE SCENES

In August 1965, Singapore became a newly independent nation and a resilient national security system was a key priority for a country of her small size. Back then, being equipped with merely two infantry battalions of 50 officers, about 1,000 men and two ships proved the urgent need to build up Singapore's own defence capabilities.

Fifty years on, the Singapore Armed Forces (SAF) has grown tremendously. Its growth and advanced capabilities are largely due to the planning, work and commitment of the Defence Technology Community (DTC) – a key pillar of Singapore's peace and security. The DTC is made up of various organisations which include the Defence Science and Technology Agency (DSTA) and DSO National Laboratories (DSO), Singapore's only defence R&D organisation. These organisations work hand-in-hand to ensure that the SAF remains a formidable fighting force.

DSTA Scholars Lew Ee Kent and Lim Yi Jun have been contributing to the nation's defence efforts for two years and four years respectively. They tell us about their DSTA scholarship journey, and how they help to create the critical edge in Singapore's defence technology.

WHAT SPARKED YOUR INTEREST IN THIS FIELD AND IN THE DSTA SCHOLARSHIP?

Lew Ee Kent: I have always been fascinated

by science and technology since young. One technology that left a lasting impression was the terrain matching navigation in cruise missiles, enabling long distance travel without getting lost. My interest grew over time and influenced my education choices. It also led to my decision in pursuing a career at the forefront of defence technology. This is why I was drawn to the DSTA Scholarship – I saw it as an opportunity to contribute towards strengthening Singapore's defence capabilities and enhancing our security, while fulfilling a dream.

Lim Yi Jun: My desire to pursue a career in the field of defence technology only came when I chanced upon the DSTA Scholarship prospectus in Junior College. I was amazed by the DTC's significant contributions to both our military and civil defence (e.g. the Infrared Screening system during the SARS period). I eventually decided that pursuing a career in this sector will turn my interest into a meaningful contribution to Singapore's national security too.

TELL US ABOUT YOUR KEY ROLES AND RESPONSIBILITIES.

Ee Kent: I am currently an engineer in the Networked Systems Programme Centre and involved in developing and integrating knowledge-based command and control

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The DSTA Scholarship is offered to all-rounded, passionate individuals who desire to contribute and make a difference in Singapore's technologically-advanced defence force.

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 By Priya Sunil

capabilities for Singapore's air defence. Command and control activities are similar to functions performed by the central nervous systems, and involve receiving inputs, analysing information, and coordinating follow-up actions. My work involves integrating these command and control systems to ensure they work effectively and enable the SAF to exploit unique technologies. I also tinker with new technologies, explore novel concepts of operations, and continually imagine ways to push and build new capabilities to enhance our defence and security.

Yi Jun: I am an Electronic Systems Research Engineer in DSO, where I develop Electronic Warfare (EW) solutions. The purpose of the EW is to protect our assets from the adversary's use of the electromagnetic (EM) spectrum, and to ensure safe and efficient operations with the EM spectrum regardless of disturbances by the enemy.

In developing these solutions, I typically handle several tasks that range from studying concepts that can be utilised in the EW solution design, to conducting tests in a laboratory environment and on field trials to validate the performance of these solutions.

SHARE WITH US SOME OPPORTUNITIES YOU HAVE ENJOYED ON YOUR SCHOLARSHIP JOURNEY OVERSEAS.

Ee Kent: The DSTA Scholarship enabled me to gain broad-based technical and non-technical exposure. My technical exposure began during my undergraduate years at Carnegie Mellon University where I participated in engineering research projects such as remote electromagnetic sensing through fluctuations in gravitational fields.

Besides the sciences, I gained non-technical exposure through my research projects on counterterrorism and security that provided insights into the political and policy considerations in the area of national security.

Pursuing a Master's degree in Management Science and Engineering at Stanford University also allowed me opportunities to do project work with companies and leaders in Silicon Valley.

Yi Jun: The tie-ups between Imperial College and technology industries for industrial attachments and projects provided me with greater insights into the field through hands-on experiences. I was once privileged to work in a team under the guidance of Imagination Technologies, a UK-based semiconductor R&D company, to design and implement an image-processing algorithm for object recognition purposes. I must say that it was a very enriching experience!

HOW HAS YOUR SCHOLARSHIP JOURNEY DEVELOPED YOU FOR YOUR CAREER?

Ee Kent: The scholarship has enabled me to learn and develop with breadth and depth. Besides technical knowledge and engineering skills, the scholarship has provided me with valuable exposure and insights acquired from diverse students, faculty, start-up community and world leaders. These have contributed in building my perspectives and outlook for my career.

My internship experience with DSTA was rewarding and fruitful. It helped me gain a deeper understanding of the work we do, and provided opportunities for me to get to know more colleagues in DSTA. My first internship was at the Risk Assessment and Horizon Scanning Experimentation Centre managed by DSTA. I learned how analytics, modelling and perspective sharing tools are employed to anticipate emerging security risks and identify patterns from large amounts of data. My second internship after my sophomore

year was spent with DSTA's Modelling and Simulation department. There, I learned about the SAF's training needs and worked with aircraft simulators that pilots use to train for their missions.

Yi Jun: Through my mid-course DSO internship, I discovered my interest in R&D-related work as well as identified an area in which I wanted to specialise, which is Signal Processing.

I was able to work on Estimation Theory, applications which include target tracking and navigation. My internship project also challenged me to be resourceful, think analytically and learn on-the-job. These are essential skills required in the R&D work I conduct today as our work involves breaking new ground and charting unknown territory.

WHAT ADVICE DO YOU HAVE FOR ASPIRING DSTA SCHOLARS?

Ee Kent: Do attend the DSTA scholarship tea session, and catch us at the various school fairs. You will get to talk to DSTA engineers and DSO researchers, and may even get to learn about some of the projects we do. It will help you to find out more about the work we do in our diverse portfolio and whether it fits your personal aspirations.

Yi Jun: Do take the initiative to participate in the Young Defence Scientists Programme and post-'A' Level internship programmes from DSO to get a foretaste of research work in defence technology. Attending scholarship tea sessions and visiting open houses will also help you gain a better understanding of what we do and aid in your decision-making process. ■



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