Rising stars

Defending cyberspace

Goh Kah Meng

ACCORDING TO KAH MENG, HONING SOFT SKILLS ARE JUST AS IMPORTANT AS DEVELOPING TECHNICAL EXPERTISE IN HIS JOB AS A DEFENCE ENGINEER.

Goh Kah Meng is a Senior Engineer at the Defence Science and Technology Agency's Cybersecurity Programme Centre.

2015 Appointed to position of Senior Engineer

2014 Awarded the DSTA Innovation Award for developing custom detector for advanced malware techniques

2012 Joined DSTA as an Engineer in the Cybersecurity Programme Centre

I was first introduced to programming when I took a class on the subject in secondary school. From the onset, I was excited by the prospect of programming my own computer games, and set out to learn the curriculum within weeks. From there, I delved into programming languages, editing graphics and setting up servers for the games that I had created. Since then, I became "the computer guy" in my family, building and customising our home's computers.

In university, I chanced upon a book on hacking and how software could be exploited to run malicious code. It gave me insights into the exciting field of cybersecurity, as well as its impact on systems and organisations. This experience helped me recognise the importance of cybersecurity in defending critical systems against hackers and cyber threats.

Building on my interests, I chose to do an internship with DSTA in 2011 where I researched on cyber defence techniques with a team of cybersecurity engineers. I enjoyed the work and culture in DSTA so much that I applied to join the organisation as a cybersecurity engineer upon graduation. In fact, it was the only job I applied for.

Maintaining a high security bar

I am part of a team that analyses defence systems and applications for potential vulnerabilities. It requires us to have a deep understanding of vulnerabilities and how they could be better mitigated. To that end, the team develops customised tools and techniques to analyse these threats. We come up with measures to augment defence mechanisms and create custom solutions to improve the defence of our systems.

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Learning from one another

With cyberattacks becoming more complex and prevalent, they could impact components that were previously deemed out of reach. I had to acquire knowledge from unfamiliar domains and learn fast in my role as a cyber defender.

As public information and open-source tools may not meet our unique requirements, my teammates and I work together to develop cyber defence tools and mechanisms to examine the vulnerabilities in systems and programmes. My team comprises members with diverse skillsets, and we learn from one another in our work and professional development.

In 2014, I started analysis work on the different techniques that advanced malware can use to subvert the operating system. I prototyped several detection mechanisms to detect these techniques.

This led to my team developing a customised detection solution to complement an existing commercial software to provide us a unique edge. The development and deployment of this solution brought me great satisfaction, and it won the team the DSTA Innovation Award in 2014.

More than technical expertise

Defence engineers leverage technology to develop solutions for our nation's defence, hence it is important to possess a strong technical foundation in this job. In the field of cybersecurity, knowledge of programming, debugging, how operating systems and network protocols work are especially essential.

As our work involves collaboration with various internal and external parties, communication skills and teamwork are equally important. A varied skillset is also valuable, as no individual has complete knowledge in all the domains that our work come into contact with, and team members can complement one another by bringing different skills to the table.

My supervisors are instrumental in guiding me on how to present and communicate my ideas to the various internal and external partners. DSTA's in-house Leadership Development Programme helped to further hone my business and leadership competencies.

Advice for graduates

Never stop learning. Information technology moves so fast that it is impossible to learn everything in this domain and be set for life.

Staying updated is especially important in the defence industry, since we work on high-impact, critical-information infrastructure. The ability to learn independently on the job is just as important as any formal qualifications or training courses.