

At the Frontier of AI in Defence

Teo Jin Ming

TO CREATE ARTIFICIAL INTELLIGENCE (AI) SOLUTIONS WITH MEANINGFUL IMPACT, JIN MING SEEKS OUT UNDERLYING PRINCIPLES AND CHALLENGES ASSUMPTIONS.

Getting started

I was intrigued by the field of artificial intelligence (AI) during my university studies and internships, where I learnt about delivering AI-driven solutions and coding web applications. I was amazed by the many possibilities of AI applications and set my sights on working in this frontier of technology development. Knowing that the Defence Science and Technology Agency (DSTA) is a tech-centric organisation focusing on integrating state-of-the-art technologies for national defence, I decided to join the organisation and further hone my skill sets in this field.

About my job

I am an Engineer with DSTA's Digital Hub, specialising in computer vision (CV). My role is to build, improve and extend CV capabilities to help the Singapore Armed Forces (SAF) work better and smarter by enhancing their digital tools and work processes.

On a day-to-day basis, I work closely with my DSTA colleagues, SAF partners, and also collaborate with academia and start-ups to implement cutting-edge techniques and technologies. I also get to develop and explore new CV algorithms and tools, which is fun and interesting!

What I enjoy most about my job

The work we do is very forward-looking, so I enjoy experimenting and applying new emerging technologies to enhance existing defence capabilities, especially in the digital sphere. As we build and integrate AI capabilities into the SAF's operational processes, it is amazing to see the capabilities you have worked on in action, and hear from our SAF partners that those capabilities have improved their work flow.

I also like the nurturing yet stimulating work culture in DSTA. It is very motivating to collaborate with passionate people and do hands-on work that fuels my interests in technology.

Then and now

Initially, I was concerned about delving deeper into different CV aspects – such as object detection, segmentation and image classification – as I had limited exposure to such technicalities during my studies. I was also unsure if I could apply them well in the context of the SAF's requirements. To bridge such gaps, DSTA provides essential engineering workshops and specialised technology courses to help new staff gain relevant skills and transit into the working environment. For example, I have attended courses by Carnegie Mellon University where we explored applying CV techniques to robotics.

Of course, nothing beats learning directly from experts who have practical experience, like my friendly and knowledgeable colleagues, and having many opportunities to gain experience first-hand at work. We also organise monthly technical sharing sessions with our colleagues and interns to discuss research approaches and technicalities. In fact, I have had the chance to mentor several interns while they explored the latest AI technologies and research!

Having strong teamwork and knowing our team members' dynamics and strengths help a lot in collaborating more effectively. Whenever I face challenges, such as making critical technical decisions for a coding pipeline, I know I can get support from a capable and close-knit team.

It is very motivating to collaborate with passionate people and do hands-on work that fuels my interests in technology.



Teo Jin Ming

Engineer (Digital Hub) with the Defence Science and Technology Agency (DSTA)

2019: Graduated with a Bachelor of Science in Business Analytics (Honours) from the National University of Singapore (NUS)

2020: Joined the Defence Science and Technology Agency (DSTA) as an Engineer with Digital Hub

2021: Led development of a project from concept to system development

Essential skills

While it is good to have a strong background in coding and AI, the most important factors are having the right attitude for learning and a sense of curiosity. You can improve your coding and AI fundamentals by taking related courses in university or online, and taking part in hackathons and AI-related internships can help build hands-on experience in a fun way too. Start with a DSTA internship or join our digital learning fest, BrainHack! In fact, I helped to organise the "Today I Learned" AI camp where we taught students AI skills regardless of experience level – highly recommended!

My advice to graduates

Always ask why. To truly appreciate why things are implemented the way they are, you have to understand the underlying rationale or principles, and challenge any assumptions. This will help ensure that the systems and tools we develop can create meaningful impact on Singapore's defence.