Lim Jian Yang

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Personal Statement

About Me: I was 12 when I first watched Iron Man. Before then, I'd always thought computers were simply for watching videos and playing games. The concept of J.A.R.V.I.S. in the movie left an indelible impression, making me realize that computers and technology are tools that empower us to achieve great things, not just for entertainment.

This experience shaped me into an inquisitive individual who seeks ways technology can solve existing problems. I am largely self-taught, actively keeping up with the latest technologies. I constantly brainstorm new ideas and implement them when I have time. I also have a thirst for knowledge and am an avid reader of technology, investing, psychology, and philosophy.

I believe we can't control what happens to us, but we can control how we think. This mindset has allowed me to stay determined and persevere through tough situations. Challenges toward a meaningful cause excite me, and my goal is to improve basic living standards globally through technology.

How I Can Contribute (& Skill Sets): I pride myself on my ability to focus deeply and quickly learn complex topics. I'm confident in my skills, yet fully aware of my knowledge limitations. I'm a diligent worker and keen learner, finding joy in integrating components and leveraging cross-domain knowledge to create innovative solutions.

My skills range from machine learning and software development to value investing and photography. Machine learning taught me to identify and leverage patterns, software development taught me to think from the user's perspective, value investing taught me to look for outsized bets with limited downsides, and photography deepened my appreciation of the present. My greatest asset is the ability to envision the future and use my diverse knowledge to turn that vision into reality.

Work Experience: I previously interned at the Defence Science and Technology Agency (DSTA), working on path planning and collaboration between autonomous drones using Conflict-Free Replicated Data Types. This experience required me to quickly learn complex concepts (in addition to Docker and Robot Operating System) and implement them. I'm currently interning at DSTA again, implementing an on-premises Large Language Model (LLM)-powered Retrieval Augmented Generation (RAG) application using the LangGraph framework. I'm also working on setting up a multi-tenant architecture to cater my custom LLM to multiple user groups.

Strengths & Weaknesses: My greatest strength is my unwavering determination. When faced with challenges, I remain optimistic and persistently seek solutions. However, this drive can sometimes lead me to be overly focused on a single approach. I'm actively working on balancing persistence with flexibility and openness.

Internship Objectives: I admire startups—teams of innovators disrupting industries, outsmarting incumbents with limited resources, and striving to create groundbreaking solutions. By interning at a startup, I want to learn how these pioneers see the world and maximize their resources to achieve their revolutionary goals.

Final Thoughts: Norway is home to many of the world's leading technologies, and Norwegian startups are pioneering the future. I am inspired by the innovative work being done and believe my skills and passion for technology would be valuable to your team. I look forward to discussing how I can learn and contribute to your company's success while being surrounded by the bright and motivated minds in your team.

Education

Aug 2022 - Present	**National University of Singapore**

- Computer Science undergraduate pursuing a minor in Statistics with a focus area in Artificial Intelligence
- Grade Point Average (GPA) of 4.6 as of Academic Year 23/24 Semester 2

Jan 2018 – Dec 2019	**Hwa Chong Institution**

- Singapore-Cambridge GCE Advanced Level, Rank Points (RP) of 87.5 out of 90
- Studied H2 Computing, H2 Physics, H2 Mathematics and H2 Economics

Work Experience

May 2024 - Present   **Intern at Defence Science and Technology Agency (DSTA)**

Focus Area
- **Motivation:** ChatGPT-like analysis on highly secure government documents that are stored on-site.
- **Solution:** On-site, Large Language Model (LLM) with Retrieval Augmented Generation (RAG) on a multi-tenant architecture.
- **Elaboration:** This project was completed independently with occasional guidance from my mentor. I began by researching the latest advancements in this field such as LangGraph, Neo4j and Llama3. Then, I built several workflows using LangGraph. This involved trying out different database options, including vector databases and graph databases, and integrating them with the Streamlit user interface. I containerized the various components using Docker for better scalability and deployment. The code for this project is available on my GitHub page. Currently, the results look promising relative to traditional RAG methods.

Technologies used
- LangChain / LangGraph, Streamlit, Neo4J, ChromaDB, Python, Anaconda tools (i.e., Jupyter Notebook), Ollama, Docker, HuggingFace

Feb 2022 – Apr 2022   **Intern at Defence Science and Technology Agency (DSTA)**

Focus Area
- **Motivation:** To enhance warfighting capabilities, deploy autonomous drones in advance of soldiers to quickly map the battlefield and provide critical army intelligence.
- **Solution:** Autonomous Multi-Drone Collaboration for Exploration Tasks
- **Elaboration:** This independent project involved modifying an existing single-drone exploration repository on GitHub to allow collaboration between multiple drones. This modification aimed to speed up the exploration process. I investigated different approaches for sharing data among the drones, including Conflict-Free Replicated Data Types (CRDTs). Additionally, I considered the most suitable communication protocol for the drones, considering the possibility of disconnections during data transmission.

Technologies used
- Docker, CRDT using User Datagram Protocol Multi-Cast in a many-to-many connection, Robot Operating System. Also studied Reinforcement Learning to supplement my knowledge.

Personal Projects

iOS App Store
- **Fencing Scores:** Above 387 downloads, USD55++ in sales (Sep 2023 - Jun 2024)
- **Value Investing Tools:** Above 253 downloads, USD30++ in sales (Sep 2023 - Jun 2024)
- **Other iOS Apps**
  - Simplistic Checklist: 139 units
  - Investment Checklist: 109 units

3D Printing
- Self-taught design using Shapr3D
- Designed parts for Arduino projects

Arduino
- Self-taught
- Remote-controlled robot with arm attachment (in progress)
- Curtain closer (in progress)
- Exploration of various modules

AI for Financial Statements (in progress)
- **Motivation:** Most AI analysis focuses on price trends/patterns.
- **Solution:** Analyze business fundamentals for long-term investing.

National Service at Singapore Armed Forces (SAF)

Present *Reservist*	**56th Armored Engineer Company** Serving as Company Officer Commanding
Jan 2020 – Nov 2021 *National Service Fulltime* *(incl. basic military training)*	**38th Singapore Combat Engineers (38SCE)** *Served as* Company 2nd In-Charge.

Scholastic Achievements/Extracurricular Activities

Aug 2022 - Present	**Scholarship** Defence Science and Technology Agency (DSTA)
March 2023 – March 2024	**National University of Singapore (NUS)** NUS Fencing Vice-Captain (Sabre)
Oct 2023	**TikTok Hackathon** 3rd Place
Jan 2019	**SCSE Computing Challenge 2019 at Nanyang Technological University (Singapore)** Most Innovative Game award
April 2018 – April 2019	**Hwa Chong Institution** Hwa Chong Fencing Co-Captain

Skill Sets & Proficiency

Office Productivity	Microsoft Word, PowerPoint, Excel	Proficient
Multimedia	Adobe Lightroom, Davinci Resolve 18	Proficient
App Development	Flutter, Firebase, SwiftUI	Intermediate
Programming	Python, Java HTML, JavaScript, CSS, C, C++	Proficient Intermediate
Libraries / Frameworks	PyTorch, Pandas, Numpy, Matplotlib, Jupyter Notebook, TensorFlow, Keras, LangChain, LangGraph, Streamlit, Neo4J, ChromaDB, Ollama, Docker	Intermediate
Non-Technical Skills	Photography, Videography, Value Investing, Fencing	Proficient

Language Proficiency

Spoken & Written	English – competent; Mandarin/Chinese – average