



## Matthias Ong

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A passionate developer interested in AI and full stack.

## Skills

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Python | C | C++ | HTML | CSS | JavaScript | Kotlin | React | Node | Agile | Git

Firebase | AWS | Cloud Computing | WebXR | Babylon.js | OpenGL | Vulkan | CUDA | x86-64 Assembly

Frontend | Backend | Full-stack | Machine Learning | Computer Graphics | Virtual Reality | Game Development

## Experience

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**Software Engineer, Intern** — DSO National Laboratories

**Aug 2023 - Apr 2024**

- Create a cybersecurity simulation environment to test network configurations with Reinforcement Learning (RL) AI agents, using Microsoft's CyberBattleSim, OpenAI Gym Interface, Python.

**Software Engineer, Intern** — Ministry of Home Affairs

**May 2023 - Aug 2023**

- Developed an internal full-stack cross-platform app (iOS, Android, Web) using HTML, CSS, TypeScript, React, Ionic Framework and Google Cloud Firebase (Authentication, Firestore) to improve QoL of officers.
- Researched and prototyped a custom AI-powered application on internal datasets using LangChain, Azure OpenAI API and Python for future organisational use.

**Other Jobs** — F&B, Retail Assistant, GrabFood Delivery, National Service Police Officer (2018 - 2022)

## Projects

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**MovieCompanion (team of 5, Python movie recommender)**

- Custom movie recommender implemented in Python
- Performed data cleaning and processing on the MovieLens dataset
- Implemented hybrid ML algorithm (Content-based + Collaborative filtering)
- Performed evaluation and testing

**CaptainJumperBoy (team of 5, 2D Android game in Kotlin)**

- Implemented SQLite local database using Android Room to store highscores
- Implemented Physics & some gameplay features
- Helped out with using accelerometer, touch sensors for game controls
- Used Android architecture components, Coroutines and LiveData

**Iconoclasm (team of 10, custom C++ 3D game engine + RPG Hack & Slash game)**

- Custom C++ 3D game engine + hack & slash game made using it
- 3D Physics programmer, integrated engine with PhysX
- Graphics programming with Freetype Font library & OpenGL
- Assist with engine related tasks and debugging

**Negative (team of 7, custom C++ 2D game engine + Horror game)**

- Graphics champion using OpenGL
- Serialisation programmer to save scene into files

## Education

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**Singapore Institute of Technology, Singapore**, Joint Degree w/ Digipen, 09/2020 - 04/2024

BSc Honours in Computer Science in Real-Time Interactive Simulation

- *GPA: 4.52/5*
- *SiTizen Ambassador* – Student Leadership under Community Leadership And Social Innovation Centre
- *Teaching Assistant* – Taught students CSD2160 Operating Systems and CSD2181 Data Structures
- *Overseas Immersion Programme* – Completed 12 weeks of study in Redmond, WA, USA

**Temasek Junior College, Singapore**, GCE 'A' Levels, 2017

- 4 H2 Physics, Chemistry, Mathematics, Economics