Matthias Ong

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SUMMARY

Master of IT student at The University of Melbourne looking for a summer internship role. Completed two paid internships across government and R&D as a software engineer and AI researcher. Deep passion and curiosity for AI, Cloud and software engineering. Possess strong technical and interpersonal skills demonstrated during professional and extracurricular experiences.

TECHNICAL SKILLS

Java, Swing, Python (Flask, Pandas, Scikit, Matplotlib, etc), JavaScript, TypeScript, SQL, HTML, CSS (Bootstrap), React, Node.js, C, C++, Git, Artificial Intelligence, Machine Learning, Statistical ML, Big Data, Data Visualisation, Data Management, Agile SDLC, MySQL, Distributed Systems, Cloud Computing, Docker, Containerisation, AWS, Firebase, Kubernetes, Serverless

EDUCATION

Master of Information Technology (Artificial Intelligence) Jul, 2024 - Jun, 2026
The University of Melbourne
- Current WAM: 87%
- Engineering and IT Graduate Scholarship, offered to talented students in Engineering or Information Technology
- FEIT Hackathon Festival 2024 Runner-up, won a $3000 prize for EcoQuest, a platform designed to encourage sustainability
- Relevant Coursework: SDLC, Cloud Computing, Artificial Intelligence, Machine Learning, Statistical Machine Learning, Database Systems, Data Modelling, Distributed Systems, Network Architecture

Bachelor of Science in Computer Science Sep, 2020 - Apr, 2024
Singapore Institute of Technology, Joint-degree with Digipen Institute of Technology
- GPA: 4.55 / 5 (Honours with Highest Distinction)
- 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
- Relevant Coursework: Calculus, Linear Algebra, Computer Networks, Game Development, Computer Graphics, C++ Design Patterns, Operating Systems

EXPERIENCE

Artificial Intelligence Project Intern (paid) Aug, 2023 - Apr, 2024
DSO National Laboratories, Singapore
- Built a simulation network environment to test cybersecurity network configurations with reinforcement learning (RL) AI agents, leverage Microsoft's CyberBattleSim, OpenAI Gym, Python
- Simulated a Windows Active Directory network, Microsoft servers, Sharepoint, Exchange, file server, etc
- Trained and evaluated reinforcement learning attacker agents based on MITRE to model 2 real-world attackers
- Analysed attacks results and performed data visualisation to report findings to supervisor

Software Engineer Intern (paid) May, 2023 - Aug, 2023
Ministry of Home Affairs, Singapore
- Developed an internal full-stack cross-platform application (iOS, Android, Web) leveraging HTML, CSS, TypeScript, React, Ionic Framework and Google Cloud Firebase and more to improve quality of life of officers
- Researched and prototyped a custom AI-powered app on internal datasets with LangChain, Azure OpenAI API and Python for future organisational use

PROJECTS

Collaborative Whiteboard Apr, 2025 - May, 2025
Solo Java Project, Distributed Application
- Create a client-server model where users can draw on a shared interactive canvas, with different tools, colours, erasers, shapes, text.
- Program user management features, user permissions, kicking, user chatbox, file saving and loading
- Leverage technologies like Java, Swing GUI, RMI middleware, JSON to build the distributed application.

Big Data Analytics on Kubernetes Cluster Apr, 2025 - May, 2025
Team of 5, Kubernetes and Serverless Cloud Project
- Deploy a Kubernetes cluster on university's cloud infrastructure using OpenStack (similar to AWS), and Helm
- Implement data harvesters and analytics with Serverless functions using Openstack Fission, Python and ElasticSearch
- Create ElasticSearch Indexes to store data from Reddit and Mastodon using Python and RESTful APIs.

FEIT Hackathon Festival 2024 Runner-up - [Article](#)   Sep, 2024 - Sep, 2024
3-day hackathon in Team of 5, Team GReeeN
- Won a $3000 prize out of 35 teams for our solution, EcoQuest, a platform designed to encourage sustainable actions among hotels, investors and guests through transparency and gamification
- Spearhead idea for an app to use utilities consumption analytics, generative AI prompts for gamified sustainability challenges
- Brainstormed feasibility, technical requirements and made 15+ UI/UX wireframes on Figma to pitch to panel
- Achieved the "Greatest Social Impact" and "Best Team Synergy" Hardware Prizes from Airwallex and Telstra
- Achieved Melbourne Plus: Sustainability Advocacy

Linux Home Server   May, 2024 - Jun, 2024
Solo IT Management Project, Self-hosted home server
- Hosted web server, DNS server, Network File Storage Server on an old laptop. IT management, user access control, software maintenance, installation, updates
- Utilised open-source technologies Ubuntu, Samba, MySQL, Apache web server, Wordpress

Full Stack Social Media Web App, "AllyAlley" - [Demo](#)   Apr, 2024 - Apr, 2024
Solo Full stack Project, Flask Social Media Web Application
- Added user authentication, uploading, deleting, commenting, liking photo and video posts
- Made with Flask, HTML, CSS w/ Bootstrap, JavaScript, Python, AJAX, SQLite
- Deployed and hosted on PythonAnywhere for use with friends

Hybrid Movie Recommender, "MovieCompanion"   Mar, 2023 - Mar, 2023
Solo Machine Learning Project, Custom Python Hybrid Movie Recommender
- Performed data cleaning and processing on the MovieLens dataset, metadata from over 45,000 movies
- Implemented, evaluated and tested hybrid ML algorithm (Content-based + Collaborative filtering)

2D Platformer Mobile Game, "CaptainJumperBoy" - [Demo](#)   Feb, 2023 - Feb, 2023
Team of 5, 2D Mobile Platform Game in Kotlin for Android
- Implemented SQLite local database using Android Room to store high scores
- Programmed Physics, gameplay features, helped to use accelerometer, touch sensors for game controls
- Designed Android architecture components, Coroutines and LiveData

Custom 3D Game Engine and RPG Game, "Iconoclasm" - [Engine Demo](#) / [Game Demo](#)   Apr, 2022 - Apr, 2023
Team of 10 designers and programmers, Custom C++, 3D Game Engine and 3D RPG Hack and Slash Game
- Adopted Agile methodology with Scrum framework with biweekly sprints
- Integrated engine with PhysX, created bounding models, 3D Physics programming
- Programmed graphics with Freetype Font library & OpenGL, engine debugging

EXTRACURRICULAR ACTIVITIES

The RCH Volunteer Program   Feb, 2025 - present
The Royal Children's Hospital (RCH), Melbourne
- Fortnightly shifts at the Emergency Department, help with operations, interacting with children
- Work in a team with healthcare staff and volunteers to improve the comfort and experience of patients and families

SITizen Ambassador (Student Leadership)   Dec, 2022 - Apr 2024
Singapore Institute of Technology, Singapore
- Student leader in the Community Leadership And Social Innovation Centre to curate social innovation projects carried out in collaboration with community partners
- Participated in roles such as emceeing, hosting industry partners, ushering, planning and executing school and industry events

Teaching Assistant   Aug, 2022 - Apr, 2023
Singapore Institute of Technology, Singapore
- Taught students CSD2160 Operating Systems and CSD2181 Data Structures
- Conducted weekly group consultations with students and helped professor to grade assignments

Technical Lead   Feb, 2021 - May, 2021
Singapore Institute of Technology, Singapore
- Technical lead for a team of 5 in Software Engineering Project 2, co-led with a Product Manager using Scrum SDLC
- Defined and documented the technical vision, software architecture, manage technical roles, ensured code quality of the team