Minsuan Teh

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Education

University of Edinburgh — Edinburgh, United Kingdom

Master of Science in Computer Science — September 2022 – August 2023

- Class of award received: Passed with Merit

University of Edinburgh — Edinburgh, United Kingdom

Bachelor of Engineering with Honours in Computer Science — September 2018 – July 2022

- Class of award received: First Class

Experience

InsiderSecurity — Kuala Lumpur, Malaysia

Software Engineer — May 2024 – Present

- Core Risk Engine Optimization - Led end-to-end performance overhaul (multiprocessing, code streamlining, cache redesign) achieving ≥140% throughput improvement.
- Cloud Integration (AWS & Azure) - Extended product from on-prem only to hybrid/cloud by integrating AWS and Azure data sources, enabling compliance (e.g., GCC requirements) and broadening deployment scenarios.
- Sensor-less Log Ingestion Pipeline - Designed and implemented a cloud & syslog-based ingestion path eliminating the need for on-prem sensors, expanding addressable market and simplifying onboarding.
- Sensor Feature Expansion (C++ Agent) - Added support for new log formats, auditing, remote command execution, log rotation, and reliability fixes, improving adaptability and stability in different kinds of environments.
- Automated Sensor Role & Tag Assignment - Built Redis-backed automation to classify and tag sensors dynamically, removing manual configuration effort and reducing misconfiguration risk at scale.
- Forwarder System Enhancements - Re-architected log forwarding using RabbitMQ + TCP streaming for resilient, high-throughput delivery to third-party platforms and SIEMs.
- Legacy System Refactoring & ML Enhancements - Modernized SQL anomaly detection and other legacy components with cleaner architecture, optimized queries, and ML-based improvements for accuracy and maintainability.
- Mentorship & Team Enablement - Provided support and guidance to junior developers.

Huawei Technologies

Global Software Service Engineer — December 2023 – April 2024

- Involved in a harmonization project of two of the largest network operators in Malaysia.

University of Edinburgh — Edinburgh, United Kingdom

Java Tutor and Marker — January 2023 – May 2023

- Hosted weekly tutorial sessions, guided students through Java course materials, evaluated courseworks and offered personalized feedback on tutorials and courseworks.

Languages and Skills

Programming Languages: Python, Ruby, C++, C, JavaScript, Java, Kotlin, Haskell, Solidity, SQL

Skills: Machine Learning, MongoDB, RabbitMQ, Redis, Git, Linux, Azure, Amazon AWS, Kubernetes

Natural Languages: English, Mandarin (Chinese), Malay

Projects

Undergraduate Dissertation

- Implemented the algorithm by Dang, Qi and Ye (2012), the algorithm by Fearnley, Palvogyi and Savani (2021), and a basic iteration algorithm to find Tarski's fixed point in a complete lattice.
- The algorithms were implemented in Python and several experiments have been performed to investigate the advantages of the algorithms in different scenarios.

MSc Dissertation

- Implemented the model by Eisenberg and Noe (2001) and the model by Jackson and Pernoud (2019) to compute clearing payments in financial networks.
- The models were implemented in Python to investigate the effectiveness of each model and the factors influencing bankruptcy rate in financial networks.
- The algorithm by Dang, Qi and Ye was also implemented to compare against the models, particularly its dependency on the convergence rate of the monotone function is discussed.

OpenAI Gymnasium

- Used Value Iteration and Policy Iteration of Dynamic Programming to solve randomly generated MDPs.
- Successfully solved Taxi-v3 of OpenAI Gymnasium using Q-learning and on-policy first visit Monte Carlo.
- Successfully solved CartPole and Acrobot of OpenAI Gymnasium using Deep Q-networks and REINFROCE algorithm.
- Successfully solved Bipedal Walker of OpenAI Gymnasium using Deep Deterministic Policy Gradient.
- Implemented using Python and PyTorch.

A Ray Tracing Image Generator

- A C++ program that can be used to generate an image using ray tracing when given a JSON file.
- Includes various shading models, texture mapping, custom shapes, reflection, refraction, depth of field, soft and hard shadow, random sampling with jittering and Bounding Volume Hierarchy for complex scenes.

Human Activity Recognition (HAR)

- This project aims to develop a real-time HAR app on Android devices using two sensors (Respeck and Thingy).
- Data from the sensors is processed and stored in custom format before feeding the data into three different 3-CNN models in which each model has different hyperparameters and input dimensions.
- The models are implemented using TensorFlow before being exported to the Android app implemented in Kotlin.

Twitter Sentiment Analysis

- This project aims to investigate the influence of varying kernel sizes, number of layers, and input dimensions in Convolutional Neural Network architectures on the performance of Twitter sentiment analysis tasks.
- Models used include Naïve Bayes, Maximum Entropy, Decision Tree, Random Forest, XGBoost, SVM, Multi-layer Perceptron, Recurrent Neural Network and Convolutional Neural Network.

Decentralized Chess

- Implemented as a smart contract written in Solidity and deployed on Ethereum testnet.
- Various implementation designs are used to increase gas efficiency and gas fairness among both players.
- Having an option to play the game off-chain and only reporting the game's result to the contract to claim prize using cryptographic signature.

System Design Project

- Collaborated on designing a virtual robot for a bowling alley, which collects and delivers bowling shoes to customers.
- In this group project, I was responsible for implementing the robot's operating system.
- The robot was developed using Webots and Python.
- Customers can use their smartphones to request the robot for shoe collection and delivery.

Personal Website Development and Professional Portfolio

- Built a personal website using Jekyll, a static site generator, to showcase projects and experience.
- Hosted and managed the site on GitHub Pages, ensuring seamless updates and reliable availability.
- Highlighted career milestones, technical skills, projects, and an accessible CV.