

# Minsuan Teh

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## Education

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### 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
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## Experience

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### InsiderSecurity

Kuala Lumpur, Malaysia

Software Engineer

May 2024 – Present

- Responsible for developing and optimizing backend algorithms and features of Automated UEBA.
- Led efforts to optimize the core risk scoring engine, improving its ability to process high volumes of alert data efficiently by implementing multiprocessing, streamlining code, and redesigning the caching mechanism.
- Developed automated systems for the role and tag assignment of sensors, reducing manual intervention and improving the accuracy of sensor data processing.
- Proactively addressed system issues, such as fixing SharePoint access problems, resolving sensor downtime handling, and ensuring smooth operation of saved reports and subsystem services.

### Huawei Technologies

Kuala Lumpur, Malaysia

Global Software Service Engineer

December 2023 – April 2024

- Involved in a harmonization project of two of the largest network operators in Malaysia.
- Crafting and sending HTTP requests to various system interfaces, thoroughly verifying responses to ensure correctness.
- Leveraging SQL skills for querying and updating the database, crucial for validating the system's functionality.
- Directly engaging with the CBS GUI interface to assess and validate the overall performance and features of the system.

### University of Edinburgh

Edinburgh, United Kingdom

Java Tutor and Marker

January 2023 – May 2023

- Responsible for hosting weekly tutorial sessions and providing feedback to students.
  - Guided students through the intricacies of the Java course materials, ensuring clarity and comprehension.
  - Evaluated courseworks, which contributed to the final course mark of the students.
  - Offered personalized feedback on both tutorial answers and coursework submissions, guiding students on areas of improvement.
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## Skills and Languages

**Python:** TensorFlow, PyTorch, scikit-learn, pandas, NumPy, NumPy, SciPy, Matplotlib, Seaborn and more

**Machine Learning:** Neural Networks, Decision Trees, Principal Component Analysis, Temporal Difference and more

**Other Skills and Languages:** Haskell, SQL, Java, Junit, Solidity, Kotlin, Git, Linux, Google Cloud, Amazon AWS, MongoDB, RabbitMQ

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## Projects

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### 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 REINFORCE 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.