**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   * Class of award received: First Class | September 2018 – July 2022 |
| **Experience** |  |
| **InsiderSecurity**  Software Engineer   * 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  May 2024 – Present      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   * 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. | January 2023 – May 2023 |
| **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** |  |

**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.