Chong Zhen Yuen

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An engineering undergraduate from the Engineering Tripos, Part IIA, under a dual-degree programme, the HKU-Cambridge Joint Recruitment Scheme, on track to receive a Bachelor of Engineering from the University of Hong Kong (HKU), Bachelor of Arts (Hons) and Master of Engineering (Hons) from the University of Cambridge upon graduation in 2024. Academic interests include machine learning, computer systems and quantitative finance.

EDUCATION

University of Cambridge (HKU-Cambridge Joint Recruitment Scheme)   **Oct. 2021 – Present**
Bachelor of Arts (Hons), Master of Engineering (Hons) in Information and Computer Engineering
- Upper Second-Class Honours, 2:1

University of Hong Kong (HKU-Cambridge Joint Recruitment Scheme)   **Sept. 2019 – Present**
Bachelor of Engineering, Major in Computer Engineering, Minor in Finance
- First Class Honours, Cumulative GPA of 3.93
- HKU Engineering Dean's Honours List (2020, 2021)
- HKU Foundation Entrance Scholarship, EE72 HKU Chan Kam Yin Scholarship
- HKU Teaching Development and Language Enhancement Grant (TDLEG) 2022.

INTERNSHIPS

ARM Limited Part Time Undergraduate Programme   **July 2022 – Present**
GPU Build systems and DevOps Software Engineer
- Developed proprietary scripts to automate the migration of repositories between multiple GitLab instances rather than relying on premium GitLab migration services to reduce operating expense.
- Spun out commonly used Python and NPM packages to the local GitLab registry to be made available upstream.
- Learnt semantic versioning, hermetic test environments with Docker in CI/CD pipelines, dependency management in Python with Poetry, and the Bazel build system.
- Performed preliminary refactoring of the GPU DDK codebase to properly expose public headers and fix build targets/dependencies.

HKU CS Research Internship Programme   **July 2021 – Sep. 2021**
Research assistant
- Built an AI chatbot in Typescript to simulate patients for the medical faculty of HKU under the supervision of Dr Tsz Hon Yuen.
- Developed methods for mapping unique replies to different descriptions of 100+ medical symptoms.
- Implemented the required NLP functionalities with Dialogflow API and Mongo Atlas as the primary database.

PROJECTS & EXPERIENCE

HKU Senior Year Design Project   **July 2022 – August 2022**
- Awarded the HKU Teaching Development and Language Enhancement Grant (TDLEG) 2022.
- Investigated the feasibility of score-based generative models in Snapshot Compressive Imaging applications.
- Reconstruction of video frames from a single 2D measurement by modelling the data as a stochastic variable and performing Langevin sampling, with a score model to approximate the scores of the posterior distribution.
- Proposed three different algorithms – Conditional reverse-time SDE method, Proximal optimization method and Video frame approximation method.

SNKRFIED MY, Software Lead   **Jan. 2021 – Mar. 2021**
- Ran a small SaaS business that provides web-monitoring and automation tools for the sneaker community.
- Built the official website (hosted on Firebase) and Discord bots to provide additional tools/services to customers.
- User account authentication handled by Discord OAuth2 integration, with payment services provided by Stripe.
- Built web scrapers with Scrapy library to monitor multiple eCommerce websites simultaneously, equipped with rotating proxies and exponential back-offs to avoid bot detection.
- Web scraper runs on Heroku with Google Cloud service for storage and Discord webhooks for sending notifications.

Integrated Design Project (Cambridge Engineering Part-IB), Software Lead   **Nov. 2021 – Dec. 2021**
- Constructed and programmed an Arduino-controlled robot for a search, identify, and rescue mission.
- Written external libraries for individual sensors and sub-systems by adopting an object-oriented approach for modularity to enable rapid prototyping and ease of redesigning individual sub-systems if necessary.

FTSA FinTech Cup Competition Website   **June 2021**
- Designed and programmed the official website for the FTSA FinTech Cup, connected to an hourly live feed from QuantConnect to display the participants' portfolio performance.
- Website is hosted on Google Firebase, with Cloud Functions to receive incoming webhooks from QuantConnect and Cloud Firestore as the primary database.

Algorithmic trading on QuantConnect using various technical indicators   **Apr. 2021**
- Developed a trading strategy algorithm on QuantConnect based on a combination of technical indicators including Bollinger bands, exponential moving average, and relative strength index to generate buy and sell signals.

Face Recognition with Raspberry Pi and OpenCV   **Jan. 2021 – Mar. 2021**
- Built a face recognition system using OpenCV and runs on Raspberry Pi with a connected camera module.
- Face detection is implemented using a pre-trained cascade classifier from OpenCV.

MNIST hand-written digit classification with Convolutional Neural Network   **June. 2020**
- Model uses 2 convolutional layers (ReLU) with max pooling and a final dense layer (SoftMax).
- Evaluated using MSE and trained using Stochastic Gradient Descent.

Space Invaders 2 on CLI   **May. 2020**
- Written a CLI-game in C++ based on Space Invaders which can be installed easily via a make file.
- Used multi-threading for receiving user inputs and refreshing the game display continuously.

Forecasting NASDAQ Composite index with Dense Neural Network   **Dec. 2019**
- Designed a dense neural network using TensorFlow 1 to predict the direction of NASDAQ Composite index based on historical prices of the top 500 stocks by market capitalization.

TECHNICAL SKILLS

Programming
- Python, C, C++, JavaScript, TypeScript, HTML, CSS, MATLAB, MIPS, and ARM assembly.
- Full-stack web application development with HTML, CSS (Bootstrap, Material Design Lite), NodeJS and MongoDB.
- Application deployment on Heroku with Google Cloud services including Cloud Store, Cloud Functions, Firebase, Firestore, and Dialogflow ES.
- Familiarity with data science/machine learning libraries e.g., NumPy, Pandas, Scikit-learn, TensorFlow, PyTorch.

EXTRACURRICULAR AWARDS AND ACHIEVEMENTS

Harvard Prize Book Award   **Aug. 2017**
- Awarded for outstanding academic achievement and active participation in extra-curricular activities.

National Robotics Competition, 1st Runner Up   **Mar. 2014, Mar. 2015**
- Built a Bluetooth-controlled rover with LEGO NXT which featured the Rocker-Boogie suspension system and two 3-axis robotic arms that counterbalances each other for even weight distribution.

LEADERSHIP EXPERIENCE

Technical Officer, Cambridge University Malaysia Society   **Nov. 2021 – Present**
- Project lead for redesigning the official website and managing technical infrastructures for official events.

Technology Secretary, HKU FinTech Student Association   **Sep. 2020 – June. 2021**
- Developing the association's website (WordPress, JS, HTML, CSS) and co-organizer for the HKU FTSA FinTech Cup, an algorithmic trading competition using cryptocurrency with QuantConnect.

Committee, A-Level Student Council   **Jan. 2018 – June 2018**

EXTERNAL CERTICATIONS

Kaggle Feature Engineering, Intermediate Machine Learning   **Sept. 2021**

DeepLearning.AI TensorFlow Developer   **Aug. 2020**