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Education

- **The University of Hong Kong** — Hong Kong
  Bachelor of Engineering in Computer Science with Focus AI & Robotics — *Sep 2020 - Jun 2024*
- **Royal Holloway, University of London** — United Kingdom
  International Exchange; School of Engineering, Physical and Mathematical Sciences — *Jan 2023 - Jun 2023*
- **Shatin Pui Ying College** — Hong Kong
  Secondary Education; 1st in ICT, 3rd in Physics — *Sep 2013 - Jun 2020*

Technical Skills Summary

- **Languages** Python, C/C++, C#, JAVA, HTML, JavaScript, TypeScript, SQL, LaTeX, KaTeX
- **Frameworks & Libraries** Node.js, Express.js, jQuery, React, Vue.js, SvelteKit, Quasar, Tailwind CSS, Flask, Qt, Unity, OpenCV, Sklearn, TensorFlow, PyTorch
- **Platforms & Tools** Linux, MySQL, MongoDB, Supabase, Docker, Git, Adruino, Processing

Experience

- **Shatin Pui Ying College** — Hong Kong

  Question Writer & Programmer — *Jul 2022 - Aug 2022 & Mar 2021 - Aug 2021*
  - Authored MCQ templates in JavaScript & KaTeX for school's e-learning web app *WinMaths*.
  - Templates are based on the 2022 HKDSE Mathematics and the HKDSE Physics syllabus.

  Full Stack Engineer — *Jun 2022 - Aug 2022*
  - **Musical E-ticketing System** Semi-automated order management, seat arrangement, mission control, and bulk mail.
  - **Administrative Web Apps** Developed for exam, lesson, and HKDSE invigilation timetable scheduling.

- **The University of Hong Kong** — Hong Kong

  Student Teaching Assistant - ENGG1340 Computer Programming II — *Jan 2022 - Jun 2022*

  Student Teaching Assistant - ENGG1330 Computer Programming I — *Sep 2021 - Dec 2021*
  - **ENGG1340** Tutored a class of 85 on advanced Python programming, Linux shell commands, shell scripts, C/C++ programming, and separate compilation techniques.
  - **ENGG1330** Tutored a class of 45 on Python programming, searching and sorting algorithms.
  - **Coursework Feedback** Reviewed assignments according to a marking scheme and gave individual video feedback.
  - **Ed & Moodle** Guided discussions on learning materials.

Projects

- **CIFAR10-HOG-PCA-SVM (Machine Learning, Computer Vision)**

  Image classifier for the CIFAR-10 dataset. 62% accuracy without deep neural network or convolutional kernels. Feature extraction via Histogram of Oriented Gradients. Dimensionality reduction via Grayscaling, HOG, and Principal Component Analysis. Support Vector Machine with the radial basis function kernel. 5 minutes to train. (Dec 2022)

- **Parallel Samplesort (Multi-threading, Semaphore, Mutex lock)**

  Mutli-threaded Samplesort with arbitrary number of threads. Sorts 10^8 integers in 5 seconds with 16 threads. (Nov 2022)

- **3230shell (Operating System, Linux)**

  Linux shell which supports command parsing, program execution, signals handling, multiple background processes, arbitrary number of piped processes and process statistics in any combinations. (Oct 2022)

- **Enoch BRC (Fullstack, PWA, Static Site)**

  Bible reading challenge Progressive Web App tailored made for a church. Readers read 8 chapters weekly to finish all 1189. Includes leader-board and progress tracker. (In production since Oct 2022)

- **CMM (Cryptocurrency, Algorithmic trading, Cloud Computing, Data Science)**

  Back-testing suite for ALGOGENE Algo Crypto Trading Challenge 2022 (Global). Market pattern detection and alert via web-hook. Involves APIs of Trading View, Binance, Alpaca, Google Cloud, and Discord. (Jointly developed Oct 2022)

- **WinMaths (Functional Programming, Code Generation, Typesetting)**

  E-learning platform that generates random Mathematics and Physics MCQs based on templates written in JavaScript & HTML & KaTeX. Incremental development. (Jointly developed and in production since 2019)

- **HackOS (Unity, Cyber-security)**

  Offensive cyber-security simulator game. Sandbox experience with pruned replicas of nmap, ssh, hydra, and an array of UNIX-like commands. (May 2022)

- **RNA Fighter (Game)**

  Terminal puzzle-solving game with colored text user-interface. Type RNA sequences to defuse viruses. Includes text-based dialogues, scroll view, page navigation, and in-place buffer update. Built with Ncurses and C++. (May 2021)

- **Duckietown (Computer Vision, Reinforcement Learning, Self-driving)**

  Simulated self-driving for Duckietown with Deep Deterministic Policy Gradient with Actor & Critic networks. (Dec 2020)

- **Bubble Sheet OMR (E-learning, OMR)**

  GUI program written in Qt to detect MCQ options given a bubble sheet pdf. Coordinates can be exported for automatic marking purpose. Supports fully automatic detection, and fine manual adjustments. Multi-threaded. (Jun 2019)

- **Real-time Room Status System (Fullstack, RFID)**

  Developed and used for STEM Camp 2018 & 2019 at Shatin Pui Ying College. Students from 16 primary schools could view booth/room statuses on iPads, and check in & out by tapping RFID cards. (Apr 2019)

- **SLMS (Database, GUI)**

  School Library Management System. Developed with Qt and SQLite, a GUI program that provides CRUD functionalities to common library administration, such as book categorization, borrow/return management, mass book record import, barcode scanning, and overdue alert. Object-oriented and separately compiled. (May 2019)

- **Contact List Manager**

  Terminal contact manager with colored text user-interface. Provides CRUD functionalities to manage contacts with multiple fields. Uses hashing algorithms for authentication. Built with Windows API and C++. (May 2018)

Activities

- **ALGOGENE Algo Crypto Trading Challenge 2022 (Global)**

  Candle Patterns, Order Block, RSI, and MFI as trading signals. Variable volume base on past limit orders. Achieved 530M PnL from 1M during Test Round for BTCUSD on the 2018-2020 market. Overall score 86/100. (Jan 2023)

- **Jane Street Electronic Trading Challenge 2022 (Hong Kong)**

  1st runner-up. Built a bot to trade various kinds of stocks including bonds, ADRs, and ETFs by interacting with an emulated exchange. Focused on market-making and arbitrage. High frequency and tick-based.

- **J.P. Morgan Code for Good 2022 Challenge (Hong Kong)**

  Developed for Junior Achievement Hong Kong, a job shadowing web app for secondary school students.

- **The 6th InnoShow - Faculty of Engineering, The University of Hong Kong**

  Invited to showcase HackOS, an educational offensive cyber-security simulator.

- **Cathay Pacific Hackathons 2021**

  Developed a React Native app to display a summary of COVID-19 travel restrictions on an interactive world map.

- **Orientation Workshop @ CUEE 2019 - The Chinese University of Hong Kong**

  Built an image-based object recognition Android app for transportation tools with Deep Learning.

- **STEM Camp 2019 - Shatin Pui Ying College**

  Appointed the Head of STEM Committee, organized a STEM day camp for visiting students from 16 primary schools.

- **EE International Summer Camp 2017 - City University of Hong Kong**

  Developed an Adruino robotic car and Android app for remote control via Bluetooth LE. 2nd runner-up in the camp's concluding Mini Robotic Car Competition.