

# Caroline (Jialu) LI

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## EDUCATION

### The Chinese University of Hong Kong

Double degree: B.Sc. in Computer Science & B.A. in Integrated BBA

cGPA: 3.585/4 (Head's list), mGPA: 3.6/4

Scholarship: Admission Scholarship 2017/18, Talent Development Scholarship 2018/19, Kunkle & Pommerenke Scholarship 2020-22, Chung Chi Departmental Prize, Philip Shen Scholarship, Hong Kong Fintech Olympiad Best Cross-Border Fintech Solution Prize

### The Peking University

GPA:4.0/4.0, Summer, 2018, Beijing, China

Hong Kong

September 2017 – Present

## PROJECT EXPERIENCE

### Forecasting Bitcoin Price Trends from the Order Books using SVM and LSTM

Hong Kong

Final Year Project | Supervisor: Prof. Yufei TAO (Elected ACM Fellow 2020)

June 2021 – Present

- Applied the multi-class Support Vector Machine (SVM) and Long Short-term Memory (LSTM) model on level-2 limit order books to predict bitcoin price trend for high-frequency trading
- Accomplished 70% prediction accuracy by training on 20 million historical data samples, selecting 9 efficient features and 3 different market situations
- Established my trading strategy based on prediction results, and continuing building my trading system by deploying the Timescale cloud database on an EC2 instance

### Applying SWAE on scRNA-seq Data for Cell Clustering in a Semi-supervised Manner

Hong Kong

Part-time Research Assistant | Department of Computer Science

January 2021 – Present

- Tested models using 19 data sets on the order of 100 thousand, adjusted model structures by combining Sliced Wasserstein Autoencoder (SWAE) with Neural Network classifiers
- Tuned hyperparameters to attain better clustering results and visualizations, with more distinct decision boundaries, user-defined shapes, making our application more powerful and suitable for professional researchers

### Empirical Analysis of Users Behavior and Social Networking on a Fitness App

Hong Kong

Research Assistant | Department of Decision Making and Managerial

April 2021 – September 2021

- Scraped about 80 million data from the famous fitness App - Keep, and reached 100 requests per second to support data analysis using the Scrapy framework
- Increased the response and running speed of the database 5 times by database optimization, like matching the suitable database, changing buffer, adding indexes and implementing distributed databases
- Applied K-medoids to clustering user data sets with both categorical and numerical features, aiming at more accurately attracting users and increasing the time and frequency of customers' use

### A Brain-Computer Interface System with Neuro-feedback for Assisting Stroke Rehabilitation

Hong Kong

Research Assistant | Department of Biomedical Engineering

April 2020 – September 2020

- Upgraded the front-end of the AR software application to improve easy-of-use of stroke patients, allowing them to perform actions according to the prompts on the screen
- Developed a scoring system using Dynamic Time Warping (DTW) algorithm. Our system measures the differences between patients' actions with the target actions and recommends suitable rehabilitation training to patients based on the score. The algorithm adopted by me improved the scoring accuracy of the pattern comparison in time-series data
- Released 3 main versions of our application based on customer feedback and solved 7 major bugs

### Adaptive Layout Decomposition with Graph Embedding Neural Networks

Hong Kong

Part-time Research Assistant | Department of Computer Science Engineering

October 2019 – January 2020

- Published the paper on 2020 57th ACM/IEEE Design Automation Conference (DAC), 1-6
- Tested models on different data sets and assisted in selecting the most suitable multiple patterning lithography decomposition (MPLD) by using graph embedding neural networks

## WORK EXPERIENCE

### Ariel Quantitative Investment Research Lab

Sichuan, China

Quantitative Researcher

June 2022 - September 2022

- Researched alpha factors from micro-market structure, and developed, back tested high frequency trading strategies

### China Galaxy Securities Company Limited

Sichuan, China

Investment Consultant

April 2019 - July 2019

- Provided clients with investment recommendations based on their portfolio performances and risk tolerance levels, and Calculated and analyzed the portfolio performance indicators for individual investors

### Industrial and Commercial Bank of China

Sichuan, China

Business Analyst

July 2018 - August 2018

- Built a financial statement database for more than 10 current and potential loan companies, and Generated daily market commentaries in 60 consecutive days, and presented the market overview to the team in weekly meetings for 8 times

## ADDITIONAL INFORMATION

**Technical:** Python, C, Java, R, C#, Flutter, SQL, C++, JavaScript, Latex

**Languages:** Mandarin (Native), English (Fluent, IELTS: 7.5/9), Cantonese (Conversational)

**Extra Curriculum:** President of Mainland Photography Association 2018/19, Vice president of Chung Chi Mainland Student Association 2018/19, Big group leader of the CUHK Orientation Camp 2019, Student ambassador of the Chinese University of Hong Kong 2017/18