

# KEI YAT LONG, ANDES

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## EDUCATION

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### **The Chinese University of Hong Kong**

*Ph.D. Student in Information Engineering*

Hong Kong

Starting from Aug 2022

- Supervisor: Professor Sherman S. M. Chow
- Research Interest: Privacy-preserving Machine Learning and Blockchain
- Hong Kong PhD Fellowship Scheme Awardee

### **The Chinese University of Hong Kong**

*BEng in Financial Technology*

Hong Kong

Sep 2018 - Present

- First Class Honours (CGPA: 3.827/4.000, Major GPA: 3.941/4.000)
- Graduation Thesis Topic: Hyperparameter Optimization for Privacy-preserving Machine Learning
- Honors and Awards:
  - Dean's List 2018/19, 2019/20, 2020/21, 2021/22 (top students in the Faculty of Engineering)
  - Head's List (Merit) 2018/19, 2020/21 (top students in New Asia College)
- Scholarships:
  - ELITE Stream Scholarship 2019/20, 2020/21 (outstanding performance in ELITE course, \$32,000)
  - Mr. Wu Sai Wing Memorial Scholarship 2020/21 (10 awardees among the college, \$10,000)
  - AIG Hong Kong Scholarship 2020/21 (4 awardees among the university, \$20,000)
  - HKSAR Government Scholarship 2021/22 (top students among all universities in Hong Kong, \$40,000)
  - The KJ & HK Charitable Trust Academic Scholarships (top students among the college, \$21,050)
- Selected Courses:
  - Applied Cryptography: A postgraduate course that discussed the latest advances in applied cryptography
  - Computer and Network Security: A postgraduate course that provided a complete overview of cybersecurity
  - Fundamentals of Artificial Intelligence: An undergraduate honor course that focused on artificial intelligence

## WORK HISTORY

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### **Department of Information Engineering, the Chinese University of Hong Kong**

*Research Assistant*

Hong Kong

May 2022 - Present

- Topic: Privacy-enhancing Techniques for Authentication
- Supervisor: Professor Sze Yiu Chau (Department of IE, CUHK)
- Performed literature review on WPA2-Enterprise security and privacy-enhancing techniques for authentication
- Designed a practical, privacy-preserving authentication method for WPA2-Enterprise Wi-Fi

### **Faculty of Engineering, the Chinese University of Hong Kong**

*Summer Research Intern*

Hong Kong

Jun 2021 - Aug 2021

- Topic: Fast and Scalable Payment using Cryptocurrencies
- Supervisor: Professor Sherman S. M. Chow (Department of IE, CUHK)
- Performed literature review on off-chain (layer-2) scalability solutions on blockchain, including their techniques, advantages, and limitations
- Constructed a new off-chain protocol for private and scalable blockchain micropayment with practical collateral

- Topic: Stochastic Optimization for Reinforcement Learning
- Supervisor: Professor Hoi To Wai (Department of SEEM, CUHK)
- Developed a simulation environment for testing reinforcement learning algorithms
- Implemented 4 reinforcement learning algorithms and evaluated their empirical performance
- Reviewed a learning control problem from academic paper and solved it using implemented algorithms

## PROJECTS

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### **PlaNET - Work Productivity App with Firebase**

[GitHub Link](#)

- An Android app that allows users to prioritize their work and receive notifications of upcoming deadlines
- Developed this project in Java and used Firebase to store the to-do work of users

### **Deep Learning Project**

[GitHub Link](#)

- Kaggle competitions on image, sequence and graph tasks, including (1) Face Classification (2) Antibiotic Resistance Genes Prediction (3) Graph Node Classification
- Developed this project with Python and used different deep learning packages such as PyTorch
- Obtained 2<sup>nd</sup> place / 28 teams in Task 1, 1<sup>st</sup> place / 31 teams in Task 2, and 2<sup>nd</sup> place / 8 teams in Task 3

### **Secure E-commerce Website**

[GitHub Link](#)

- An E-commerce website that supports secure checkout flow with PayPal sandbox
- Developed the project front-end in Javascript and the project back-end in PHP
- Implemented the countermeasures against common attacks, as well as techniques related to performance and search engine optimization

### **Hospital Waiting Time System**

[GitHub Link](#)

- A single-page web application built with the popular MERN stack, which checks the accident and emergency waiting times of different hospitals in Hong Kong
- Developed this project in Javascript, used open API to obtain the waiting time of hospitals and display the hospitals on a map

### **Quick Calculation Game with Skills**

[GitHub Link](#)

- An electronic game on a Cortex-M3 system, which is a quick calculation game with skills enabled
- Developed this project in C and demonstrated the software design patterns learned in other courses

### **Software Prototype for a Single-player PC Pokemon Game**

[GitHub Link](#)

- A prototype for an offline, single-player Pokemon game on desktop PC, which support navigation, capture, gym battle, and manage Pokemon features
- Developed this project in C# with WPF

### **Data Mining Project**

[GitHub Link](#)

- A competition on solving 2 data mining problems, one is related to insurance selling, another is related to customer behaviour prediction.
- Developed this project in Python and used different machine learning package such as Scikit-learn
- Won the best project award runner-up in the competition

## COMPETITIONS

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### **The 15th Citi Financial Innovation Application Competition**

*Finalist (Top 20 out of 80 teams)*

Hong Kong  
Jun 2019 - Nov 2019

- Utilized machine learning techniques to create a green bond index
- Constructed a web prototype to demonstrate a user-friendly and integrated platform
- Analyzed the business model on the service provided

## EXTRA-CURRICULAR ACTIVITIES

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### **Animation and Comic Society, the Chinese University of Hong Kong**

*General Affairs Coordinator*

Hong Kong  
Feb 2019 – Mar 2020

- Provided regular services like book borrowing and purchasing to thousands of members of the society
- Organized various seminars and competitions

### **Bridge Club, the Chinese University of Hong Kong**

*Treasurer*

Hong Kong  
Jan 2019 – Dec 2019

- Hosted an MP Pair Competition with 60 participants
- Applied student activity fund on behalf of the student association

## SKILLS

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### **Languages**

Native in Cantonese, Fluent in English

### **Programming Languages**

C, C#, Java, JavaScript, Julia, PHP, Python

### **Familiar Libraries**

NumPy, Pandas, Scikit-learn, XGBoost, Pytorch

### **Frameworks**

React.js, Node.js, Express, Mongoose

### **Tools**

Microsoft Office, Visual Studio, Android Studio, Git, AWS