

# ● Mark Cai Yee Lee ●

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🌐 <https://github.com/brokenax3>

## EDUCATION 🏛️

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### University of Wollongong

Wollongong, NSW

*Bachelor's of Engineering (Computer Engineering)(Honours)(Dean's Scholar)*

- Expected Graduation: July 2022
- Weighted Average Mark (WAM): 85.01
- Cumulative Grade Average Point (CGPA): 3.97

### Sunway University

Subang Jaya, Malaysia

*Western Australian Certificate of Education (WACE)*

- ATAR: 94.65

### Catholic High School

Petaling Jaya, Malaysia

*Malaysian Certificate of Education*

- Result: 3A+ 5A 1B 1C

## EXPERIENCE 🏢

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### University of Wollongong

Sydney, Australia

*Researcher*

*December 2021 – March 2022*

- Researching the practical use of neural networks on vehicle counting
- Creating a prototype system which can count vehicles under daytime and nighttime environments
- Producing a research paper on the proposed system

### University of Wollongong

Sydney, Australia

*Tutorial Demonstrator*

*March 2021 - June 2021*

- Assisting and conducting tutorials for a first year engineering subject
- Helping first year engineering students plan a sustainable village project
- Advising students on project management and risk management

### Pusat Tuisyen Seri Cerdik Intelek

Bukit Jalil, Malaysia

*Private Tutor*

*December 2016 – March 2017*

- Tutoring primary school students English and Mathematics

## ACHIEVEMENTS 🏆

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- UOW Engineering and Information Sciences Summer Research Scholarship 2021
- UOW Dean's Scholar
- UOW Engineering and Information Sciences Dean's Merit List 2020

## PROJECTS 📁

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### **Smart Energy Sharing Wireless Local Area Networks**

- Final Year Thesis
- Experimenting with energy sharing policies and how energy sharing can benefit access points
- Researching how access points with a limited energy source can use energy efficiently to service the most users

### **Real-time Vehicle Counting, Low Lighting and Accuracy Enhancement**

- UOW Summer Research Scholarship Program
- Co-author for the paper Vehicle Detection, Counting and Classification - Accuracy Enhancement (Submitted to ICIC2022 Conference)
- Object detection using a convolution neural network
- Object tracking using a Kalman Filter, Hungarian Matching and Object Intersection over Union
- Nighttime detection using headlight pairing

### **Ordering Product Microservices**

- Software Engineering Practices and Principles - CSCI318
- Using Java and Spring Boot to product microservices which enable product ordering and database management via REST and internal messaging using Apache Kafka

### **Truck Hazard Detection System**

- Engineering Design and Management 3 - ECTE350
- Writing user interface for Main System Hub using QT Creator and GStreamer Libraries
- Interfacing a camera module and ultrasonic sensor module with the main unit using RTSP streams and SSH commands
- Organising group work, meetings and overall project coordination

### **Indoor Localisation using Bluetooth Low Energy**

- Scholar's Project - ECTE355
- Experimentation with localisation using trilateration and Bluetooth beacons
- This project uses Gatttool on Linux to get Received Signal Strength Indicator and the data processing uses MATLAB

### **Custom Kernel for Samsung Galaxy Tab 2017 (SM-T385)**

- Removing Samsung KNOX to enable root access and installation of Magisk
- Experimenting with Device Tree, Vendor Specific Blobs and building TWRP Recovery

### **Markdown Tools Plugin - Neovim**

- Writing custom functions using Lua to automate repetitive tasks when writing LaTeX and Markdown on Linux

### **Telegram Bot**

- Self-hosted Telegram bot to send news and currently airing anime on a daily basis using Python

### **Dementia Patient Activity Tracker**

- Event driven programming using C++ and an Arduino

## Skills and Software ☰

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- **Coursework:** Circuit and Systems, Wireless Networks, Internet of Things, Digital Signal Processing, Electronics, Control Theory, Communication Systems, Programming Autonomous Systems, Embedded Systems, Computer Vision, Deep Learning
- **Software and Tools:** MATLAB, AVR Studio, RobotOS, Microsoft Office, Vim, QT Creator, AutoCAD, Ubuntu, Arch Linux, CMake, Android Studio, OpenCV
- **Programming Languages:** Python, C, C++, MATLAB, Java, Bash, Lua, Assembly
- **Languages:** English, Mandarin, Cantonese, Hokkien, Bahasa Malaysia

## EXTRACURRICULAR ACTIVITIES

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### **President**

*Cooperation Club, Catholic High School*

- Managing club daily affairs and organising quarterly activities
- Converting club member database paperwork to digital systems

**Petaling Jaya, Malaysia**

*Jan 2016 - Dec 2016*

### **Webmaster**

*Cooperation Club, Catholic High School*

- Managing club website, Facebook group and online presence

**Petaling Jaya, Malaysia**

*Jan 2015 - Dec 2015*

### **Member**

*Archery Club, Catholic High School*

**Petaling Jaya, Malaysia**

*Jan 2016 - Dec 2016*

### **Member**

*Track and Field Club, Catholic High School*

**Petaling Jaya, Malaysia**

*Jan 2012 - Dec 2015*

### **Member**

*Chinese Diabolo Club, Catholic High School*

**Petaling Jaya, Malaysia**

*Jan 2012 - Dec 2012*

## REFERENCES \*

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### **Associate Professor Kwan-Wu, Chin**

Head of Postgraduate Studies

kwanwu@uow.edu.au

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### **Associate Professor Le Chung, Tran**

School Adviser for International Students

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