

EDUCATION

The University of Michigan College of Engineering
BS in Data Science & Computer Science

Ann Arbor, MI
September 2025 – May 2029 (anticipated)

The Independent Schools Foundation Academy
International Baccalaureate (IB) Diploma

Hong Kong, HK SAR
August 2021 – June 2025

RESEARCH EXPERIENCE

ISFA Shuyuan Research Program

Hong Kong, HK SAR

First Author (Published)

June 2023 – May 2025

- Conducted research “Evaluating the Feasibility of Using Vertical Take-Off and Landing (VTOL) Aircraft to Replace Helicopters for Rescue Missions.”
- Constructed a VTOL prototype with vertical takeoff, horizontal flight, and stable hover; designed a modular airframe with dual rotating exhaust nozzles using Fusion 360; integrated control systems using an ESP32 microcontroller, gyroscope, and servo motors.
- Found that although the VTOL prototype may function as well as a helicopter in short missions, limitations in operation and range, as well as production costs, render it impractical; stated that future innovations may change this.
- Paper published in a physical journal (no link): Bauhinia Journal, Volume X, Issue 2, Pages 9 to 21 (ISSN 2409-4064)

ISFA Shuyuan Research Program

Hong Kong, HK SAR

First Author (Published)

April 2023 – December 2024

- Researched the “Development and Evaluation of a Low-Cost Open Source Power Monitoring and Recording System for Solar Panel Efficiency Analysis.”
- Used an ESP32 microcontroller, INA219 sensor, and microSD to construct a customizable power monitoring system; conducted a 15-day test at the ISF weather station, comparing results to those of a commercial system.
- Analyzed data using PowerBI, accounting for solar panel size and efficiency; found a strong R^2 correlation despite minor discrepancies due to environmental shadows, suggesting high reliability.
- Paper published in IEEE-YE 2023: https://www.researchgate.net/publication/386508879_Development_and_Evaluation_of_a_Low-Cost_Open_Source_Power_Monitoring_and_Recording_System_for_Solar_Panel_Efficiency_Analysis

ISFA Shuyuan Research Program

Hong Kong, HK SAR

First Author (Published)

December 2021 – April 2022

- Researched “The Potential of Tracking Solar Panels in Hong Kong Compared to Fixed Panels.”
- Used PowerBI to analyze 3 years of solar panel output data from the ISF Center for Renewable Energy Education; visualized power generation patterns across times of day and seasons using line plots and matrix tables.
- Found that due to shadow interference from Hong Kong skyscrapers, tracking solar panels only generated 29% more energy than fixed panels; because tracking panels cost 25% more, concluded that fixed arrays offer better ROI.
- Condensed poster presentation of data published by AGU: <https://agu2022fallmeeting-agu.ipostersessions.com/Default.aspx?s=13-4E-8F-0E-A8-42-2E-71-74-37-18-20-F4-AF-E1-CE>

PROFESSIONAL EXPERIENCE

Crostick Industrial

Hong Kong, HK SAR

Contractor

January 2024 – May 2024

- Contracted to design and build 1 unit of an office door lock that opens automatically when a recognized phone connects to the office Wi-Fi, and locks automatically when no device is connected; the design parameters were that the lock should be made with commercially available parts for easy maintenance, require no manual operation, and be made at a per unit cost of 1,500 HKD or less.
- Used an ESP-32 chip and Wi-Fi module to control a solenoid lock within the parameters; provided a blueprint for design of the lock.

Look4Kol

Hong Kong, HK SAR

Web Developer

June 2023 – August 2023

- Look4Kol is a platform that connects small companies with influencers for advertising purposes.
- Designed a new user dashboard for partner influencers; introduced a popularity panel that permits influencers to generate a scatter graph to visualize views and clicks on their profile over a set period of time; added a panel that lists all the advertisements the influencer is featured in, alongside income from those ads and a record of commissions from different companies.

En-Trak

Hong Kong, HK SAR

Software Developer

March 2023 – October 2023

- Developed an API to fetch data for En-Trak TEP, an application that tracks and displays power usage and sustainability data for organizations that own commercial real estate, including private companies, conference centers, and schools.
- Used Go to develop the API with object-relational mapping to access Firebase databases maintained by En-Trak; deployed the API on the En-Trak TEP application in 2023.

Qirui Pay

Hong Kong, HK SAR

Founder & Developer

March 2022 – November 2024

- Programmed and developed Qirui Pay, an app permitting organizations to issue their own unique currencies pegged to local fiat; the use cases for Qirui Pay are schools and organizations that issue points, tickets, or currencies that can be redeemed for real money or items.
- Presented a paper examining the technology, security, and use cases for Qirui Pay during its trial period from 2022 – 2023, during which time it recorded around 52,000 USD in transactions, at the 49th International Exhibition of Inventions Geneva; received a Silver Medal.
- Publication: https://catalog-admin.palexpo.ch/media/invention_invention_documentation/0c01584c-dd02-41e8-9ac5-7852d0346e95.pdf