Mathus Jirapunyawong

Chemical Engineering student at the Hong Kong University of Science and Technology with a strong foundation in materials science and battery technology, with experience in scientific programming and full-stack web development.

Email mathus5421@gmail.com **WhatsApp** +66 958913964 **Phone** +358 44 950 6831
Address Bangkok, Thailand **GitHub** Tew12345678910 **Website** mathus.me

Experience

Engineering Intern Jun 2024 – Aug 2024

Product Platform Development, Arun Plus Co., Ltd.

- Executed Li-ion battery recycling experiments and assessed industry feasibility in Thailand, focusing on material recovery efficiency and environmental impact.
- Led a social experiment on a battery-collection business model, informing refinements to the investment strategy.

Research Intern at Advanced Materials Research Group May 2023 – Aug 2023

Department of Biomechatronic Engineering, National Taiwan University (under Taiwan Experience Education Program)

- Collaborated with UL Solutions Taiwan to improve ionic conductivity in Al-doped $Li_7La_3Zr_2O_{12}$/PEO hybrid solid-state electrolytes, contributing to early all-solid-state Li battery development.
- Conducted materials synthesis, coin-cell assembly, and electrochemical testing, with statistical analysis to evaluate conductivity and stability.

Education

Hong Kong University of Science and Technology (Full Scholarship) Expected June 2027

School of Engineering, Clear Water Bay, Hong Kong

Major in Chemical Engineering Dean list Spring Semester 2024-25

Exchange Study Autumn 2025–26

School of Chemical Engineering,Aalto University, Espoo, Finland

Chemical Engineering

Projects

2024 – 2025 **Web Developer, Thai Prasert Labels Co., Ltd.**

- Built a web-based cost and project management platform to modernize legacy workflows, introducing automated pricing, role-based authentication, and centralized project records.
- Designed the UI in Figma and implemented with Next.js and Tailwind CSS, deploying services on Google Cloud.

2024 – 2025 **University Food Delivery Platform**

- Built a campus food delivery platform end-to-end: React Native app, Next.js admin web, TypeScript, REST APIs, hybrid NoSQL + PostgreSQL data layer, and containerized Python Flask services.

2023 – 2024 **Enhancing HVAC Efficiency through Phase Change Materials (PCM) Integration**

- Developed computational models for ICC Building, Hong Kong using Python and NumPy/Pandas to simulate heat transfer dynamics in HVAC systems.
- 1st Runner-Up and Best Presenter, Joint University Eco-Business Innovation Award.

2023 – 2024 **Eco Cool (Second-Prize Award from World Engineering Day Hackathon 2024 by WFEO)**

- Designed a clay-tile wall cooling system with integrated water flow to provide a cost-effective evaporative cooling solution for refugee shelters.
- Validated the design through Python-based heat-transfer simulations, showing a sustained 5–6 °C decrease in internal temperature.