# Matthew Ho

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## Education

**St. Edmund's College, University of Cambridge** *Oct. 2023 - 2027*
MENG ENGINEERING

Course in first year includes electronics, mechanics, linear systems, structures, electrical, thermodynamics, materials and mathematics.
Coursework in the first year includes:
**Python programming for a flood warning system**
- Coding a flood warning system in Python which collects real time data from various monitoring stations.
- Emphasis on proper documentation of code and implementing version control on Git.
- Worked in a group using a central repository.

**Lego Mindstorm**
- Building and testing a hovering helicopter in a team of three.
- Integrating light sensors, actuators and electrical components using MATLAB.
- Working as part of a team, developed communication and teamwork skills.

**Integrated electrical project**
- Constructing an LED based optical link from basic circuit components.
- Using signal theory for the building of modulation, tuning and filter circuits.
- Gaining experience using LTSpice, Picoscope, multi-meters and microprocessors.

**Structural design project**
- Designing, building, and testing a cantilever structure to carry a minimum load at minimum cost.
- Calculating the force distributions in the structure and analysed different materials and fasteners to use.
- Producing engineering drawings of our designs.
- Gaining experience with the use of drills and assembling structures.

**Drawing skills**
- Producing a model of a gravity powered rollercoaster and used motion analysis using CAD (SolidWorks 2022).
- Producing manual drawings by undertaking exercises in the basic principles of projection theory.

**Presentation skills**
- Delivering a talk to a group of 10 people, including peers and academics.
- Writing several laboratory reports which developed my competency skills in Microsoft Word, PowerPoint and Excel.
- Taking part in a debate on sustainability policies.

**Raffles Institution, Singapore** *Jan. 2015 - Dec. 2020*
Singapore-Cambridge GCE A Levels (2020)
H2 Physics (A), H2 Chemistry (A), H2 Mathematics (A), H2 Economics (A), H1 General Paper (A), H3 Game Theory (Distinction)

Singapore-Cambridge GCE A Levels (2019)
H1 Project Work (A)

Singapore-Cambridge GCE O Levels (2018)
Higher Chinese Language (A2)

## Experience

**Agrimax, Singapore – Intern** *Jan. 2023 – May. 2023*
- Spent 5 months as an intern at a biostimulant company, working under the engineering department, focusing on the commissioning of a new production line.
- Assisted in planning and commissioning a production line for biostimulants.
- Work with technical drawings and 3D modelling software.
- Visited factory in Bangkok, Thailand to conduct a Final Acceptance Test (FAT) of the assembled line.
- Analyzed and summarized seminar reports.
- Revamped company website using Mobirise software, HTML, CSS and Javascript, to introduce new design and interface, and introduce multiple-language options.

**Singapore – Freelance Mathematics Tutor** *Nov. 2022 – Sep. 2023*

• Taught A-Level H2 Mathematics.
• Planned lessons and tracked students' progress.
• Continuous assessment of students and adapted teaching and learning plans accordingly.
• This experience taught me the value of good communication skills, to get ideas across to different people.

**Singapore Armed Forces – Platoon Commander, Company Third-in-Command** *Jan. 2021 – Nov. 2022*
• Served 2 years of National Service with the Singapore Armed Forces.
• Selected to train in Officer Cadet School and commissioned as a lieutenant.
• Posted to Changi Defense Squadron and served as a platoon commander where I oversaw the training and daily operations of 60 men.
• Promoted to Company Third-in-Command, overseeing 140 men.
• Dealt with the company's administrative matters, handled planning of trainings and events.
• Learnt effective planning and communication skills in a large organization, developed my leadership abilities while leading a large group of people.

**Kidzcare, Singapore – Volunteer** *Jan. 2022– Oct. 2022*
• Took part in Homework Club to help underprivileged children get help with their schoolwork.
• Apart from assisting with schoolwork, organized games and activities during sessions to motivate the children.
• Learned to communicate and work with children and other volunteers from diverse backgrounds.
• Helped in outreach house visits, to check in on these households and raise awareness from our programs.

# Extra-curricular activities

**IBM Machine Learning Course** *Sep. 2022 – Nov. 2022*
- Completed IBM run courses on edX, Machine Learning with Python: A Practical Introduction and Deep Learning Fundamentals with Keras.
- Introduced to the different types of machines learning models, supervised and unsupervised, and learned various algorithms for each model.
- Learned about different types of supervised deep learning models, and how to use neural networks.
- Self-directed learning whilst serving my National Service.

**CS50: Introduction to Computer Science** *Jul. 2022 – Sep. 2022*
- Completed Harvard's CS50 course on edX.
- Introduction to various computing languages C, Python, HTML/CSS, Javascript.
- For the final project, used Flask to combine HTML pages and SQL in Python to create a weight loss tracking website.
- Self-directed learning whilst serving my National Service.

**BrainHack Competition** *Jun. 2020*
- Participated in BrainHack, a cybersecurity competition organized by the Defense Science and Technology Agency.
- Comprised of an online course followed by the competition.
- Introduced to Kali Linux and programs like Metasploit and Wireshark that I used to sniff for data packets during the competition.

**EW Barker Institute of Sports Science Research Programme, Singapore** *Jan. 2020 – Oct. 2020*
- Developed a research project to investigate the effects of static and dynamic warm up on performance.
- Successfully carried out experiment and wrote a report on our findings.
- Learned how to conduct research involving volunteers, from finding participants to considering individual human factors.
- Culminated in a trip to Auckland, New Zealand, where we got to learn from professional sports science researchers at Massey University and AUT Millenium.

**School-Based Science Mentorship Program, Singapore** *Jan. 2017 – Oct. 2017*
- Worked in a team of 3 students to create a sustainable plastic using discarded crab shells.
- Successfully designed and carried out methodology to extract chitosan from crab shells and manufacture thin plastic films.
- Learned to use lab equipment such as Fourier Transform Infrared Spectroscopy.
- Wrote a research report and earned a silver award at the Singapore Youth Science Conference.
- Experienced going through the full research process from formulating hypotheses to engineering a final product.

## Additional skills

**IT** Proficient with Microsoft Office; Python; HTML/CSS; CAD (SolidWorks).
**Sports** Played rugby at school; Part of the University touch rugby and pool team.
**Driving** Class 3 license (Singapore).

**Languages** Proficient in Mandarin.
**Music** Violin (ABRSM Grade 8), Guitar

# Referees

Dr Kristen Macaskill, Director of Studies, St. Edmunds College, University of Cambridge, kam71@cam.ac.uk
Mr. Melvin Yeo, Economics Teacher, Raffles Institution, Singapore, melvin.yeo@gmail.com