

Zhe Wei Kho

Mechanical Engineering student with over five years of experience leading teams. Proficient in **manufacturing carbon fibre composites, CAD design, finite element analysis** and **project management**.

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EDUCATION

The University of Sheffield, United Kingdom

2022 – Present

BEng (Hons) Mechanical Engineering

First-Class

Modules: Mathematics for Engineering Modelling (87%), Fluids Engineering (85%), Materials Processing (84%), Computational and Numerical Methods (80%), Heat Transfer (75%), [Full List](#)

- International Undergraduate Merit Award – scholarship worth £12,500 each year
- Faculty of Engineering Excellence Scholarship – bursary worth £1,000 each year
- Sheffield Engineering Leadership and Service Award (SELSA) Cohort 2023 – leadership academy
- Edgar Baidon Prize in Mechanical Engineering – highest grade in mechanical design modules (80.2%)

Methodist College Kuala Lumpur, Malaysia

2020 – 2021

Cambridge International GCE: Advanced Level (A-level)

A*A*A*

Subjects: Maths (A*), Physics (A*), Chemistry (A*), Further Mathematics (A, AS Level)

WORK EXPERIENCE

INSIGNEO Institute

The institute for *in silico* (computational) medicine at the University of Sheffield.

Undergraduate Researcher

Jun 2024 – Jul 2024

- Researched a novel **3D-printed titanium** porous structure to improve orthopaedic implant success rates by enhancing osseointegration (bone ingrowth) through personalisation.
- Designed a Python script for automating the design process to reduce simulation times to **<15 minutes**; implemented using Ansys Mechanical APDL FEA and **nTop implicit modelling software**.
- Managed the project independently under the supervision of [Dr Vee San Cheong](#) to meet all main objectives **within 6 weeks**; Note: this project was extended as a final-year project.

2H Offshore

Renewable energy structural engineering company serving clients like Shell, Wood, and Baker Hughes. <https://2hoffshore.com/>.

Structural Engineer Intern

May 2022 – Aug 2022

- Designed spreadsheets to analyse pad eyes and cathodic protection systems with MS Excel VBA Macros to automate processes; worked with [PTS 11.22.02](#) and [DNVGL-RP-B401](#) standards.
- Verified feasibility of designs and accuracy of engineering drawings in SolidWorks and Ansys Mechanical FEA for client delivery; worked with [ISO fasteners](#).

STUDENT TEAMS

Project Hex

Student-led drone team specialising in autonomous Unmanned Aerial Systems (UASs).

Lead Structural Design Engineer

Jul 2023 – Jul 2024

- Co-led the redesign of [Vulcan V3](#), a 20kg, 3.2-meter wingspan eVTOL drone capable of deploying **five medical packages**; achieved overall mass reduction of 20%.
- Developed the team's first winch-operated delivery system controlled via Arduino Nano and Raspberry Pi 4; >40 drop tests were performed from 15 meters over 6 months under **IOSH safety standards**.
- Innovated manufacturing processes by designing moulds to be manufactured via 3D printing instead of CNC milling for wet layup carbon fibre composites which **cut lead times by 83%** down to 1 week.
- Implemented a new part management system in Fusion 360 and migrated project management tools to Google Workspace to improve collaboration across our **60 members**.

Structural Design Engineer

Oct 2022 – Jun 2023

- Redesigned the nose of Vulcan V2, implementing a modular assembly system for the Gremsy Mio gimbal to reduce mass by 12%.
- Assisted dry-fit assembly, performing root cause analysis on fuselage assembly tolerance issues for over 50 components within 1 week.

PROJECTS AND COMPETITIONS

RideCanada4MS Recumbent Trike Fairing

Oct 2024 – Apr 2025

Student Project – project management, client management, process planning

- Led the development of a fairing to improve cycling efficiency while travelling **8000 km** across Canada to raise **1 million USD** for multiple sclerosis.
- Planned and executed **3-week** manufacturing timeline of prepreg carbon fibre fairing components.
- Manufactured custom high-temperature moulds using 3D printed negatives and glass-fibre epoxy paste.

Electric Bicycle Gearbox

Sep 2023 – May 2024

Module Project – project management, finite element analysis, design for manufacturing (DFM)

- Led the design of a 2-step reduction gearbox – in line with [EAPC restrictions](#), placed **top 1% in efficiency**.
- Developed a prototype and manufacturing plan to deliver the gearbox within 24 weeks.
- Verified gear design strength analytically and numerically with static load and buckling FEA analysis.

Engineering You're Hired: Prosthetics Device Case Study – 1st Place

Feb 2024

Module Project – business management, product design, materials selection

- Developed a 222nm wavelength UV medical device to reduce inflammation caused by surgery, specifically for hip and knee joint replacement surgeries; received **distinction** for individual performance.
- Selected product material using Ansys Granta Edupack, ensuring safety, sustainability and affordability.

Water Bottle Rocket

Mar 2023 – Jun 2023

Module Project – project management, thermodynamics, dynamics, fluids

- Led the design of a rocket for delivering medical supplies, achieving top 20% in accuracy.
- Developed a **MATLAB app** to simulate rocket trajectory to calculate the angle and pressure required.

SOCIETIES

Malaysian and Singaporean Night (MNIght)

Award-winning student-led theatrical production showcasing Malaysian culture. <https://instagram.com/sheffieldmnight>

Technical Director

Sep 2023 – April 2024

- Directed **70+ hours** of rehearsals comprised of 30+ scenes and 10+ musical performances, over 5 months.
- Set and managed the artistic vision of lighting, backdrop, and audio – notably liaising with the Student Union Technical Team to program 150+ lighting cues within 2 hours.

Young Malaysian Engineers (YME)

Engineering student body connecting Malaysian students worldwide to industry. <https://www.ymeglobal.org/>

Vice President of UK Chapter

Oct 2022 – Jan 2024

- Led a team of 40+ in event planning, successfully hosting a 2-week case study challenge with Intel; attracting **120+ participants** across Malaysia and the UK.
- Redefined YME's internal culture by adopting data-driven decisions, monthly town hall meetings, and establishing exclusive internal events with partners such as PwC.
- Managed global events, such as the Malaysia-UK Students Outreach Fair (MUSOF) and the Malaysian Students' Technology Conference, with a total turnover of over 13,000 MYR.

EVENTS

SMSA SKY Career Empowerment Day

Feb 2024

Provided internship insights to Malaysian students in Sheffield as a panel speaker for an audience of 50.

MCKL Engineering Society Workshop: Introduction to the Mechanisms of the Car

Feb 2021

Introduced the mechanical features of a car, including the differential, gearbox, engine and electronic systems.

SKILLS

2D/3D CAD Design Modelling

Autodesk Fusion 360, nTop, SolidWorks, AutoCAD

Scripting & Data Analysis

Python, Granta Edupack, MATLAB, Simulink, PostgreSQL, MS Excel VBA Code

Finite Element Analysis (FEA)

Ansys Mechanical APDL

Electronics and Control Systems

Arduino, Raspberry Pi

Hobbies

Endurance running, Cooking

Languages

English – Native/Bilingual, Chinese – Professional, Malay – Professional, German – Beginner