TOBY BUNN

Norwich/London
tobybunn4@gmail.com | linkedin.com/in/tobybunn

Education

UNIVERSITY COLLEGE LONDON (UCL) — London
Master of Engineering, Mechanical Engineering, June 2024
Working at First Class Degree Honours, 78%
Engineering Workshop Mentor 2022/23, Transition Mentor 2021

WYMONDHAM COLLEGE — Norfolk
A-Levels A* A* A, August 2020

Projects/ Experience

2023

AWE RESEARCH INTERNSHIP (10 WEEKS) — London
Completed research internship entailing 'Modelling Thermal Transfer in a Diamond Anvil Cell (DAC)'. Utilised **Abaqus** to model heat transfer between DAC components. Redesigned the heating system to minimise losses. Overall, increased specimen temperature by **7.6%** and decreased temperature difference between specimen and thermocouple by over **50%** from the previous design.

2022/23

TACTILE SENSORS AND MACHINE LEARNING DISSERTATION — London
Completed project entitled 'Machine-Learned Piezoresistive Sensors for Bilingual Sign Language Recognition'. Novel sensors were designed, prototyped, and tested to find alternatives to current sensorised technology. Programmed **Arduino** and designed circuit for data collection. Exploited machine learning using **Python** for sign language classification. Presented at **BioMedEng23** conference as a poster presentation in September 2023.

UCLR FORMULA STUDENT — London

2022

CAD Engineer: Utilised **Fusion 360** to design parts and produce a full CAD model of the vehicle. Developed practical skills by working on engineering build. Finished **2nd** place in the sprint event and **21st** overall at IMechE FSUK 2022.

2022/23

Simulation and Performance Engineer: Used **MATLAB**, **OptimumLap**, and **IPG** simulation software to virtually test different setups of the vehicle for optimising the performance of the 23/24 car.

2023

Cost Team Lead: Led a **team of 10 students** to produce a highly detailed costed bill of materials and cost report under strict time constraints.

2022

UCLR SUMMER STUDENT INTERNSHIP — London
Designed a new steel spaceframe for the UCLR Formula Student vehicle on **Fusion 360**. Utilised **Ansys FEA** to determine where mass could be reduced, and an iterative process obtained the best design which preserved stiffness and decreased the mass by **25%** while abiding by competition rules.

2022

EV BATTERY TRAY DESIGN AND ANALYSIS PROJECT — London
Led a **team of 6** through a full design process for a low-mass and low-cost battery tray and bracket which must withstand various loads. Utilised tools including **generative design** and **topological optimisation** on **Fusion 360** to aid with the process. Created a manufacturing process for the bracket using **CAM on Fusion 360**. Presented the two parts to two industry panels.

Skills

Fusion 360, Ansys Structural FEA, Ansys Fluent CFD, Abaqus, MATLAB, Simulink, Python, Arduino, IPG, CES Edupack.
Strongly developed a wide range of skills like leadership, teamwork, communication, presentation, organisation, time management, problem-solving, multi-tasking, and prioritising.
Developed and enhanced engineering skills like **engineering design** and following an iterative design process, producing a bill of materials, using **FEA**, **topology optimisation**, and **generative design** to improve designs, and using **CAM** to produce a manufacturing process.

Personal

Senior UKMT Maths Challenge, 2 consecutive gold awards.
UKMT Senior Kangaroo Challenge, completed.
Senior Náboj International Maths Challenge, Cambridge University 3rd place.
John Street inter-house Maths Challenge, led a winning team twice.
Captained various football and cricket teams throughout my school years.

References available upon request