

Education

University of Sheffield (Predicted 1:1) **Sept 2019 – June 2024**
MEng General Engineering (Systems & Control) (with YINI)

Dissertation: “Using agent-based modelling to simulate adaptation and migration decision-making of coastal households against sea-level-rise induced flooding in the UK”

4th year modules: Real-time Embedded Systems, Data Modelling & Machine Intelligence, Cybersecurity, Deep Learning, Multisensor Decision Systems

3rd year modules: State-Space Control, System Identification, Fuzzy Logic, Robotics, Digital Signal Processing, Hardware-in-the-Loop Prototyping, Biomechatronics, Machine Learning

Nanyang Technological University Singapore **June 2023 - July 2023**

Bioprinting: Printing & Applications (A), Artificial Intelligence and Data Mining (B)

Taunton School **Sept 2017 – June 2019**

A-levels - Maths (A*), Further Maths (Mechanics) (A*), Physics (A) and Product Design (A)

Experience

Centre for Process Innovation (CPI) **Jul 2022 – June 2023**
Product Development Engineer

- **Systems Engineering:**
 - Contacted stakeholders in the consortium of a **£1.4 million** UKRI-funded R&D project to initiate a requirements capture meeting to clarify physical dimensions, constraints and performance requirements of a prototype.
 - Used **SOLIDWORKS** to design 3D printed parts to fit with off-the-shelf components to build an adjustable rig for the optical subsystem testbed.
 - My actions led to numerous follow-up technical meetings, bringing the client to on-site testing and a successful handover at their site to deliver our **£65,000** work package within the project schedule.
- **Capability Development:**
 - Led the development of in-house capability to 3D print conductive ink on flexible substrates.
 - Worked with the Formulations team to test filaments and inks, and created a procedure to use non-planar toolpathing to produce geometry conformal electrical traces and sensors.
 - The final output was a recyclable printed shoe insole with embedded capacitive sensors to monitor pressure. I exhibited and presented this at **TCT3Sixty**, the UK’s largest additive manufacturing event, finding new contacts for CPI.
- **Research & Communication:**
 - Worked in a team of 8 to research the Planetary Boundaries framework, with my section focusing on Freshwater Change.
 - Produced a report and presented across CPI and the High Value Manufacturing Catapult (HVMC) Early Careers Network. This launched the **HVMC-wide ‘Design for Sustainability and Circularity Framework initiative’** for practising sustainable product development.

Volunteering and extra-curricular projects

iForge Makerspace

Oct 2021 – Present

Operations Team Leader

- **Rota Planning:** Created the shift schedule for **50** student reps so the space can be open 5 days a week 12-8PM. Collected schedules using Google Forms and transformed into a timetable that is distributed by technical skill and experience. Used a spreadsheet for managing shift clashes.
- **Procurement System:** Oversee spending and use of budget from donors and department grants. Created new procedures to enable student reps to top-up low stock. Created a tracking dashboard in Google Sheets for staff to process orders.
- **Floor Planning:** Devised and implemented a new layout for the iForge Heartspace Lab to utilise space more efficiently, accommodate new craft equipment and increase user engagement with the space.

Railway Challenge at Sheffield (RCAS)

Sept 2019 – present

Innovation Coordinator

IMechE Railway Challenge is a student-led engineering project to design, manufacture and run a miniature locomotive at a competition against other universities and graduate teams.

- **Geospatial Analysis:** Expanded upon a **Python**-based satellite imagery script that quantifies tree coverage over railtrack to identify risky sections of low adhesion.
- **Risk Management:** In 2020, I worked with the Departmental Safety Officer to enact COVID-safe measures, create 7 Risk Assessments and Safe Operating Procedures for the manufacturing process, and trained all team members on lab safety. This enabled the team to build the locomotive and compete physically in the 2021 competition, where we placed 2nd

Sheffield Hydroelectric Power Project (SheffHEPP)

May 2021 - May 2022

Electrical, Electronic & Control Systems Team Lead

- **Report Writing:** Wrote the Electrical Electronics & Control Systems section of the feasibility study to the Nether Langwith Council, detailing the design and implementation of the control system and power electronics to the stakeholders.
- **Scale Testing:** Devised a 1:10 scale model of the hydroelectric installation to engage team members with hands-on circuit building and testing of a **SIMULINK** based design.

General Engineering Masters Society (GEMSoc)

Sept 2020 – May 2021

Outreach Officer

- **Networking:** Launched a family support network for **200** undergraduates to meet online during COVID-19. Started an alumni network between current members and graduates.
- **Charity:** Organised a RED January team to raise **£489** for mental health charity Sport in Mind.

Skills and Awards

- **Programming & IT:** Python (Geopandas, PyTorch, OpenCV), C (Real Time), Arduino, MATLAB/Simulink, Data Acquisition (DAQ), qGIS, meshmixer, HTML, CSS, photogrammetry.
- **Workshop :** Polymer 3D printing (Fused Deposition Modelling, non-planar slicing, Stereolithography), CNC router/mill programming and maintenance.
- **Gold Duke of Edinburgh Award:** expedition planning, teamwork, community service.