

Education

- 2024–2025 **Masters of Arts - Product Design**, *Royal College of Art*, London, UK
- **Focus:** Interdisciplinary innovation, bridging the gap between technical engineering and user-centric design.
 - **Key Projects:** 'ReformEat' (Nutritional Fabrication), Sustainable Packaging Solutions.
 - Developed expertise in studio setups, working alongside architects and industrial designers.
- 2020–2024 **Bachelors of Engineering - General & Civil (2:1)**, *Durham University*, Durham, UK
- **Core Modules:** Electronics, Electrical Engineering, Mechanics, Civil Engineering, Numerical Modelling (MATLAB).
 - **Thesis:** Micro-Structured 3D Printing (First Class).
 - **Design Project:** River Retaining Wall (First Class & Commendation).
- 2013–2020 **Secondary Education**, *Olchfa Comprehensive School*, Swansea, UK
- **A-levels:** Mathematics (A*), Further Mathematics (A), Physics (A), Art & Design (A), Welsh Baccalaureate (A*).
 - **GCSEs:** 10 A*s, 2 As.

Technical Skills

- Engineering FEA (Finite Element Analysis), Structural Calculations, System Integration, Mechatronics (Stepper motors, Linear actuators), Electronic Circuit Design.
- Design & CAD SolidWorks, Fusion 360, Rhino, AutoCAD, Blender, Adobe Creative Suite (Photoshop, Illustrator, InDesign, Premiere Pro, After Effects).
- Prototyping 3D Printing (FDM, SLA, Micro-structure), Laser Cutting, CNC Machining, Woodworking, Metal Fabrication (Welding, Turning), Biomaterial Synthesis.
- Programming Python (Pandas, NumPy, FullControl Library), C++ (MQL5), HTML/CSS/JavaScript (Frontend), Git/Version Control, MATLAB.
- Tools Jupyter Notebooks, VS Code, Replit, ModelsLab API, OpenAI API.

Professional Experience

- July–Sept 2023 **Research Collaborator in HCI**, *Swansea University*, Swansea, Wales
- Collaborated with the Computer Science Department to investigate IoT devices for independent ageing.*
- **Hardware Engineering:** Designed and manufactured custom 3D-printed casings for sensor units to ensure durability and aesthetic integration in participant homes.
 - **Data Analysis:** Responsible for installing and monitoring sensors; analyzed complex datasets using Python to visualize household activity patterns (e.g., cooking/cleaning).
 - **Research Output:** Co-authored a paper published at **NordiCHI 2024**. Created the supplementary video submission explaining the system architecture.
 - **Problem Solving:** Troubleshot hardware failures in situ, requiring rapid redesigns of external casings and sensor calibration.

June 2023 **Land Surveyor**, *Durham University*, Durham, England

- **Fieldwork:** Operated a Total Station to conduct precise leveling and detailing surveys along the River Weir.
- **Reporting:** Processed survey data to produce a technical report analyzing topographical features for potential construction constraints.
- **Teamwork:** Coordinated with a team of engineers to ensure data accuracy and efficient coverage of the survey area.

Summer 2020 **Surveying Assistant**, *Swansea University & Council*, Swansea, Wales

- **Aerial Surveying:** Piloted a drone over the Arena Abertawe infrastructure site (Swansea Town Centre) to capture high-fidelity aerial imagery.
- **Modelling:** Utilized photogrammetry software to generate accurate 3D models and visualisations of the new arena and car park complex for stakeholder presentations.

Major Projects: Engineering & Design

2025 **ReformEat: Novel Nutritional Fabrication Machine**, *Royal College of Art*

A rapid additive manufacturing system for gelatine-based nutritional snacks.

- **System Design:** Designed and built a desktop appliance from scratch, integrating mechanical hardware (stepper motors, linear actuators) with custom electronics and wiring.
- **Rheology & Science:** Conducted extensive research into food rheology, collaborating with experts at Imperial College to formulate a stable, printable gelatinous material.
- **Software Integration:** Developed "ReformEat", a web-based companion application allowing users to input nutritional data and personalize snack geometry.
- **Outcome:** The complete system was successfully demonstrated at the RCA 2025 Expo and is listed for the **James Dyson Award 2025**.

2025 **Regent's Canal Redevelopment Proposal**, *Royal College of Art*

Led a 4-person interdisciplinary team (Fashion, Textiles, Service Design) to propose a redevelopment of the Camden Town market canal area.

- **Leadership:** Managed weekly supervisor meetings and project timelines. Identified team strengths early by organizing introductory presentations.
- **Conflict Resolution:** Overcame significant language barriers within the team by restructuring workflows, allocating visual design tasks to members with lower English proficiency to maintain high productivity.
- **Outcome:** Delivered a cohesive proposal that integrated urban planning with textile heritage.

2025 **Sustainable Packaging (Orange Peel Biomaterial)**, *Royal College of Art*

A 6-month group project addressing fresh food packaging waste.

- **Material Innovation:** Researched and synthesized a novel biomaterial using powdered orange peel to replace single-use plastics.
- **Cross-Disciplinary Work:** Collaborated with animation, mechanical engineering, and interior design students.
- **Presentation:** Delivered a keynote presentation contextualizing the innovation through a strong brand narrative.

2024 **Micro-3D Printing Thesis**, *Durham University*

Developed a novel approach for micro-structured 3D prints using TPU on conventional printers.

- **Computational Design:** Used Jupyter Notebooks and the **FullControl** Python library to write direct G-code, bypassing standard slicers.
- **Engineering:** Engineered complex lattice structures and parametric designs without specialist machinery.
- **Result:** Achieved a **First Class** grade; praised for technical creativity and repeatability.

- 2024 **Civil Engineering Structural Design**, *Durham University*
Designed structural elements for a complex retaining wall project.
- **Analysis:** Performed detailed hand calculations and computational verification for structural loads.
 - **Documentation:** Created full construction documentation and CAD detail drawings.
 - **Result:** Received a First Class grade with a commendation for technical accuracy.
- 2024 **Bamboo Stool Construction**, *Royal College of Art*
- **Constraint-Based Design:** Designed and built a functional stool using only bamboo combs and strips, with no adhesives or traditional joinery.
 - **Rapid Prototyping:** Iterated through multiple designs to ensure structural integrity solely through tension and friction.
 - **Exhibition:** Selected for exhibition alongside 120 other stools.
- 2023 **Open-Source Rube Goldberg Machine**, *Durham University*
Led a team of 5 to design a fully printable chain reaction device.
- **Project Management:** Delivered the project within a full academic cycle, managing file repositories (Git) and user documentation.
 - **Team Dynamics:** Addressed performance issues with an unreliable team member via private coaching; mediated a conflict regarding idea ownership by restructuring meeting minutes to ensure equal voice.

Software Development Portfolio

- 2025 **Trendcast.ai**, *Full Stack Developer*
Idea to fully published video within minutes.
- Built a rapid video generation tool that leverages generative AI APIs to convert text prompts into published video content.
 - Implemented frontend user interfaces and backend processing logic.
- 2025 **GCSE Genius**, *EdTech Developer*
A universal tool to test students' knowledge.
- Developed an educational application using OpenAI APIs to generate tailored quizzes for secondary school students.
 - Designed to adapt to different syllabuses across various subjects dynamically.
- 2025 **CarbonBridge**, *Engineering Tool*
Automate Carbon Calculations for Civil Structures.
- Created a calculator tool specifically for civil engineers to estimate the embodied carbon of structural elements.
 - Focused on user interface simplicity to encourage adoption in engineering workflows.
- 2025 **SoluAI**, *Business Automation*
Identify Effective Ways to Automate Your Business Needs.
- A service platform designed to connect companies with automation experts.
 - Built to analyze business workflows and suggest automation improvements.
- 2025 **CVChameleon**, *Productivity Tool*
Your CV, but adapted for every job application.
- An automated tool that tailors CV content to specific job descriptions.

Leadership & Community

- 2022 **Intern Youth Leader**, *Jubilee Community Church*, Cape Town, South Africa
- **Team Management:** Responsible for helping create resources for various children's and youth groups. Managed small teams of volunteers to run events efficiently.
 - **Resourcefulness:** Adapted to a new cultural environment over a 2-month internship, building rapport with diverse community groups.
- 2021–2022 **Tech Team Volunteer**, *Christian Union*, Durham University
- Managed audio-visual equipment (projectors, sound systems) for large-scale university events.
 - Worked under pressure during live events to troubleshoot technical issues immediately.
- 2017–2019 **Young Leader**, *Beavers (Scouts UK division)*, Swansea, UK
- Assisted in planning and running weekly activities for children aged 6-8.
 - Developed early leadership skills by organizing games and ensuring safety compliance during outdoor activities.
- Academic **Project Leadership Overview**
- **Second Year Design Project:** Led a team of 5 over 9 months. Implemented a GANTT chart for project tracking. Unanimously praised by the team and supervisor in final feedback.
 - **Conflict Resolution:** Successfully managed a situation where team members felt dismissed by a peer. Restructured meetings to ensure inclusive idea sharing and privately addressed the behavior with the individual.

Interests

- Creative Novel product design, DIY electronics, physical computing. I am currently setting up a design studio with a friend to explore these interests commercially.
- Travel Passionate about exploring new cultures and environments. I document my travels through photography and videography, including drone cinematography.
- Sports Active tennis and football player. Enjoy strategy-based activities including chess, board games, and card games.
- Financial Algorithmic trading: Spent significant time developing Expert Advisors (EAs) and indicators using MQL5 (C++ based) for personal market analysis.