Ross Underhill | Engineering Graduate

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Profile

Mechanical engineer with a deep focus on robotics, mechatronics, and motorsport. Known for delivering high-quality results under tight deadlines, completing tasks with precision and a commitment to excellence. Experienced in a wide range of engineering disciplines, including hands-on expertise with CNC machining and manufacturing processes. Skilled at organizing teams with varied skill sets, ensuring each member contributes where they excel to achieve project goals. Adept at conveying complex technical concepts and mentoring others, contributing to successful project outcomes.

Core Skills

- Design Requirements
- SOLIDWORKS
- Autodesk Inventor
- Engineering Mathematics
- Technical Drawings
- Software and Engineering Programming
- Additive Manufacturing
- Leadership and Collaboration
- Effective Communication
- Teaching and Mentorship

Education

BEng

Mechanical Engineering with a Year Abroad
Swansea University (2025)

Year 1 – 81.3%
Modules included Engineering Analysis I & II, Introduction to MATLAB modules, Strength of Materials, Fluid Mechanics I, and Thermodynamics I.

Designed and constructed a rocket propelled wooden glider out of 3mm laser cut spruce as part of a group design project. A leadership role was adopted, and the ability to collaborate with others was refined throughout. Design was described as "near perfect" by lecturers within scrutineering.

Elected subject representative to ensure cohorts quality of education was maintained at a high level. Attained deadline extensions for the modules and provided mediation between cohort and staff to ensure satisfactory conclusions for both sides.

Year 2 – 78%
Modules covered included Computer Aided Engineering, Fluid Mechanics II, Digital Manufacturing, Dynamics, Control Systems and Stress Analysis.

Designed a working cable driven prosthetic hand using FFF manufacturing described as "really well executed" within marking feedback as part of a final design project for Digital Manufacturing.

Prepared the chassis and CVT transmission for a human powered medical cargo vehicle for use within refugee camps as part of a group design project. Initial designs were done through gravity sketch using VR headsets. Final designs and structural simulations were performed inside of SOLIDWORKS.

Year Abroad – A (Equivalent to a 1st)
Modules include Programming & Problem Solving for Engineers, Digital Logic Design, Electronics I, Introductory Biomechanics, and Introduction to Motor Control & Learning.

Studied at the University of New Brunswick in Fredericton, Canada for one year as part of a year abroad programme with Swansea University between 2nd and 3rd year. Main focus was to experience and embrace new cultures in another country while enhancing knowledge of engineering aspects that would otherwise have been missed out on undertaking a standard 3-year degree. Modules focused specifically in areas of electrical engineering and kinesiology that could aid with careers in mechatronics, robotics and bionics.

Year 3 – Currently Undertaking

Modules include Kinematics and Programming for Robotics, Manufacturing Optimization, FEM, Industry 4.0, Fluid Mechanics, Engineering Management and a Research Project.

Final year research project written on the design and implementation of a functional electrical stimulation system.

Designing and building a functioning RC vehicle from 3D printed and reclaimed parts.

A-Levels	**The Cotswold School Academy & Sixth From** Computer Science | ICT | Maths | Physics

Career Summary

Dec 2017 – Jun 2018	**Computer Science and ICT Teaching Assistant** *The Cotswold School Academy & Sixth Form* - Led coursework lessons for approximately 40 GCSE ICT and A-Level Computer Science students, focussing on word processing software and Adobe Suite (Photoshop and Animate) for ICT students. - Guided 8 Computer Science students in developing software using VB or C#, providing debugging support and coaching students through coding challenges. - Prepared and delivered lessons for the final term on C#, SQLite, and WinForms for AS students, with teaching materials still in use today.
Sept 2021 – Nov 2022	**SQA GCSE & A-Level Computer Science Tutor** *Freelance* - Raised a student's grade from F to C in SQA National 5 Computing Science within five months, covering 3 major topics: programming, databases, and HTML/CSS. - Continued tutoring the student at the Scottish Higher level due to the success of the initial sessions at the request of the student. - Developed customised lesson plans and identified areas for improvement to boost academic performance, resulting in a 25% improvement in overall student grades.
Sept 2022 – Nov 2022	**Junior Python Tutor** Freelance - Hired to provide personalised Python programming tutoring to a secondary school student after a recommendation from a previous client. - Focused on building a solid foundation in Python, ensuring a strong understanding of core programming concepts and the ability to apply those concepts across different languages. - Incorporated real-world examples to demonstrate programming concepts, resulting in significant improvement in the student's problem-solving skills and overall coding proficiency.
Sept 2024 – Present	**Student Ambassador** *Swansea University* - Represented Swansea University at Undergraduate and Postgraduate Open Days, engaging with prospective students and families. - Assisted in the delivery of campus-wide engagement initiatives throughout the academic year, helping to increase event attendance and engagement.

Additional Skills

Engineering	Automotive repair, restoration, and maintenance | Soldering | Circuit design and manufacture (milling and chemical etching) | Myoelectric technology
Programming	Python | C# | C | HTML/CSS/JS | PHP | VHDL