Maxwell Catmur

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# Profile

MPhys Physics graduate (First expected) pursuing a Manufacturing Engineer role at Terex in Ballymoney. Practical experience in BOM documentation, material procurement and process improvement, with strong data-analysis (MATLAB/Python), production launch support and clear stakeholder communication.

# Education

**MPhys Physics – University of Warwick October 2022 – July 2026**

**Grade:** First (expected)

* Relevant modules: scientific and high-performance computing, advanced mathematical methods, fluid mechanics, control and materials — strong numerical and programming foundation for process design.
* Developed a PID stabilisation algorithm in LabVIEW for a nodding-donor rig; tested and tuned control parameters to improve stability (86% project mark).
* Implemented finite-difference PDE solvers in C to model heat flow through industrial pipes (95%) and ran 10,000+ simulations for orbital stability using Python.
* Led two 6-person research projects on photovoltaic materials; chaired weekly meetings, delegated tasks and delivered results on schedule (70%+).

**A-levels – Forest School September 2020 – July 2022**

**Grade:** A\*A\*A\*A\*A\* (Maths, Further Maths, Physics, Chemistry, Extended Project)

* Awarded sixth form valedictorian for academic performance.
* Extended Project (5,000 words) on mitigation of climate change through renewables, nuclear and geoengineering — marked 100%.
* Presented research to a cohort of 160+ students and staff, demonstrating clear verbal communication and presentation skills.

# Work Experience

**Undergraduate Researcher**

Warwick Mathematics Institute **June 2025 – October 2025**

* Modelled finite-difference methods across 100+ aeroacoustics simulations, validating numerical stability and improving solver robustness.
* Analysed and compared 10 high-order schemes in MATLAB, optimising trade-offs between accuracy and computational cost — applying data-driven decision-making for process selection.
* Prepared and presented a research poster for a departmental event, communicating technical findings to academic stakeholders.

**Project Manager**

Warwick Aerospace Society **January 2024 – March 2025**

* Managed a 12-person team to design and build a proof-of-concept UHF satellite ground station, coordinating design, procurement and assembly across sub-teams.
* Authored 30+ pages of technical documentation including a detailed bill of materials (BOM); oversaw material procurement and supplier liaison to meet a 10-week delivery target.
* Established meeting cadence and weekly reports for senior leadership, applying planning, standard work and cross-functional collaboration to keep the project on schedule.
* Implemented GitHub version control and MATLAB/Simulink modelling workflows to standardise design data and support reproducible handovers.

**RF Seekers Summer Intern**

MBDA UK **June 2024 – August 2024**

* Worked on SAR imagery processing chains within AESA radar systems; optimised a matched-filter algorithm using FFT techniques, reducing runtime by 85% and improving throughput.
* Co-developed a data-analysis application used by six colleagues for rapid range–Doppler image review, integrating a mid-fidelity check to accelerate decision-making during campaigns.
* Contributed 50+ commits and presented placement outcomes to 20+ technical colleagues, demonstrating clear written and verbal communication and professional software practices.

# Projects

**AI CV Generator July 2025 – ongoing**

* Developed a Python application using OpenAI API and Pydantic to produce structured CV and cover-letter outputs, emphasising data integrity and reproducible templates.
* Built two SQL databases to track applications and outcomes; used results to iterate the generator and improve ATS compatibility.
* Achieved >50% scores on three ATS-checker sites and supported successful applications leading to job offers, demonstrating understanding of ATS keywords and formatting.

**Drinks Ordering Web App August 2018 – September 2018**

* Designed and delivered a web app to process 80+ orders at a 100+ guest event, removing queuing and reducing service delays.
* Implemented asynchronous Ajax updates for real-time order status, improving throughput and user satisfaction.
* Coordinated with bar staff to iterate the workflow, demonstrating hands-on process design and rapid on-site problem solving.

# Skills

**Languages**: Python, MATLAB, C, Simulink, SQL, JSON.

**Libraries:** NumPy, SciPy, Matplotlib, pydantic.

**Tools:** Microsoft Office (Excel, PowerPoint), Git / GitHub, LabVIEW, Origin Pro.

**Soft Skills:** Clear verbal and written communication and presentation, Planning and organisation, Teamwork and cross-functional collaboration, Working under pressure and accountability, Problem-solving and results orientation.

**Interests:** Process improvement (Lean principles, standard work), Manufacturing systems and material flow, Amateur radio.