Maxwell Catmur

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# Profile

Upcoming MPhys Physics graduate seeking a Human Factors / Usability Engineer (Graduate / Early Career) role at Cambridge Consultants. Strong analytical and prototyping skills, experience producing technical documentation and presentations, and a patient-centred, user-focused mindset. Willing to be based in Cambridge and travel internationally.

# Education

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

**Grade:** First (expected)

* Achieved 85% in year one, 89% in year two and 82% in year three.
* Relevant modules: scientific and high-performance computing, advanced mathematical methods, fluid mechanics, electromagnetism and statistical physics.
* Investigated metastability of nucleation in the 2D Ising model using Monte Carlo simulations; co-authored a paper with two other students.
* Numerically solved PDEs in C via finite-difference methods to model industrial heat flow; developed and tested control algorithms in LabVIEW for a stabilisation system.

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

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

* Received sixth-form valedictorian award for best academic performance.
* Produced a 5,000-word extended project on mitigation of climate change through renewables, nuclear and geoengineering, awarded 100%.
* Presented project findings to a cohort of 160+ students and staff, demonstrating clear public speaking and engagement skills.

# Work Experience

**Undergraduate Researcher**

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

* Modelled wave propagation with finite-difference methods across 100+ aeroacoustics simulations, analysing accuracy and computational cost.
* Compared performance of 10 dispersion-preserving schemes in MATLAB to inform algorithm selection and verification activities.
* Prepared and presented a concise 2-page poster communicating methods and results to peers and faculty.

**Project Manager**

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

* Led a 12-member student team to design and build a proof-of-concept UHF satellite ground station; coordinated cross-functional sub-teams and delivery plans.
* Ran concept generation and selection sessions, applying Pugh matrices to choose antenna solutions and iterating designs with stakeholders.
* Authored 30+ pages of technical documentation and regular weekly reports, supporting verification activities and procurement decisions.
* Implemented GitHub-based version control and MATLAB/Simulink modelling for system development, enabling reproducible verification workflows.

**Academic Coordinator**

Warwick Physics Society **March 2024 – March 2025**

* Delivered seven revision lectures and ran weekly academic support sessions, explaining complex technical ideas to audiences of ~100 students.
* Organised a high-profile departmental event with Prof Dame Athene Donald attended by 100+ students and academics, handling stakeholder engagement and logistics.
* Prepared and presented teaching materials and received consistently positive feedback on clarity and communication.

**RF Seekers Summer Intern**

MBDA UK **June 2024 – August 2024**

* Interned in the Modelling and Algorithms team working on SAR imagery processing chains; researched 10+ papers to inform algorithm development.
* Optimised a matched-filter algorithm in MATLAB by implementing FFT, reducing runtime by 85% and improving processing throughput.
* Co-developed a mid-fidelity range–Doppler analysis application used by six colleagues to accelerate post-processing and validation checks.
* Presented a placement review to 20+ colleagues, summarising technical outcomes and demonstrating clear written and verbal communication.

# Projects

**AI CV Generator July 2025 – ongoing**

* Developed a CV and cover-letter generator using OpenAI's API in Python, designed to tailor outputs to job descriptions (user-centred design approach).
* Implemented structured JSON output with Pydantic and automated Word generation using docxtpl to produce consistent technical documents.
* Evaluated outputs with ATS-checker tools, achieving >50% scores across three platforms and iterating on prompts and templates.
* Built SQL databases to track applications and outcomes, using experimental results to refine product behaviour and documentation.

# Skills

**Languages**: Python, MATLAB, C, SQL, JSON, HTML, CSS, JavaScript.

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

**Tools:** Microsoft Office (PowerPoint, Word, Excel), Git / GitHub, LabVIEW, Simulink, MATLAB.

**Soft Skills:** User-centred thinking, Communication and presentations, Teamwork and stakeholder engagement, Analytical problem-solving, Adaptability and willingness to learn.

**Interests:** Human Factors and Usability, Medical devices and healthcare, Prototyping and concept generation, Amateur radio, Tennis.