Maxwell Catmur

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# Profile

Aspiring M Analyst with strong quantitative and modelling background from an MPhys (expected First). Experienced in building complex numerical models, performing rigorous quantitative analysis and producing presentation-ready documents. Keen to apply analytical rigour to M, financial modelling, valuation support, due diligence and client-facing materials.

# Education

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

**Grade:** First (expected)

* Highly numerical degree with advanced modules in scientific and high-performance computing, advanced mathematical methods and statistical physics.
* Extensive experience developing and validating quantitative models (finite-difference PDE solvers, Monte Carlo and N-body simulations) using MATLAB, Python and C.
* Completed a rapid co-authored research project on metastability in the 2D Ising model, producing and analysing dozens of Monte Carlo simulations under tight deadlines.
* Engineered a DC voltage regulator and developed PID control algorithms for laboratory hardware, documenting design choices and test outcomes.
* Demonstrated leadership by chairing and coordinating group research projects, scheduling meetings and ensuring timely delivery of results.

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

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

* Valedictorian award for highest academic performance across the sixth form.
* Produced a 5,000-word extended project on energy and climate mitigation strategies, marked 100%; developed research, synthesis and written-communication skills.
* Presented project findings to an audience of 160+ students and staff, receiving strong feedback for clarity and engagement.

# Work Experience

**Undergraduate Researcher**

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

* Modelled finite-difference methods for wave propagation across 100+ aeroacoustics simulations, tuning schemes for accuracy and computational cost.
* Analysed and compared performance of 10 numerical schemes in MATLAB, producing comparative tables and documented recommendations for supervisors.
* Presented results at a departmental poster event, clearly communicating methodology and findings to technical and non-technical audiences.

**RF Seekers Summer Intern**

MBDA UK **June 2024 – August 2024**

* Optimised a matched-filter algorithm in MATLAB by implementing FFT-based techniques, reducing runtime by 85% and improving end-to-end performance.
* Co-developed a data-analysis application enabling six colleagues to rapidly inspect range–Doppler products, streamlining post-processing and decision cycles.
* Integrated a mid-fidelity validation algorithm to provide fast sanity checks for higher-fidelity outputs, supporting efficient model verification.
* Researched 10+ academic and technical sources to justify modelling choices and contributed regular written updates; presented outcomes to 20+ colleagues.

**Project Manager**

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

* Managed a 12-member team to deliver a proof-of-concept UHF satellite ground station within 10 weeks, prioritising scope and resources to meet deadlines.
* Authored 30+ pages of technical documentation and a detailed bill of materials, producing clear, reusable documents analogous to client-facing deliverables.
* Organised and chaired 30+ weekly meetings, established four sub-teams and implemented GitHub-based version control to improve collaboration.
* Coordinated procurement and stakeholder sign-offs with the Chief Engineer, ensuring timely delivery and quality control.

**Academic Coordinator**

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

* Delivered seven revision lectures and ran weekly academic support sessions for cohorts of ~100 students, tailoring explanations to varied audiences.
* Organised a departmental 10-year anniversary event attended by 100+ students and academics, coordinating speakers and logistics.
* Provided rapid, high-quality support under time pressure and received excellent feedback for communication and organisation.

# Projects

**AI CV Generator July 2025 – ongoing**

* Built an automated CV and cover-letter generator using OpenAI's API and Python, producing structured JSON outputs and templated Word documents with docxtpl.
* Designed Pydantic models and two SQL databases to track applications, outcomes and version history for analysis and reporting.
* Achieved ATS scores >50% on three online checkers and supported two successful job offers from 200 tracked applications.
* Implemented templating and automated document generation workflows to produce consistent, presentation-ready materials analogous to pitchbooks and client decks.

# Skills

**Languages**: Python, MATLAB, C, SQL, JSON, HTML/CSS/JavaScript (basic).

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

**Tools:** Microsoft Excel (advanced: formulas, pivot tables, scenario analysis), Microsoft PowerPoint, Microsoft Word, Git / GitHub, Simulink, LabVIEW.

**Soft Skills:** Analytical thinking and quantitative analysis, Clear written and verbal communication, Organisation and prioritisation under tight deadlines, Teamwork and stakeholder collaboration, Attention to detail.

**Interests:** Financial advisory and M, Industry research and data-driven analysis, Machine learning, Amateur radio.