MAXWELL CATMUR
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PROFILE

Aspiring Graduate Software Engineer 2025 with an MPhys (First expected) and strong software development, debugging and analytical skills. Keen to apply version-control and modelling experience to financial services technology at SS&C, committed to learning .NET, CI/CD and cloud deployment while upholding regulatory and quality standards.

EDUCATION

MPhys Physics – University of Warwick **October 2022 – July 2026**
Grade: First (expected)

- Relevant modules: scientific and high-performance computing, advanced mathematical methods, numerical methods, and statistical physics.
- Developed numerical models in C (finite-difference PDE) to simulate industrial heat flow; delivered code and results to specification with 95% module mark.
- Implemented Monte Carlo simulations in MATLAB and ran 10,000+ Python N-body simulations to quantify orbital stability using MEGNO analysis.
- Co-developed a LabVIEW stabilisation algorithm and PID controller; produced robust control code and improved system stability during tests.

A-levels – Forest School **September 2020 – July 2022**
Grade: A*A*A*A*A* (Maths, Further Maths, Physics, Chemistry, Extended Project)

- Sixth form valedictorian award for academic performance.
- 5000-word extended project on climate mitigation strategies, graded 100%; developed research, analysis and formal written documentation skills.
- Presented research to a 160+ audience, demonstrating clear verbal communication and stakeholder engagement.

WORK EXPERIENCE

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

- Modelled finite-difference methods for wave propagation across 100+ aeroacoustics simulations using MATLAB, focusing on numerical stability and accuracy.
- Analysed and compared 10 high-order schemes to optimise trade-offs between dispersion error and computational cost.
- Documented methods and results in a concise poster and technical notes for dissemination at an internal poster event.

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

- Managed a 12-member team developing a proof-of-concept UHF satellite ground station; coordinated design, procurement and assembly to schedule.
- Led 30+ weekly meetings, established four specialised sub-teams and provided regular progress reports to senior leadership.
- Authored 30+ pages of technical documentation, including selection matrices and bill of materials, ensuring traceability and quality.

- Introduced GitHub-based version control for model development and enforced code organisation and collaborative workflows.

RF Seekers Summer Intern **June 2024 – August 2024**
MBDA UK

- Interned in the Modelling and Algorithms team working on SAR imagery processing chains and AESA radar simulations.
- Optimised a matched-filter algorithm with FFT methods in MATLAB, reducing runtime by 85% and improving system throughput.
- Co-developed a data-analysis application used by six colleagues to accelerate range–Doppler image assessment; integrated mid-fidelity checks to aid QA.
- Delivered 50+ commits using professional version-control practices (Git), participated in code reviews and presented technical outcomes to peers.

PROJECTS

AI CV Generator **July 2025 – ongoing**

- Developed a CV and cover-letter generator using OpenAI API in Python; implemented structured JSON output with Pydantic BaseModel.
- Automated Word document generation via docxtpl and built two SQL databases to track job applications and outcomes.
- Applied version control and iterative testing during development; achieved >50% scores on three ATS-checker sites.
- Tooling and outcomes supported more targeted applications and contributed to receiving two job offers after 200 applications.

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

- Built a web application to manage orders for an event of 100+ guests, removing queues and improving service speed.
- Implemented Ajax-based asynchronous updates to notify users when orders were ready, improving user experience and throughput (80+ orders processed).
- Iterated on frontend and backend code following user feedback and received positive technical feedback from professional software engineers.

SKILLS

Languages: Python, MATLAB, C, SQL, JSON, JavaScript, HTML, CSS.
Libraries: NumPy, SciPy, Matplotlib, SQLite, pydantic, jinja, openAI.
Tools: Git, GitHub, LabVIEW, Simulink, Microsoft Office, Origin Pro.
Soft Skills: Analytical thinking and problem solving, Teamwork and collaboration, Clear verbal and written communication, Adaptability and openness to feedback, Attention to detail and quality-driven delivery.
Interests: Machine learning, Amateur radio, Tennis, Chess, Debating.