MAXWELL CATMUR

maxcatmur@icloud.com | +44 7507 968831 | 54 Derby Road, London, E18 2PS |
linkedin.com/in/maxwell-catmur-1475a2209

PROFILE

Upcoming Physics graduate applying for the Technology Grad Scheme 2026. Experienced in software engineering, data pipelines and performance tuning through internships and personal projects. Quick learner, collaborative team player willing to rotate across infrastructure, data engineering and security teams; flexible for London, New York, Hong Kong and Singapore.

EDUCATION

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

- Achieved 85% in year one, 89% in year two, 82% in year three.
- Relevant modules: scientific and high-performance computing, advanced mathematical methods, fluid mechanics, electromagnetism, quantum mechanics, condensed matter and statistical physics.
- Investigated metastability of nucleation in the 2D Ising model using dozens of Monte Carlo simulations in MATLAB; co-authored a paper within 3 weeks.
- Numerically solved PDEs in C via finite-difference methods to model industrial heat flow, scoring 95%.
- Ran 10,000+ N-body simulations in Python, implemented MEGNO for orbital stability quantification and performed advanced post-processing.
- Co-developed a stabilisation algorithm in LabVIEW for a nodding-donkey system, implementing PID control from first principles (86%).
- Led two 6-person group research projects on photovoltaic materials and photocathodes; scheduled meetings, chaired sessions and ensured equitable task allocation (70%+).
- Designed, built and tested a DC voltage regulator circuit with op-amps and MOSFETs.

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 via renewables, nuclear power and geoengineering (100%).
- Presented project findings to a cohort of 160+ students and staff; recognised for clear communication and public speaking.

WORK EXPERIENCE

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

- Modelled finite-difference methods for wave propagation across 100+ aeroacoustics simulations, using MATLAB to validate accuracy and stability.
- Analysed performance of 10 maximal-order and dispersion-relation-preserving schemes; benchmarked accuracy versus computational cost to inform method selection.

- Prepared a concise 2-page poster and presented results at a departmental poster event, communicating technical outcomes to academics and peers.

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

- Managed a 12-member student team building a UHF satellite ground-station proof of concept; established four sub-teams and delegated tasks to accelerate delivery.
- Authored 30+ pages of technical documentation and a bill of materials; coordinated procurement, design and assembly to complete the prototype within 10 weeks.
- Introduced GitHub-based version control for model development and applied collaborative workflows across the team, improving traceability and integration.
- Led MATLAB/Simulink modelling of a half-duplex ground station and organised weekly reports to senior leadership, demonstrating accountability and cross-discipline collaboration.

RF Seekers Summer Intern (Modelling and Algorithms)
MBDA UK **June 2024 – August 2024**

- Interned for 10 weeks on SAR imagery processing chains within AESA radar systems, gaining practical exposure to algorithm development and system-level performance.
- Optimised a matched-filter algorithm in MATLAB by implementing FFT methods, reducing runtime by 85% and materially improving processing throughput.
- Co-developed a data-analysis application used by six colleagues to rapidly analyse range–Doppler images during a performance campaign, streamlining post-processing.
- Delivered 50+ commits using professional software development practices and version control; presented placement outcomes to 20+ colleagues.

PROJECTS

AI CV Generator **July 2025 – ongoing**

- Developed a CV and cover-letter generator in Python using OpenAI's API; implemented Pydantic models to enforce structured JSON output and docxtpl for Word export.
- Built two SQL databases to store and track ongoing job applications, implementing basic application-state pipelines and query interfaces.
- Tested outputs against multiple ATS checkers (scores above 50%) and iterated format to improve pass rates; project contributed to two job offers after c.200 applications.

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

- Designed and implemented a web app to process drinks orders for a 100+ guest event; processed 80+ orders over six hours and removed queues.
- Implemented Ajax-based asynchronous updates to notify users of order status, improving UX and throughput during peak demand.
- Received positive technical feedback from two software engineers and all bar staff; demonstrated practical full-stack development and rapid deployment.

SKILLS

Languages: Python, MATLAB, C, SQL, HTML, CSS, JavaScript, Ajax.
Libraries: NumPy, SciPy, Matplotlib, SQLite, pydantic, jinja/docxtpl, OpenAI API client.
Tools: Git and GitHub (version control, collaborative workflows), LabVIEW, Simulink, Microsoft Office, Performance benchmarking and profiling (MATLAB workflows), Familiarity with CI/CD and developer tooling concepts.

Soft Skills: Teamworking and cross-discipline collaboration, Written and verbal communication, Proactivity and initiative, Adaptability and rapid learning, Accountability and end-to-end ownership.
Interests: Machine learning, Amateur radio, Tennis, Chess, Science communication.