MAXWELL CATMUR

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

PROFILE

Aspiring Software Engineer experienced in Python, C and MATLAB with a track record of performance optimisation, data-driven debugging and end-to-end ownership. Seeking a Software Engineer role at Meta to apply system architecture thinking, scalable systems design and cross-functional collaboration.

EDUCATION

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

- Completed high-performance computing and scientific computing modules; implemented numerical methods in C and MATLAB for engineering problems.
- Ran 10,000+ N-body simulations with a Python integrator; analysed orbital stability using MEGNO and advanced post-processing techniques.
- Numerically solved partial differential equations in C using finite-difference methods to model industrial heat flow, assessed accuracy and runtime trade-offs.
- Investigated metastability in the 2D Ising model via dozens of Monte Carlo simulations (MATLAB); co-authored a short paper with collaborators.
- Designed and implemented a PID-based stabilisation algorithm in LabVIEW for a mechanical test rig, improving system stability and control.

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 top academic performance.
- Completed a 5,000-word extended project on mitigation of climate change via renewable energy, nuclear power and geoengineering (100%).
- Presented research to a cohort of 160+ students and staff, demonstrating clear technical 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 over three months, comparing accuracy and computational cost.
- Analysed performance of 10 maximal-order, dispersion-relation-preserving schemes in MATLAB; used quantitative metrics to guide selection and optimisation.
- Presented results via a research poster at an institute event, communicating technical trade-offs to academic peers.

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

- Led a 12-member student team to develop a UHF satellite ground station proof-of-concept; established four sub-teams and set technical direction.

- Authored 30+ pages of documentation including Pugh matrices and a bill of materials; coordinated procurement, design and assembly to deliver within 10 weeks.
- Introduced GitHub-based version control and initiated MATLAB/Simulink modelling for rotator control, improving collaboration and reproducibility.

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

- Interned 10 weeks in Modelling and Algorithms team working on synthetic aperture radar (SAR) processing chains for AESA radar systems.
- Optimised a matched-filter algorithm in MATLAB by implementing FFT, reducing runtime by 85% and materially improving system throughput.
- Co-developed a data-analysis application used by six colleagues for rapid range–Doppler image inspection; integrated a mid-fidelity check to accelerate validation and sanity checks.
- Delivered 50+ commits using professional version-control workflows and presented technical outcomes to 20+ colleagues.

PROJECTS

AI CV Generator **July 2025 – ongoing**

- Built a CV and cover-letter generator using OpenAI's API in Python; used Pydantic BaseModel for structured JSON output and docxtpl for Word generation.
- Implemented two SQL databases to store applications and track progress; iteratively improved matching to job descriptions using ATS feedback.
- Achieved ATS scores above 50% on three checker sites and contributed to two job offers after 200 applications, demonstrating data-driven product improvement.

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

- Developed a web application to process orders for a party of 100+ guests, handling 80+ orders in six hours and removing physical queues.
- Implemented asynchronous updates with Ajax and JavaScript to reflect order status in real time on the front end.
- Received positive feedback from professional software engineers and event staff on reliability and usability.

SKILLS

Languages: Python, C, MATLAB, JavaScript, SQL, PHP, HTML, CSS.
Libraries: NumPy, SciPy, Matplotlib, SQLite, pydantic, docxtpl.
Tools: Git, GitHub, MATLAB, Simulink, LabVIEW, OpenAI API.
Soft Skills: Cross-functional collaboration, Technical leadership and project ownership, Data-driven debugging and analysis, Clear technical communication, Problem-solving.
Interests: Machine learning, Amateur radio, Tennis, Football, Chess, Debating.