Maxwell Catmur

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# Profile

Aspiring Graduate Engineer seeking a position at Teledyne Microwave UK. MPhys Physics (First expected Jul 2026) with hands-on RF and electronic design experience from an MBDA AESA/SAR internship and UHF ground-station projects. Willing to relocate to Shipley and to undergo UK Security Clearance; committed to production support and design documentation.

# Education

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

**Grade:** First (expected)

* Relevant modules and skills: electromagnetism, scientific and high-performance computing, advanced mathematical methods; strong numerical methods and simulation experience.
* Lab and coursework: developed a stabilisation algorithm in LabVIEW implementing PID control for a nodding-donkey system (86%), and designed, built and tested a DC voltage regulator using op-amps and MOSFETs.
* Applied numerical methods: solved PDEs in C via finite-difference to model industrial heat flow (95%) and ran 10,000+ N-body simulations with MEGNO analysis for orbital stability.
* Led two six-member research projects on photovoltaic materials and photocathodes; scheduled and chaired weekly meetings and ensured equitable task delegation (both 70%+).

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

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

* Extended Project (5000 words) on renewable energy, nuclear power and geoengineering, awarded 100%; developed research, technical writing and presentation skills.
* Received sixth-form valedictorian award for academic performance; presented project findings to 160+ students and staff, demonstrating clear verbal communication.

# Work Experience

**Undergraduate Researcher**

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

* Modelled wave propagation using finite-difference methods in 100+ aeroacoustics simulations, assessing numerical stability and accuracy.
* Analysed performance of 10 maximal-order and dispersion-relation-preserving schemes in MATLAB, optimising for accuracy versus computational cost.
* Prepared concise technical outputs including a poster presented at a departmental event, and documented methods and results for peer review.

**Project Manager**

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

* Managed a 12-member team to design and deliver a proof-of-concept UHF satellite ground station, coordinating design, procurement and assembly within 10 weeks.
* Produced 30+ pages of design documentation including bill of materials and Pugh matrices; maintained version control via GitHub to support reproducible builds.
* Initiated MATLAB/Simulink modelling for rotator control and half-duplex communications, and reported weekly progress to senior leadership.

**Fly Your Satellite Workshop (Participant)**

European Space Agency **November 2024 – November 2024**

* Completed a 5-day systems-engineering workshop covering requirements, testing and ground-station communications for CubeSats.
* Participated in a time-limited CubeSat design sprint, delivering a mission-compliant concept through rapid delegation and systems-level trade-offs.
* Gained practical insight into ground-station rotator control and half-duplex UHF communications relevant to RF system design and test.

**RF Seekers Summer Intern**

MBDA UK **June 2024 – August 2024**

* Worked within the Modelling and Algorithms team on SAR processing chains for AESA radar systems; researched RF and microwave concepts to inform implementations.
* Optimised a matched-filter algorithm in MATLAB using FFTs, reducing runtime by 85% and improving test and analysis throughput.
* Co-developed a data-analysis application used by six colleagues to accelerate range–Doppler imagery analysis; integrated a mid-fidelity algorithm for rapid sanity checks.
* Used professional development practices including version control (50+ commits) and delivered a placement review presentation to 20+ colleagues.

# Projects

**AI CV Generator July 2025 – ongoing**

* Developed a CV and cover-letter generator using OpenAI's API in Python with Pydantic to enforce structured JSON output and docxtpl for Word generation.
* Implemented SQL databases to track applications and outcomes and designed the tool to produce ATS-friendly outputs.
* Validated outputs against ATS-checker tools and iterated to improve match rates; supported job-application tracking across multiple roles.

# Skills

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

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

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

**Soft Skills:** Problem solving and analytical thinking, Technical documentation and report writing, Verbal presentation and cross-functional communication, Team leadership, mentoring and training, Time management and meeting project deadlines.

**Interests:** RF and microwave systems, Amateur radio, Professional development (Chartered Engineer route).