Maxwell Catmur

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# Profile

Expected MPhys graduate (July 2026) applying for the Macquarie Asset Management Graduate Programme 2026. Analytical, curious and eager to learn, with hands-on experience in quantitative modelling, transaction-style analysis and client-facing presentations. Ready to develop technical skills across infrastructure and renewable energy investments during a 12-month programme.

# Education

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

**Grade:** First (expected)

* Strong quantitative background with modules in high-performance computing, advanced mathematics and statistical physics; hands-on experience with MATLAB, Python and C.
* Led and delivered group research projects on photovoltaic materials and photocathodes, scheduling meetings and delegating tasks to ensure timely outcomes (70%+ marks).
* Conducted extensive numerical simulations (10,000+ runs) for orbital stability and Monte Carlo studies of the 2D Ising model, applying rigorous data analysis and post-processing techniques.

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

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

* Extended research project (5,000 words) on renewable energy, nuclear power and geoengineering, awarded 100% — demonstrates commercial awareness of energy and climate topics.
* Sixth form valedictorian for overall academic performance.
* Presented research to a 160+ audience, evidencing clear written and verbal communication skills.

# Work Experience

**Undergraduate Researcher June 2025 – October 2025**

Warwick Mathematics Institute

* Modelled finite-difference methods for wave propagation across 100+ aeroacoustics simulations, balancing accuracy and computational cost.
* Analysed and optimised 10 maximal-order and dispersion-relation-preserving schemes in MATLAB to improve solution fidelity and runtime performance.
* Produced and presented a research poster, communicating technical findings to academic peers and supervisors.

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

MBDA UK

* Worked in the Modelling and Algorithms team on synthetic aperture radar imagery processing; researched domain literature to understand sub-algorithm trade-offs.
* Optimised a matched-filter implementation using FFT methods, reducing runtime by 85% and improving end-to-end processing throughput.
* Co-developed a data-analysis application used by six colleagues to accelerate range–Doppler image inspection and integrated mid-fidelity checks to support validation.
* Presented technical outcomes to 20+ colleagues, practising professional communication and stakeholder engagement.

**Project Manager January 2024 – March 2025**

Warwick Aerospace Society

* Managed a 12-member team developing a proof-of-concept UHF satellite ground-station; coordinated four sub-teams and chaired weekly meetings.
* Authored 30+ pages of technical documentation including bill of materials and selection matrices, ensuring decisions were traceable and commercially aware.
* Oversaw procurement, assembly and testing delivered within a 10-week schedule, applying risk-awareness and change-control practices.
* Introduced GitHub-based version control for modelling and design to improve collaboration and reproducibility.

**Academic Coordinator March 2024 – March 2025**

Warwick Physics Society

* Delivered seven revision lectures and ran weekly support sessions, explaining complex ideas to cohorts of c.100 students.
* Organised a 10-year anniversary event with Prof Dame Athene Donald attended by 100+ students and academics, managing logistics and communications.
* Provided peer mentoring and academic support, demonstrating commitment to community and volunteer engagement.

# Projects

**AI CV Generator July 2025 – ongoing**

* Built a CV and cover-letter generator using OpenAI's API and Python, implementing Pydantic models to enforce structured JSON outputs.
* Integrated docxtpl for formatted document generation and developed two SQL databases to track applications and outcomes.
* Achieved ATS-checker scores above 50% on multiple sites and iterated the tool based on measured feedback, demonstrating rapid learning and product-focused development.

# Skills

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

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

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

**Soft Skills:** Analytical thinking and quantitative analysis, Teamwork and stakeholder communication, Problem-solving and adaptability, Project coordination and documentation.

**Interests:** Renewable energy and infrastructure, Machine learning, Amateur radio, Debating.