HENRY BROCK

MSc Computer Science Graduate | Software Engineering | Scientific Computing

Yorkshire, United Kingdom | 07747 346578 | Email: hello@henrybrock.dev | LinkedIn: linkedin.com/in/henry-brock | GitHub: github.com/henry-brock | Portfolio: henrybrock.dev

PROFILE

Computer Science MSc graduate (Aston University, 2026) who moved from Chemistry into software engineering once university-level Chemistry became Physics by another name, while Computer Science was something I could pick up cleanly and plan through in sensible, structured steps. A methodical, detail-driven and resilient problem-solver, evidenced by completing my BSc through the disruption of the COVID-19 pandemic and, more recently, by contracted fuzz-testing work that uncovered and documented real memory-safety and reliability defects in a commercial software library. I'm naturally curious and self-directed, happy to dig into a problem independently first, but equally comfortable organising and planning work within a team, a habit sharpened by five years as a Dungeons & Dragons Game Master running long-form campaigns for a group of players. Proficient in Python and Java (and a committed Hull City AFC supporter), seeking a graduate or junior software engineering role to contribute to high-quality delivery while continuing to grow as an engineer.

TECHNICAL SKILLS

- **Languages:** Python, Java, Bash (intermediate)
- **Software Engineering:** Requirements engineering, UML, modelling, iterative & incremental development, Agile development, project planning
- **Data & Databases:** Database design and management, analysis of large datasets, Microsoft Excel
- **Scientific Computing:** Molecular dynamics simulation (GROMACS), computational modelling
- **Tools & Platforms:** Linux, operating system installation and configuration, AI-assisted development (Claude Code), Microsoft Office

HIGHLIGHTED PROJECTS

MSc Dissertation: Gamified Open Day Outreach Application — 2026

Aston University

- Situation: Aston University needed an engaging way to introduce prospective students with no Computer Science background to key modules of the course at open days.
- Task: Set, as the MSc dissertation project, to design and build a gamified outreach application that could communicate course material to a non-technical audience.
- Action: Engineered the software using an iterative and incremental methodology, progressing through requirements gathering, design, implementation and refinement cycles.
- Result: Delivered a working outreach artefact that made course material accessible and engaging, used to introduce prospective students to the course at university open days.

MSc Project: Engineers Without Borders – Ladywood Waste Challenge — 2026

Aston University, multidisciplinary group project

- Situation: Ladywood, Birmingham, one of the most deprived areas in the UK, faces significant waste build-up, with recycling facilities largely inaccessible to residents.
- Task: As part of a multidisciplinary Engineers Without Borders group project, tasked with identifying the root cause of the recycling gap and proposing a practical community solution.
- Action: Collaborated across disciplines to research the problem, identified that 48% of residents have no car and cannot reach recycling centres, and designed the Ladywood Bin Hub, a local waste facility sited near the worst-affected terraces.
- Result: Submitted the Ladywood Bin Hub proposal to university faculty as a viable, evidence-based solution for reducing waste build-up without requiring residents to travel.

BSc Dissertation: Computational Modelling of Amyloid-Beta Protein Misfolding — 2023

University of Bradford

- Situation: Amyloid-beta protein misfolding is linked to Alzheimer’s disease, and the role of a specific protein region in triggering that misfolding was unclear.
- Task: Set out, for the BSc dissertation, to test whether modifications to that specific region would trigger misfolding.
- Action: Ran molecular dynamics simulations in GROMACS comparing modified and unmodified structures, then processed and analysed the resulting large simulation datasets to assess structural stability.
- Result: Found the targeted region stayed stable in both cases, a clear negative result that narrowed the search for the true misfolding trigger.

EDUCATION

MSc Computer Science, Aston University **Sep 2025 – Sep 2026**
Expected classification: Merit (result pending)

- Software engineering principles, including requirements engineering and UML design
- Database management; Python and Java programming
- Multidisciplinary teamwork and project management
- Responsible use of AI coding tools (Claude Code) to support development, with human review of all output

BSc (Hons) Chemistry, University of Bradford **Sep 2019 – Jun 2023**
Classification: 2:2

- Broad grounding across chemistry disciplines, with computational modelling and data analysis applied in the dissertation
- Methodical, analytical problem-solving developed through laboratory practicals
- Completed the degree through the COVID-19 pandemic, adapting to remote and blended learning

A-Levels, Pocklington School **2017 – 2019**
Chemistry, Computer Science, Mathematics. Chemistry Prefect.

GCSEs, Fulford School, York **2014 – 2016**
10 GCSEs at grades A–C, including English and Maths; Chemistry (A), Computing (B).

WORK & VOLUNTEERING

Pentesting Consultant (Contract), WebSupergoo **Oct 2026 – Present**

- Engaged as a freelance security researcher to perform contracted fuzz testing of ABCpdf .NET, a commercial PDF processing library, covering both dumb-mutation and structure-aware fuzzing campaigns.
- Built and ran a custom fuzzing harness under Windows Page Heap against a corpus of PDF test seeds to uncover memory-safety and resource-exhaustion defects.
- Identified and documented two distinct, reproducible defects: a native access-violation crash reachable through the public text-extraction API, and an uncontrolled memory allocation vulnerability exploitable via a file under 1KB.
- Authored a detailed security finding report covering reproduction steps, stack traces, root-cause analysis and severity assessment for delivery to the client's engineering team.

Digital Inclusion Volunteer, Age UK **Oct 2026 – Present**
291 Community Centre, Wesley Methodist Church, West Bromwich

- Deliver one-to-one digital skills sessions, helping older adults build confidence and competence using smartphones, tablets and everyday apps.
- Provide hands-on device troubleshooting and technical support, resolving connectivity, account and software issues on the spot.
- Support attendees in recognising and avoiding online scams, promoting safer use of email, messaging and online services.

Shop Volunteer, Oxfam, Bradford **Jan 2023 – Jun 2023**

- Delivered friendly, efficient customer service at the till, answering queries and helping customers find the right products.
- Organised and maintained the book section, categorising stock and choosing standout titles for featured displays.
- Handled difficult customer interactions calmly, using clear communication and de-escalation to resolve concerns.

INTERESTS

- **Dungeons & Dragons Game Master (5 years):** design and run long-running homebrew campaigns for groups of players, which involves planning, improvisation and keeping a team engaged.
- **Magic: The Gathering:** regular casual four-player games.
- **Football:** committed Hull City AFC supporter.

References available on request.