Matthew Pearson

+44 7519 951299 | mapearson30@gmail.com | LinkedIn | GitHub | Portfolio | Bath, UK

Education

University of Bath — Bath, UK
Computer Science and Artificial Intelligence BSc: ***On track for First Class Honors*** — *Sep 2022 – Jun 2026*

Modules covered **(Grade)**: Principles of Programming ($\mathbf{1^{st}}$), Artificial Intelligence ($\mathbf{1^{st}}$), Machine Learning ($\mathbf{1^{st}}$), Mathematics for Computation ($\mathbf{1^{st}}$), Systems Project (**2 : 1**), Data Structures and Algorithms ($\mathbf{1^{st}}$), Visual Computing ($\mathbf{1^{st}}$), Foundations of Computation (**2 : 1**), Foundations and Frontiers of ML (**2 : 1**), Systems Architecture ($\mathbf{1^{st}}$), Software Processes and Modelling ($\mathbf{1^{st}}$)

The King's (The Cathedral) School — Peterborough, UK
A-levels: Maths, Computer Science, Physics, EPQ: ***A*, A*, A*, A**** — *Sep 2015 – Jun 2022*

Key Skills

Programming: Experienced in developing AI-driven simulations, full-stack applications, and embedded systems. Strong in algorithm design, optimization, and software best practices like TDD and CI/CD. Skilled in front-end and back-end development, integrating modern frameworks, databases, APIs, and cloud services. Proficient in AI techniques, including agent-based modeling, reinforcement learning, and predictive analytics.

Teamwork: Working in development and quality assurance teams in my industrial placement. Several software engineering projects in university modules. Regular team sport activities including rowing and football

Numerical Reasoning: Taking several maths modules at university, achieving maximum grades in GCSE and A-level maths. Achieved gold awards in all levels of the UKMT maths challenge and Silver in the British Physics Olympiad challenge.Completed 50+ logical programming puzzles on Leetcode.

Testing: Experienced in developing and executing manual and automated tests to ensure software functionality, security, and performance. Skilled in creating test scripts, identifying bugs, and using tools like Jenkins and Git to streamline the testing process.

Research and Analytical skills: Conducted primary and secondary research for larger systems projects, collating and analysing data on potential users and related products/methods. EPQ research project focusing on whether Computer-Aided-Diagnosis was ready for large scale implementation. This helped me win the Henry Pearson-Gates award for outstanding A-level studies .

Commercial and climate awareness: Completed carbon literacy training from Manchester Metropolitan University, learning what individuals and business can do better to reduce carbon footprints. Undertook Google's Fundamentals of Digital Marketing course as well as the IKEEP Intrapreneurial Training Programme gaining knowledge on team-based problem solving, innovation management and business models. Activities such as these and experiences in workplace, sporting and academic environments have built strong communication skills.

Experience

Kontron — Trowbridge, UK
Software Engineer — *Aug 2024 – Aug 2025, Full-time*

- Year-long industrial placement.
- Working on both the development and quality-assurance teams. Mainly working on the Kontron Device Management project, which allowed features such as device health monitoring, remote access, diagnostics/recovery and software package deployment/management
- Regular triage, status and technical meetings, developing experience of commercial practices and improving communication

Secure Thingz — Cambridge, UK
Work Experience placement — *June 2022 – July 2022, Full-time*

- Gained experience with embedded systems and microcontrollers, exploring their role in developing both local and wide-area IoT networks. Developing an understanding of how microcontrollers are integrated into embedded devices to enhance functionality and security.

University of Bath — Bath, UK
Student Ambassador — *Mar 2023 – Feb 2025, Part-time*

- Tasked with leading both in-person tours and virtual presentations, imparting detailed information on the computer science course, and addressing questions about university life from parents and prospective students.
- Peer mentor, helping first-year students navigate academic and social aspects of being at university.

Projects

Kontron Device Management

- Developed and deployed new features using TypeScript and Angular, improving UI functionality. Progressed from fixing minor bugs to implementing full feature sets
- Led QA efforts, identifying and documenting 50+ bugs to improve system reliability.
- Developed skeleton test scripts, leading the joining of dev-ops and the dev team. I designed a system that would take a user specified input from Jenkins and run a specific set of tests, running these automated tests (some which I also created) and returning the output

Student Society Matchmaker | *GitHub*

- Collaborated in an 8-person team to tackle student-society engagement issues. Led user research and data analysis, identifying key pain points and refining solution strategies. Designed and implemented the recommendation algorithm using Random Forest regression, enabling a dynamic, feedback-driven system that suggested societies and events based on user preferences. Our solution resulted in a 150% increase in engagement compared to the existing system.
- This project built off principles we used in Software processing and modeling, in which my group made a personal informatics system. The system tracked user mood, exercise and diet. The app displayed trends in the data, allowing notes for each logging as well, letting users reflect on their well-being.

2D Platforming Game | *GitHub*

- Developed a feature-rich 2D platformer using C++ and Unity, implementing advanced mechanics like dashing, wall-jumping, and AI-driven enemy behaviors. Applied game design principles to create engaging level progression.
- I was able to use this experience to learn how to develop games with the Unreal Engine, which I utilised in a hackathon to make another platforming game focused on grappling traversal.

Artificial Agents | *GitHub*

- Developed an AI agent using the NEAT genetic algorithm to autonomously improve gameplay performance in the Chrome Dinosaur game, demonstrating evolutionary learning principles.
- Recreated Conway's game of life, which is a 0 player game that uses cellular automata to simulate 'life' and can be used to visualise some of maths' interesting patterns. I then adjusted this simulation with extra states, random variables and procedural generation to make a forest fire simulator.
- Developed a boid simulation to model collective movement behaviors, implementing flocking algorithms for realistic agent interactions. Adapted the simulation to study animal migration patterns under environmental stressors, demonstrating how species respond to climate change.

Skills

Languages: Python, C, Java, Typescript, JavaScript, SQL, HTML

Technologies: Angular, Node.js, MySQL, Git, Docker, AWS, PyTorch, Java-Processing, Jenkins, Unity, Pygame

Methodologies: Agile, Scrum, OOP, Functional Programming, CI/CD, TDD

Hobbies, Interests & Activities

British Rowing Performance Development Academy athlete. Winning medals at both the Senior British Championships and BUCS (British Universities and Colleges Sport). Training 12+ times a week, which in combination with univeristy and full-time work has allowed me to develop great time management and resilience.

Played football for 15+ years at local, school and university teams. Shown leadership skills through captaining teams. Developed organisational abilities being the social secretary of the university department team.

Hiking, Guitar, language learning, badminton.
Full driving license.

References

Glyn Jones: Supervisor, Kontron. Email: **Glyn.Jones@kontron.com**

Dr Jo Hyde: Personal Tutor, University of Bath. Email: **cssjkh@bath.ac.uk**