

Education

- 2020-2024 **The University of Manchester**, BSc(Hons) + MEng(Hons) Computer Science, Expected First class.
- Completed BSc with a GPA of 86%, gaining first-class grades in all enrolled computer science modules.
 - Awarded marks of 90%+ Software Engineering, Data Engineering, Fundamentals of Machine Learning, Algorithms and Data Structures, System Architecture and Mathematical Techniques for Computer Science.
 - Achieved top 5% of 400 second-year students with an 89% year average..
 - Won Netcraft Prize for top 10 first-year students with a 90% year average.
- 2017-2019 **Royal Grammar School, Newcastle upon Tyne.**
- A-Level Results** - A*A*AA in Physics, Mathematics, Further Mathematics and Psychology.

Commercial Experience

- 2024-Present **Imago Software**, Project Assistant, *Microservices in Python and Docker*.
- Containerised and extended tools helping diabetes patients analyse and predict variations in blood glucose.
 - Provides feedback via WhatsApp API by periodically processing sensor data on a user-defined schedule.
 - Ensures scalability by running interacting Flask services on AWS EC2.
 - Applied agile practises, CI/CD with GitHub Actions, and workflow tools like Trello to maintain code quality and improve efficiency within the team.
- Summer 2023 **NimbleAi Project (UoM)**, Research Assistant, *Neural accelerators in SystemVerilog*.
- Implemented software-driven neuromorphic systems for ultra-low power computer vision endpoints.
 - Advanced early perception and optimisation, improving the sensor's processing efficiency by prioritising regions of interest and minimising unnecessary processing.
 - Facilitated project aims of 100x performance increase and 50x latency reduction compared to existing systems.
- 2019–2020 **Enigma Interactive**, Junior Developer, 1: *OOP using Java*, 2: *JavaScript & PHP*.
- Collaborated with senior developers in the 'core team' to build foundational libraries Enigma sites extend on.
 - Demonstrated the importance of clear APIs, working on large codebases and test-driven development.
 - developed educational platform for NHS Heart and Lung transplant patients using custom WordPress themes and plugins.
 - Enforced the need for accessibility and intuitive design, so all patients feel comfortable using the resource.
 - Involved communication with clients, enhancing ability to understand and implement professional requirements.

Personal Projects

- 2023–2024 **Wordle Assistant**, *Rust, WebAssembly, Browser Extension*.
- Designed a Wordle companion based on information theory to help select the best word given prior guesses.
 - Profiled and optimised the implementation through pruning, caching and build scripts to result in a 3,200x speedup compared to the original design.
 - Adapted the solver to assist players interactively then altered the Rust program to run online via WebAssembly.
 - Integrated into a Chrome extension, providing hints when playing Wordle on the NYT website
- 2022–2023 **Simulating Addiction with Reinforcement Learning**, BSc Project, *Python, OpenAi Gym*.
- Simulated the development of substance use disorders and behavioural addictions by adapting traditional reinforcement models to include the selection of sub-optimal addictive stimuli.
 - Investigated the influence of habit formation and risk factors on brain motivation circuitry.
 - Formalised neurotransmitters, synapses and cognitive control while managing simulation complexity.
 - Evaluated against real-world data and existing models, ensuring validity of model's predictions.
- 2021–2022 **Stendhal**, *Java, Open-Source, Test Driven Development*.
- Debugged and fixed issues on a large, 10,000-line open-source codebase using Eclipse, Ant, JUnit and Jenkins.
 - Leveraged TDD, writing custom unit and integration tests before adding new features to the MMORPG.
 - Taught how to navigate an unknown codebase and make reasonable time estimates for developing features.
- 2020–2021 **Symput**, *NextJS, Google Cloud Platform, TailwindCSS*.
- Created a full-stack PWA symput.com for the inbuilt Android keyboard produced in first-year team project.
 - Achieves above 90% on all Google Lighthouse metrics and 100% performance on Vercel analysis.
 - Features include: Language Support for English, Chinese and Arabic; Authentication and Verification of accounts; Profile-based feedback system with the ability to create, like and edit posts; Serverless functions to moderate posts and delete account data to comply with GDPR.