George Grainger

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Education

2020 – 2024 **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

Jan 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.

Jun – Sep 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 achieving broader 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*.

1a. Collaborated with three senior developers in the 'core team' to build the foundational libraries providing common functionality most Enigma products extended on.
1b. Demonstrated the importance of clear APIs, working on large codebases and test-driven development.
2a. Developed educational platform for NHS Heart and Lung transplant patients using custom WordPress themes and plugins.
2b. Enforced the need for accessibility and intuitive design, so all patients feel comfortable using the resource.
2c. Involved client communications, 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 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.