

Sasha Armstrong

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Education

BSc in Computer Science and Mathematics (*Predicted 1st*)
University of Manchester

September 2022 – June 2026

- **Software Engineering** - Collaborated in a team to prepare quality releases by implementing bug fixes and adding new features to the Stendhal codebase.
- **Data Science** - Implemented a spam filter in python on Jupyter Notebook, by applying the Naïve Bayes classifier, a supervised machine learning algorithm.
- **Algorithms and Data Structures** – Developed a spell-checking program in Python using hash tables and binary search trees to optimize the storage and retrieval of dictionary words.
- **Linear Algebra** – Recognized and proved properties of fields, vector spaces, and linear transformations, and applied concepts such as linear independence, norms, isometries, and the Rank Theorem to solve diverse mathematical problems.
- **Numerical Analysis** – Used MATLAB to visualise and compare the convergence of Gauss-Seidel and Jacobi iteration methods to solve linear systems of equations.

A level (2A*, 3A)
Neale-Wade Academy

September 2020 – June 2022

Biology – A*, Chemistry – A, Physics – A, Mathematics – A*, Further Mathematics – A

- **Head Academic Prefect** - Led a team of prefects to establish a student council, implement form attendance competitions, facilitate charitable engagement, and expand the school's extracurricular program, improving the school experience for both students and staff.

IGCSE (7A*, 3A)
Wolsey Hall Oxford

September 2019 – April 2020

Mathematics – A*, Additional Mathematics – A, Computer Science – A*, Business – A, Accounting – A, English Literature – A*, English Language – A*, Biology – A*, Chemistry – A*, Physics – A*

Experience

Software Developer
Orbis Investments, Investment Technology Team

July 2024 – July 2025

- Automated service catalogue management by scripting a Python tool (GitPython + Azure DevOps API) to generate and update Backstage yaml files across approximately 200 repositories, saving weeks of manual effort and ensuring metadata consistency.
- Modernized technology stack by upgrading 30+ C#/.NET services, resolving compatibility issues, and validating endpoints, improving performance and long-term maintainability.
- Redesigned core research system by refactoring the Transparency Service to implement a structured data flow from Snowflake tables across multiple services, increasing reliability and clarity for investment research users.
- Delivered a flagship internal tool by designing and deploying Permissions Viewer (React + .NET), transforming raw JSON into a searchable UI with visualization and comparison features, improving access management efficiency and presented the solution to the investment technology team.
- Reduced technical debt by auditing and remediating legacy/experimental services in AWS/Terraform, documenting status, decommissioning unused systems, and restoring critical ones to production readiness.

Nuffield Research Placement (SQL)
Digital Science & Research Solutions Ltd

August 2021

- Conducted in-depth analysis of 190 000 education-related research publications using Dimensions, the world's largest linked research database.
- Addressed issues related to nested arrays, inflated figures and missing values, enhancing the accuracy of the data filtered and exported.
- Developed over 30 SQL queries on BigQuery to extract relevant data, focusing on funding, researchers, and prevalent concepts in the field of mathematical sciences in education.
- Utilized Google Sheets to compile and visualize data, creating charts, tables and graphs for clear presentation and easy interpretation of the results.
- Authored a comprehensive 5000-word report on the landscape analysis of education research publications with a focus on mathematical sciences.

Projects

Mental Math Game (Python)
Personal Project

July 2023

- Designed a game, using the PyGame Python library, to practice mental math skills under timed conditions with 3 difficulty settings, the ability to select up to 4 operators at a time, detailed statistics on your performance, time-based scoring and a scoreboard that can be filtered by operator/s and difficulty.

First Year Group Project (HTML/CSS)
University of Manchester

September 2022 – May 2023

- Collaborated with a team to create "SPUZZL", a quiz website enabling users to create, play, search and bookmark quizzes, using HTML and CSS to develop the minimal but vibrant UI.

Matchase Game (Python)
Personal Project

November 2022

- Created a challenging matching game, using the Tkinter Python library, with moving cards, 10+ levels of increasing difficulty, 3 different card designs, a leaderboard showcasing the top 10 player scores and the ability to pause and load a saved game.

Additional Experience

Student Warden
Homes for Students

October 2023 – June 2024

- Acted as the out of hours Fire Warden and point of contact for the Property Manager.
- Assisted with Check Ins, Check Outs, Student Fairs and Property Events.

Classroom Display Coordinator
Neale-Wade Academy

January 2022 – July 2022

- Worked in a team to bring life into classrooms through posters and bulletin boards.
- Monitored the condition of displays and repaired any damage in a timely manner.
- Ensured all classrooms contained the necessary notices and safety information.