

Muhammad Zain Altaf

PERSONAL STATEMENT

First Class Computer Science graduate from the University of Leicester, with a year of production software quality assurance in an Agile team that sharpened delivery discipline, scope management, and a drive to push toward optimal outcomes. That same instinct drove the final-year dissertation - a Python-based simulation engine benchmarking four carbon-aware scheduling policies against real HPC workload data to identify where meaningful emissions reductions are achievable. Those technical findings only carry weight when communicated well: a skill built leading group projects as Scrum Master, coordinating industry-facing events, and working directly with customers across hospitality and volunteering.

EDUCATION

University of Leicester - BSc Computer Science (Year 2&3 - Achieved 1st Class Hons) 2024-2026

Relevant Modules:

- Operating Systems and Networking, Databases and Domain Modelling, Software Architecture and System Development I & II, Internet and Cloud Computing, Agile Group Projects + others

University of Manchester - BSc Computer Science (Year 1) 2021-2022

Relevant Modules:

- Mathematical techniques for Computer Science, Data science, Team project + others.

The West Bridgford School - A-Levels and GCSEs 2019-2021

- A* in Maths, A in Computer Science and Chemistry.
- 11 GCSEs with grades 9-6 including grade 9 in Mathematics and 8 in Computer Science.

WORK EXPERIENCE

NUDG - Software Quality Assurance April 2023 - March 2024

- Supported QA for a live iOS and Android super-app serving 7,000+ users and 30,000+ taxi bookings, identifying and reporting defects across booking, payment, and account flows.
- Collaborated in a cross-functional **Scrum** team, participating in sprint ceremonies and maintaining tickets in **Jira** and **Confluence** to ensure test coverage tracked against delivery milestones.
- Executed manual regression and exploratory testing across iOS and Android, documenting reproduction steps ensuring no critical defects reached production across 12 months of active development while also proposing alternative flows to resolve functional edge cases.

UoL Computer Science Society - Events Coordinator November 2024 - June 2025

- Partnered with IBM to deliver in-depth technical workshops on **IBM Cloud** for the University of Leicester's Computer Science community.
- Coordinated a 100+ person hackathon and a cross-society formal event, managing end-to-end logistics and stakeholder communication across multiple partner societies.

Toros Steakhouse - Front of House 2021-2022

- Delivered full front-of-house service at a busy steakhouse, managing guest reception, order-taking, and complaint resolution to maintain high customer satisfaction.

Age Concern Charity - Weekly Volunteer 2019-2021

- Supported daily shop operations as cashier and stock assistant, engaging warmly with a diverse range of customers and community members.

PROJECTS

Carbon-Aware Cloud Workload Shifting and Optimisation - Final Year Dissertation

- Architected a discrete-event simulation engine in **Python** to benchmark four carbon-aware scheduling policies across seasonal environmental conditions, producing a policy recommendation matrix for HPC operators.
- Ingested and cleaned HPC workload trace (306,000+ tasks) and 5-minute resolution carbon intensity data (105,120 samples) to feed into the simulation engine in a controlled manner.
- Simulated real-world cloud infrastructure using a modular policy system with reserved, on-demand, and spot instance capacity tiers, evaluating seasonal policy efficacy trends to surface targeted scheduling recommendations for different operational contexts.

Metropolitan Police Crime Prediction - Big Data Coursework

- Cleaned and reduced a 1.13 million-row police crime dataset through deduplication, outlier removal, and missing-value handling, then aggregated incidents into 58,353 LSOA-by-month records using a **MapReduce-style** pipeline.
- Engineered temporal features including lag-1 and rolling-mean predictors, and applied **K-Means clustering** with elbow and silhouette diagnostics to generate spatial context features.
- Built and evaluated **Linear Regression** and **Random Forest** models against a naive baseline using a chronological train-test split and **TimeSeriesSplit** cross-validation, achieving $R^2 = 0.94$ on held-out data.
- Produced an analytical report with exploratory visualisations, correlation analysis, and critical evaluation of model performance and limitations.

IBM Learning Platform - University Group Project

- Developed and integrated **RESTful APIs** using **Java Spring Boot**, ensuring seamless communication with a React/Next.js frontend.
- Contributed to a **MySQL-backed backend system**, implementing features such as gamification (streaks, leaderboards, badges) with attention to scalability and security.
- Led sprint meetings as Scrum Master for a six-person team, resolving blockers and managing the scrum board to deliver a full-stack gamified learning platform within a fixed academic timeline.

TECHNICAL SKILLS, COMPETITIONS AND INTERESTS

Technical Skills

Languages:	Python, Java, JavaScript, SQL, TypeScript
Frameworks:	Spring Boot, React, Next.js, scikit-learn, Pandas
Tools:	Git, Jupyter Notebook, Jira, Confluence
Databases:	MySQL
Concepts:	REST APIs, OOP, Agile/Scrum, MapReduce, Discrete-Event Simulation

Competitions

- Competed at multiple hackathons including The Reply Code Challenge 2022, UKIEPC Programming Contest 2023, Morgan Stanley Coding Challenge 2024 and Let's Hack Leicester 2024.

Interests

- Active interests: Brazilian Jiu-jitsu, bouldering, strength training, and running.