Michael Perdue

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Personal Statement

A detail-oriented programmer who is hardworking, friendly and motivated, with experience in working as part of a team, collaborating with GitHub and being a scrum master leading university project teams. Knowledgeable in Java, C, Python, and SQL. A critical thinker with good time management, communication and highly adaptable when it comes to problem solving. Looking to develop my capabilities and contribute my expertise to a forward-thinking company through actively participating in software development projects.

Relevant Experience

Summer projects (May – September 2023)

- During the summer of 2023, pursued independent programming projects in Java and Python to expand my technical skills and further build on my portfolio.

Discord helper bot (Python)

- Developed a Python-based Discord bot with features including automatic message filtering with persistent banned word lists and efficient mass message deletion.
- Configured a VPS for 24/7 bot hosting, optimising its performance by creating a lightweight Docker image.

Graph generator (JavaFX)

- Created a JavaFX program to detect CSV formatted files from a folder, extrapolate the data and enable selection of one of six types of customizable graphs.
- Enabled easy export of customised graphs to PNG format.

3D modelling program (JavaFX)

- Increased proficiency in JavaFX by creating a 3D modelling application enabling the addition of cuboids and spheres to a blank canvas.
- Implemented a user-friendly interface consisting of buttons with functions for translation, rotation, duplication, material configuration, deletion and creation of new shapes.
- Enhanced user experience with mouse-based screen manipulation, including rotation, panning, zooming, and dynamic lighting management.

'Random website' Google Chrome extension

- Made and published a Google Chrome extension in JavaScript, CSS, and HTML to enable users to surf the web.
- The extension presents a pop-up button that, when clicked, redirects users to random websites from a predefined list loaded from a JSON file.

Portfolio site (May – September 2022)

- During the summer of 2022, established a portfolio website using Jekyll and GitHub pages detailing university work and solo projects.
- Added explanations, code snippets and demos of all projects I have worked on.

Royal Society (June - November 2019) 6-9 Carlton House Terrace, London SW1Y 5AG

- Collaborated on a Royal Society project, marking my first client-facing programming experience as part of a team utilising C# and Unity to develop a VR (virtual reality) experience to educate young individuals about computer fundamentals.
- Presented the VR project to the Royal Society and engaged with a diverse audience, including industry experts, while hosting a demonstration stall showcasing the VR game.
- Successfully addressed challenges related to code integration by establishing uniform coding standards and documentation practices.

Education

MSci. Software Engineering with Industrial Experience (October 2020 – July 2024) Lancaster University

- On track to graduate with a First-Class MSci degree.

Third year project - full stack development (C++, Java, Python rest API, SQL, HTML, JavaScript, CSS)

- Collaborated on a group project involving Micro:Bits and the development of a live distributed system.
- The system allows users to configure a smart environment across multiple buildings via a website, monitoring temperature, light, noise, and people's locations, controlling lights remotely, and using Micro:Bits for door access.
- Contributed to embedded coding of the Micro:Bits in C++, establishing communication via a mesh network and serial data transmission to a Java program.
- Developed a Java program using an observer pattern to process serial packets, interact with the API, store data in a MySQL database, and provide responses.
- Created Twitter and Facebook bots in Java for periodic postings.
- Utilised Google Protocol Buffers for message creation and passing in earlier iterations.
- Managed both MySQL and Influx databases.
- Wrote a REST API in Python using Flask, incorporating user verification and database interactions.
- Designed the website's graph page using Grafana graphs.
- Conducted unit tests in Java and Python, extensive integration testing, and user testing for quality assurance.

Second year C# group project

- Collaborated on creating a top-down beat-em-up game in C# set on the Lancaster University campus.
- Implemented an A* pathfinding algorithm as part of the project.
- Gained experience in version control using GitHub, including pull requests and code reviews.

Java projects

- Built a Java-based plagiarism checker using Swing, capable of comparing one text document against multiple others.
- Designed a Solar System model using Swing, allowing users to add and remove planets and moons interactively.
- Implemented a recursive depth-first search algorithm for maze solving and finding the shortest path.
- Created a passive replication system for an auction house using Java RMI.

Python projects

- Explored computer networks in Python, developing pure socket implementations of ICMP Pings, Traceroutes (UDP and ICMP), web server, and proxy server.
- Utilised the cryptography module to program the Diffie-Hellman (DH) key exchange, symmetric and asymmetric encryption, and hashing.
- Used the SciPy and NumPy modules to program probability distributions (triangular, pareto, geometric and log-normal) , Bayes' theorem, linear optimization and linear regression.

C projects

- Developed my own implementation of Malloc and Free in C with only using sbrk, enhancing my understanding of memory management.

A-levels (2018 – 2020) Caroline Chisholm School

- Computing (A*), Maths (A), Cambridge Technical Introductory Diploma in IT (Distinction*)
- Selected for Royal Society project aimed at educating young people in computer fundamentals.

GCSE's (2016 – 2018) Caroline Chisholm School

- Maths (8), Combined Science (7-6), Computer Science (6), English Literature (6), English Language (5), History (5), Art & Design (5), D&T: Graphic Products (C).

Personal Interests

- Played football competitively for Kislingbury, a local team for 4 years.
- Travelling and exploring new cultures.