James McKenna

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Personal Profile Statement

As a recent Master's graduate, I am a highly motivated individual with a strong academic background in computer science. Through my coursework, I have developed advanced skills in Python, C# Script, JavaScript, and MicroPython. I have a passion for exploring new technologies, such as Internet of Things, Artificial Intelligence, and Virtual Reality. My goal is to leverage my education and experience to contribute to improving your current systems and to bring more to your company/organisation, while continuing to learn and grow professionally.

Education and Qualifications

Liverpool Hope University (2018 – 2022)

MSc Advanced Computer Science (Distinction – 76.33%) 10/2021 – 10/2022

- Dissertation – Using The Things Network and the BBC Micro:Bit to improve Education and Safety (92%).
- Internet of Things – Created a classroom system using the BBC Micro:Bit to encourage anonymous communications between students and teachers (92%).
- Virtual Reality – Developed a virtual room where users can interact and manipulate objects to help regulate emotions (92%).
- Artificial Intelligence (B+ in the exam and A in the coursework).
- Theoretical Computer Science (C in the exam).
- Numerical Methods (C in the exam).
- Big Data Analytics – Used Ubuntu and Apache Pig to process big data and create conclusions based on the data that was analysed (76%).

BSc (Hons) Computer Science (1st Class – 75.85%) 10/2018 – 06/2021

- Dissertation – Using Genetic Algorithms to play Sonic the Hedgehog (1991) (76%).
- Introduction to Computer Science (Additional) (A).
- Introduction to Computer Science (A).
- Explorations in Computer Science (Core 2) (AA).
- Explorations in Computer Science (AA).
- Advanced Studies in Computer Science (Core 1) (A).
- Advanced Studies in Computer Science (Core 2) (A).

Blessed Thomas Holford Catholic College (09/2011 – 06/2018)

A-levels and BTEC's:

- 3 GCE A-levels in Computer Science (E), History (C), and Creative Media (Distinction).

GCSE's:

- 10 GCSE's grade A-D including C in English and B in Mathematics.

Technical Skills

- Experience in Python, Java, JavaScript, PHP, C, C# Script, and MicroPython.
- Using libraries in Python such as Pandas, OpenAI, and NEAT to create a genetic algorithm. Also using SQLite3 to make database and SKLearn to create a machine learning algorithm to predict the movement of a stock on the stock market.
- Experience in the TfL (Transport for London) API to create a journey planner, which shows the estimated time and the steps to reach the end destination from the start destination. The program also shows the status of the tube and roads in London.
- Using the Queue-Times API to create a ride planner in Python for Alton Towers to retrieve the waiting times for each roller coaster and using Dijkstra's algorithm to find the optimal ride order based on current waiting times.
- Experience in HTML and CSS mark-ups, including JavaScript with A-Frame to create a VR game, which can be played on a locally hosted website.
- Development of Artificial Intelligence and Machine Learning, particularly the Bachelor's degree dissertation, which uses NEAT to play Sonic the Hedgehog by populating a neural network with 30 genomes, which must then attempt to win the level with each generation slowly improving its fitness to reach said goal.
- An IoT-based approach was adopted to address certain issues, exemplified by the employment of the BBC Micro:Bit v2 equipped with a LoRa node, in conjunction with a Raspberry Pi 3 Model B embedded with a LoRa Gateway HAT, for the purpose of developing a network gateway aimed at collecting and analysing data emanating from transmitters. The system's code was composed using MicroPython, with the Micro:Bit serving as the device for transmitting information to the gateway. This project was undertaken as part of the Master's dissertation.
- The Oculus Quest 2 was used as a developer kit device to create a VR project in Unity using C# Script, which was a room for users to express their emotions by interacting with or destroying objects in a virtual room.
- Exceptional knowledge using Microsoft office applications, such as Excel and Word.
- Experience in SQL, such as MySQL and SQLite3.
- Good knowledge of Big Data analysis using Apache Pig and Ubuntu.

Additional Skills

- Capable of completing tasks to a high standard on time, meeting deadlines for university coursework and portfolios.
- Creating my own code during my spare time to improve my understanding of certain programming languages and technological features (see my GitHub page and website).

Work Experience / Employment

IT assistant, The Christie NHS Foundation Trust, Manchester, 2017

- Imaged new software and operating systems.
- Created new ports for the network.
- Managed new devices for staff.
- Worked in a small team to manage security.
- Shadow placement with a Python developer at the Applications Department.

IT assistant, Blessed Thomas Holford Catholic College, Manchester, 2017

- Managed the school's database for new upcoming sixth form students.
- Recommended operating systems for school computers.
- Helped resolve technical issues for teacher's devices.

Assistant at Trendz Barber Shop, 2018

- Handled payment slips to employees via e-mail.
- Cleaned the shop floor and dealt with customer payments.

Young Ambassador and Online Changemaker, YPAS (Young Persons Advisory Service), Liverpool, 2022

- Encourage cooperation as a group and bring new ideas to reduce youth crime across Merseyside.
- Created an IoT device using the Micro:Bit to reduce sexual violence and bullying in the classroom, which was approved by YPAS.
- Connect with companies and council officials to discuss new ideas to help young people.

Interests and Hobbies

- Interest in Artificial Intelligence, IoT, gaming, and new technologies.
- Built my own desktop PC, and usually repairs computers for family and friends.
- Enjoy fitness and exercise to benefit my physical and mental health; highly motivated to improve myself. I also joined the Powerlifting society at university to gain further knowledge and to improve my form and lift heavier weights. The society also helped with social skills amongst the society members.