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Prabhjot Singh Grewal

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Education & Qualifications

Imperial College London – Computing (MEng) *October 2018 – current (2022 Graduation)*

- 1st Year studies: Functional and Object-orientated paradigms and Data Structures (**1st – 84%**) | Graphs and Algorithms (**1st – 77%**) | Discrete Mathematics | Logical reasoning | Databases | Computer Architecture.
- Coming year: Operating Systems | Compilers | Networks | Computational Techniques | Statistics | Prolog

Leicester Grammar School *September 2010 – July 2018*

A-Levels: Mathematics, Further Mathematics, Computer Science, Physics – **A*A*A*A***
Extended Project Qualification: **A***
GCSEs: **A* with Distinction** in Further Mathematics, **9A***, **1 A**.

Past Projects

ARM Group Project – ***C*** *June 2019*

- Implemented an **assembler** and **emulator** for the ARM instruction set using **C**.
- Developed an adaptation of the **Monte Carlo Tree Search** algorithm to play a game of Connect Four as an extension. Visualised the games on a custom PCB with a handmade bi-colour LED-matrix.
- With a 10,000 cycle computational budget, the MCTS-based "Computer" was unbeaten, running in real-time on a Raspberry-Pi – requiring optimisation for speed and memory. Ranked as one of the **Top 10 projects**.

"eduCATe" project: IC Hack 19 – ***Java*** *January 2019*

- As a team of 4, we designed an **instant messaging system** that used a **LAMP stack** and incorporated file-sharing and scheduling for assignments and projects.
- I developed the front-end (an **Android application written in Java**), as well as implementing the data handling and parsing in the application's back-end using **JSON files**.

Android health-tracking application – ***Java*** *January – April 2018*

- Created the front and back-end design, implemented and tested an app using **Android Studio**.
- Used an **agile model** to be able to focus on user feedback in the design.
- I taught myself **Java** and used **SQLite** for data-storage on Android OS.
- Also incorporated statistical analysis on user data, displayed to the user with visual cues, to show trends in data and progress towards user-defined goals.

Extended Project Qualification – ***Python, Tensorflow library*** *2017-18*

- Titled: "An Explanation of Machine Learning through Neural Networks and the possibilities and limitations of its implementation". Researched the fundamentals of Machine Learning, followed by a more in-depth look at how **Neural Networks** were conceived, built, and now used.
- Created some small demonstrations using the **TensorFlow library** and the **MNIST** data set.

Experience

Fire Tech Camp *August 2019*

- Delivered technology-based courses at a summer camp involving **Python**, **Java**, and **electronics**.
- Prepared and trained for courses, where I had to engage children aged 9-15 in the course content.
- Presented to students and parents, communicating constructive feedback through written and verbal reports.

Young Scientists Journal *November 2016 – Aprill 2018*

- Co-lead and created our school's own branch of the Young Scientists Journal – scientific articles, experiments and research all written and edited by 12-20 year olds – with role of **Co-Editor** and **Design Director**.
- Pitched, explained and marketed to students, parents, and the general public at events like the **Big Bang Fair**.

Skills & Interests

Familiar with **Linux**, **Windows** and version control using **git**.
Programming languages: **Java** | **Python** | **C** | **Haskell**
I have interests in Machine Learning and Astrophysics, and recently photography. I have also trained in Tae Kwon Do for over 10 years (2nd Dan Black Belt) and also taken up boxing.