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Prabhjot Singh Grewal

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Education & Qualifications

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

- 1st Year: Functional and OO paradigms and Data Structures (**1st – 84%**) | Graphs and Algorithms (**1st – 77%**)
- 2nd Year (achieved **1st Class** and Dean's List – **Top 10% of year**): Operating Systems | Compilers | Networks | Computational Techniques with Linear Algebra | Statistics | Software Engineering Design.
- 3rd Year (*incoming year*): Distributed Algorithms | Intro to ML | Computer Vision | Logic-based Learning

Leicester Grammar School *September 2010 – July 2018*

A-Levels: Mathematics, Further Mathematics, Computer Science, Physics – **A*A*A*A***; EPQ: **A***
GCSEs: **A* with Distinction** in Further Mathematics, **9A***, **1 A**.

Experience

Google – STEP Intern ***– Java, TypeScript*** *July – September 2020*

- Attached to SRE team, observed challenges of supporting and developing critical infrastructure.

Coffee Chats – Software Development Project *(6 weeks)*

- Created platform to facilitate meaningful social interactions by matching people based on interests.
- Utilised **Google Cloud APIs** on Java servlet backend attached to **NoSQL** datastore, with a **React** frontend.
- Collaborated in a pair to design, implement and present project, ran daily stand-ups to aid coordination.

Fire Tech Camp *August 2019*

- Delivered technology-based courses at a summer camp involving Python, Java, and electronics.

Past Projects

Event Kiwi ***– TypeScript*** *April – June 2020*

- An event planning and discovery platform for university students to discover and plan society events.
- Designed and developed with an **agile** model, with bi-weekly client interviews and testing iterations.
- Used **CI/CD** pipeline to allow for rapid deployment to a staging and production, while maintaining correctness.
- I worked on front-end development using **React** framework, interfacing with a Express backend server.

Shopwise: IC Hack 20 ***– Python*** *February 2020*

- Created an application for self-service checkouts, designed for smaller retailers and independent business owners to keep up with larger corporations with more resources.
- Finished **2nd Place** in Thought Machine's category for "Money for Good".

WACC Compiler ***– Scala*** *January – March 2019*

- Created an optimising compiler for the WACC programming language, using parser-combinators and **TDD**.
- For an extension, I implemented optimisations on generated code via conversion into/out of SSA form, performing dead-code elimination, constant propagation and enabling future optimisations.

CatchIT: Google BGN Hackathon ***– Python*** *October 2019*

- Won **1st Prize**, creating a litter-picking rewards app using on-device ML model to recognise rubbish.
- I developed a **RESTful API** backend with Flask, handling user and activity data in a SQL database.

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

- Implemented an **assembler** and **emulator** for the ARM instruction set using **C**.
- As an extension, I adapted **Monte Carlo Tree Search** to play a game of Connect Four which was unbeaten by human players, running in real-time on a Raspberry-Pi. Ranked as one of the **Top 10 projects**.

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.

Skills & Interests

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