PARTHA KHANNA

+447585950944 • parthakhanna05@gmail.com • linkedin.com/in/parthak314 • github.com/parthak314 • parthak314.github.io

Education

Imperial College London — **Sept 2023 - June 2026**

Bachelor's in Electronics and Computer Engineering (EIE) — *Predicted First Class Honours*

- **Computer Architecture** - Writing Assembly to perform various tasks on an ARM v6 based system.
- **Imperial College Robotics Society** - Developed QR code recognition systems mounted on rovers, showcasing team-building skills in collaborative engineering projects.
- **Blockchain society** - Focused on algorithmic trading and derivatives analysis using Binance API.

Greenhead College, Huddersfield — **Sept 2021 - June 2023**

A Levels in Maths, Further Maths, Physics, Computer Science — *Four A*s*

- British Informatics Olympiad, British Physics Olympiad, UKMT Maths Kangaroo Competition - top 8% nationally
- Awarded for developing an innovative Thermoelectric Generator, showcasing proficiency in sustainable technology design and energy efficiency solutions.
- Started a coding club at school, teaching ages 16-19 to code from beginner to advanced, leading onto Bytes of innovation, a newsletter and tutoring company reaching out to 150+ students.
- Debating Team captain, 1st XI Cricket Team, Swimming team, Intra-school Chess team tournament winner

Projects and Skills

- **Languages:** Python, Embedded C, C++, Web Dev., JS, React, BASH, Assembly, SystemVerilog, SQL, Rust
- **Technologies:** Git/GitHub, Docker, Wireshark, Ubuntu, FPGA, RISC-V
- **Other:** Solidworks (3D modelling and slicer software for 3D printing), Adobe Illustrator, Photoshop, Trello, LaTex

Particle Fluid Simulator

- Developed a client-side application to simulate particle motion through fluid with user-controlled parameters (mass, velocity, and viscosity), achieving 95% accuracy in real-time visualisation based on Navier-Stokes equations. Gained 50+ user signups with data stored in SQL database. With user entries that can be retrieved later as a CSV file. Also displaying this visually via a graph, as configured by the user.
- Using an Agile based methodology to streamline the development process and provide constant updates in sprints.

Remote control rover

- Engineered a remote control rover using Python (Flask), AJAX handling 200+ successful POST/GET requests during tests. POST requests to send sensor readings from the rover to the web app. GET requests to send the motion and speed settings to the rover for motors
- Collaborated within a team which at times, I had orchestrated as well as pursuing other roles such as sensor development and building circuits to facilitate the rover development. Led a 6-member team and managing a £60 budget.

Predicting Formula 1 Race Winners

- Using Oracle's Data Warehouse to store past F1 winners as well as race conditions from 1950 to 2021.
- Perform data analysis by analysing correlations between winners and conditions and thus implementing a machine learning model to predict the next winner based on this while achieving 80% accuracy across 20+ races

Work Experience

Quantitative Research and Research Engineering Intern — **December 2024 – Present**

Syntagma Labs — *London, UK*

- ∗ Conducted Quantitative Research and developed algorithmic trading strategies, leveraging statistical models and data-driven techniques to optimise financial decision-making and maximise trading efficiency.
- ∗ Designed and implemented AI and ML models to analyse large datasets, predict market trends, and improve the accuracy of trading algorithms.
- ∗ Explored Blockchain and Web3 technologies to develop secure and decentralised solutions for trading systems, integrating smart contracts and tokenisation concepts to enhance transparency and scalability in financial applications.

Electronics Engineering Intern — **July 2023 – August 2023**

Reliance Precision Limited — *Huddersfield, UK*

- ∗ Programmed an STM32 Nucleo using Embedded C to test transducers for a bionic arm prototype, reducing testing time and improving sensor accuracy. Collaborated with a 5-member cross-functional team to optimise motor performance and integrate steel and carbon fiber components, contributing to a improved arm functionality as well as risk management strategies in place with rigorous testing protocols.

Competitions and Hackathons

Algothon 2024

Imperial College London   *London, UK*

* Designed and implemented an automated stock trading system using Slack and Google Drive APIs to securely retrieve and process data, leveraging the MACD algorithm for optimal buy/sell timing.
* Automated trade submissions via Selenium, streamlining execution and reducing manual intervention. Then repeating this every 19 minutes using Python's scheduler for over 18 hours.

Training and Certifications

- **GitLab Associate**: Using Git commands for branching and merging locally and remotely and using this as part of the DevOps cycle and CI/CD pipeline
- **VMWare Cloud and Virtualisation**: Understanding virtualisation from the fundamental elements such as a hypervisor and data centre/virtual data centre. Then going onto study various architectures including data centres, x86, storage solutions such as RAID.
- **Cyber and Cloud Security**: **Cloud Security, Network Security**, OCI Network Firewall, Wireshark, Simulating Brute force attacks and rainbow table attacks, Linux Ubuntu and Kali, NMAP, Metasploit