# Intishar Alam Misbahul

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## Education

**Imperial College London** **2022 – 2026**
MEng Electrical & Electronic Engineering (EEE)
*On track for a 1st - achieved 81% for 3rd year*

**Mulberry Stepney Green Maths, Computing, and Science College** **2020 – 2022**
A-Levels: Computer Science (A*), Pure Mathematics (A*), Physics (A*), Chemistry (A)

## Work Experience

**Freelance PCB Designer** **Nov 2025**
Start-up company (Freelance)

- Designed a compact PCB, achieving dense routing for large components in a tight space.
- Managed the full workflow: schematic capture, PCB layout in KICAD, fabrication coordination, and assembly.
- Delivered a fully assembled board within 2 weeks, meeting strict functional and mechanical requirements.
- **Skills:** High-density PCB layout, component placement optimisation, end-to-end hardware delivery.

**Trainee Electronics Engineer** **Apr 2025 – Sept 2025**
DCA Design International

- Characterised current consumption of a medical device under multiple configurations to model battery performance.
- Evaluated and benchmarked sensors for potential integration into inhaler devices.
- Designed and assembled an evaluation PCB using Altium Designer for system testing.
- Developed, simulated, and prototyped an analogue circuit with LTspice to validate performance.
- **Skills:** Altium Designer, analogue circuit design, embedded systems, Python, and hardware validation.

**Recruitment & Outreach Student Ambassador** **Autumn 2023 – Present**
Imperial College London

- Tutored and mentored Year 11–12 students in STEM subjects across outreach and recruitment activities.
- Delivered and facilitated hands-on workshops, including electronics prototyping and maker-based projects.
- Supported the Imperial Makerspace programme, assisting with idea development and safe use of tools.
- Conducted interviews, led campus tours, and represented Imperial to prospective students and school groups.

## Project Experience

**Power Factor Correction Board** **Jan 2025 – Apr 2025**
Electronics Team Member

- Designed and simulated a boost PFC circuit and implemented PCB layout in Altium Designer.
- Assembled hardware, validated open-loop operation, and evaluated efficiency under varying conditions.
- Developed and tuned digital control algorithms for closed-loop voltage regulation on a microcontroller.
- **Skills:** Power electronics, PCB design (EasyEDA), LTspice simulation, embedded control, hardware validation.

**Embedded Systems Project — Music Synthesiser** **Jan 2025 – Apr 2025**
Software Team Lead

- Developed firmware for a digital music synthesiser, implementing core audio generation and control logic.
- Designed and programmed oscillators, envelope generators, filters, and modulation modules in C++.
- Integrated digital audio output and timing control to generate waveforms and manage real-time constraints.
- **Skills:** Embedded software, C++, real-time signal processing, PCB design and layout, audio synthesis, hardware validation.

**Full Custom IC Design — 8-bit Current-Steering DAC** **Oct 2025 – Dec 2025**
Individual Design Project

- Designed an 8-bit current-steering DAC in 45 nm CMOS using Cadence Virtuoso.
- Implemented binary-weighted current mirrors and segmented architecture to improve linearity.
- Verified performance via DC and transient simulations, meeting key specifications.
- Developed schematic and partial layout using common-centroid and symmetry; performed DRC/LVS checks.
- **Skills:** Analogue IC design, Cadence, CMOS, DACs, layout, circuit simulation.

**Smart Power Grid Project** **May 2022- July 2023**
Hardware Team Lead

- Characterising and simulating PV array and Battery Management System (BMS), increasing system efficiency by 25%.
- Integrating hardware with a software server, streamlining data exchange and analysis.
- Implementing PID controls, improving system response time by 20%.
- Collaborated on GUI development for project webpage, enhancing user experience.
- **Skills:** Problem-solving, data analysis, teamwork, Python, NextJS, hardware-software integration.

## Programmes & Volunteering

**Education Officer** **Autumn 2025 – Present**
Imperial College Robotics Society (ICRS)

- Led technical workshops on embedded systems, PCB design, prototyping, and CAD.
- Ran sessions on 3D printing, mechanical assembly, and safe use of fabrication tools.
- Coordinated educational events to support members' practical learning in robotics and electronics.