Ansh Agarwal

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Engineering Undergraduate with extensive hands-on experience in mechatronics, rapid prototyping and full-stack development. Proven track record in designing 3DOF/5DOF robotic systems and managing lab operations.

Education

Imperial College London – Master's in Design Engineering [September 2025 – July 2029]
- ICRS Project Coordinator and Ideas Lab manager

Tiffin School 6th form [September 2023 – July 2025]
- Completed A levels and achieved **4 A*** in Maths, Further Maths, Physics and Design & Technology.
- 2 Golds in the UKMT Senior Maths Challenge
- Head of Tiffin Robotics and led the school rocketry team to regional competitions
- Jack Petchey Award Winner and Graduation Award winner
- Ran training sessions for both students and staff on the operation of our new Denford CNC router and existing 3D printer
- Diagnosed and repaired electromechanical failures in a CO_2 laser cutter saving hundreds in repair costs and reducing downtime

Tiffin School [September 2018 – July 2023]
- Completed GCSE in 2023 and achieved the top grade in 6 STEM subjects.

Technical Skills

- **Design & CAD:** Fusion 360, SolidWorks, Blender3D, Design for Manufacturing (DFM).
- **Hardware & Prototyping:** Additive FDM Manufacturing, Subtractive CNC Machining, Laser Cutting, Soldering, PCB Design, Arduino
- **Software & Control:** ROS2, Python, C++, C#, JavaScript, HTML, CSS, Linux, Git
- **Cloud & DevOps:** AWS (EC2, S3, Lambda), GCP (Firebase, Cloud Functions)

Experience

Imperial College Robotics Society (ICRS) - Project Coordinator & Lab Technician [October 2025 – Ongoing]
- Elected as Imperial College Robotics Project Coordinator
- Founded and Leading 3 national autonomous robotics competition teams managing over 50 engineers
  - 1st place against other universities and 40% under our allocated budget
  - Worked on all aspects from Computer Vision algorithms to the electrical and mechanical design of our robots.
- Maintaining 20+ 3D Printers (FDM & SLA) and CNC Machines ensuring equipment uptime for student and research projects
- Providing technical support to lab users, advising on Design for Manufacturing principles, material selection, and slicing software configurations to optimize fabrication quality.

First Order Robotics Lead Mechanical Engineer [October 2025 – Ongoing]
- Collaborating with a team to design and build 6 competition-ready robots for RoboCup SSL Germany
- Redesigned our training robots to achieve an 11% reduction in production costs without compromising function
- Engineered a custom transmission base station to communicate with all 6 robots over radio transmission
- Appointed as Lead Mechanical Engineer in February 2026

CTO of Trading Games LTD [July 2023 – February 2024]
- Served as the Sole Developer for the company's line of web apps
- Deployed a scalable serverless backend architecture using Google Firebase
- Utilized Stripe to manage payments
- Worked with clients to better understand their needs and tailor each site to them

Professional Insight & Shadowing
- Witnessed advancements in medical robotics in a research lab, gaining exposure to soft robotics and to novel actuation methods
- Arranged meetings with the emerging technologies department at PWC, including Drones and Artificial intelligence
- Gained practical exposure to Agile Sprint cycles at Xplora and using tools, such as Jira, for project management

Volunteer at Oxfam Charity Shop [October 2021 – August 2024]

Personal Projects

- **3-DOF CNC Whiteboard Plotter**(Video Demo)- Designed, made and programmed a 800x1000mm CNC whiteboard plotter that draws any images/vectors sent to it via a computer using an Arduino, C#, Python, C++, Fusion 360, Raspberry Pi and additive manufacturing.
- **5 DOF Robotic Arm** - controlled by an Arduino and connected to a desktop program written in C#.
- **IoT Window Blind**(GitHub) - Created and programmed a smart home automated window blind that integrates with Google Home
- **Concealed chess Cheat**(GitHub)- Created a concealed device and program to subtly communicate with a Grand Master 2600+ elo chess engine in response to the accusations against Hans Niemann by Magnus Carlsen. Made with a Raspberry Pi and Python.
- **Mobile Game -** Developed a mobile game created in the Unity Game Engine with over 100 downloads on the Google Play Store.
- **Games Website -** Using HTML, CSS, JavaScript, and the Google Firebase authentication SDK, programmed and hosted a website with popular online web-based games and a Google login system for profile management and social features
- **Server Network -** Used Amazon AWS EC2 instances with a MySQL server to host a server network for an online multiplayer game.