AARUNI ARORA

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EDUCATION

Imperial College London (ICL) London, United Kingdom *Oct 2020 - Jun 2025*
MEng Biomedical Engineering with a Year in Industry *Grade: On track for First Class Honours*
Focus in Electrical and Computational Pathway

Academic Research Experiences:
- Actively engaged in drafting a grant application for a health economic research project in partnership with Dr. Giulia Ferrari at LSE.
- Delivered 3 financial research documents for biweekly reports to enhance investment decision-making skills with the StockHub Analysis Group.
- Automated a gene editing application and a program that predicts the spread of cancer cells with an optimal 100% accuracy in Python.
- Designed a stethoscope on OrCAD and built a physical prototype with 80% working efficiency.
- *UROP at the Department of Brain Sciences with UK Dementia Research Institute*: Executed electrophysiological research on temporal interference brain stimulations to master mice neuromodulation.

WORK EXPERIENCE

Traverso Lab at MIT and BWH **Boston, MA, USA**
Research Trainee *Jan 2024 - Jul 2024*
- Involved in a DARPA-funded project focusing optimising the PCB design of a smart device and implementing Python-based signal processing algorithms for sleep analysis.
- Fabricated a lightweight wearable device (~100g) for EEG signal data collection. (pending publication)

Vaccine and Immunotherapy Center at Harvard Medical School and MGH **Boston, MA, USA**
Visiting Research Scholar *Jul 2023 - Dec 2023*
- Secured the Turing Scheme Grant to do a Year in Industry in the USA by the UK government.
- Contributed to and standardised protocols for biotechnology-based research and lab work on immunotherapy strategies for type 1 diabetes and performed related data analysis (JDRF-funded studies).
- Improved islet transplantation effectiveness through combined usage of FAS Ligand and CXCL12 proteins with PEGs microgel technology from 10 to a 30-day graft survival in murine models (pending publication).

Leadership Experience **London, UK**
- *Undergraduate Teaching Assistant for Programming 1*: Spearheaded Quartus Prime v16 and Python training sessions, facilitating the introduction of the software and offering mentorship to approximately 70 students.
- *Volunteer experience*: Imperial Bioscience Review; First Aid Society; e.Quinox; ITF/WT Judge; Dance-based charity events; Hackathons; Vice President of Poetry Society (*Year 2*); Great Exhibition Road Festival.

PROJECTS

HeartReach: A Low-Cost Imperial Bioengineering Outreach *Oct 2022 - Jun 2023*
- Devised an innovative tool with Unity Game Engine, Augmented Reality (AR) and Arduino technologies to elevate interest and awareness of bioengineering-based solutions in GCSE students.
- Organised a pilot study to assess the interest of GCSE students in products similar to HeartReach and analysed a ~70% increase in the engagement rate post-product interaction.

Dinomaze: AR Educational App Development for Cerebral Palsy (CP) Students *Nov 2022 - Jan 2023*
- Developed and presented a 3D AR-based educational app for children aged five and above with CP GMFCS Levels 3 to 5 using Unity and Visual Studio (C#) to meet the client The Pace Centre's criteria.
- Programmed an engaging quiz-based maze to improve critical thinking, problem-solving and collaboration skills by at least 5% among children using Dinomaze.

Hydrotherapy Device for Kids with Cerebral Palsy (Co-Project Lead/Manager) *Oct 2021 - Jun 2022*
- Engineered a floatation device for adolescents (up to 75kg) with cerebral palsy to play water sports.
- Presented and promoted the mechanical device to 30 potential clients at the National CP Swimming Competition in Nottingham and received positive feedback.

SKILLS

Languages: Arduino, C#, LaTeX, MATLAB, Python (Jupyter, Matplotlib, NumPy, Pandas, SciPy)
Software: Altium, Canva, FlowJo, GraphPad, GitHub, ImageJ, LAS X, LTSpice, OrCAD, SolidWorks, Unity
Lab: 3D Printing (PLA, Resin), Circuitry, Confocal and Tissue Microscopy, ELISA, Flow Cytometry, Microtome, Silicone Moulding, Oscilloscope, Soldering, Western Blot
Certifications: Digital Signal Processing and Analysis (*April 2024*); PyTorch for Deep Learning (*August 2024*); Statistics and Machine Learning (*Ongoing*); Linux Commands and Systems (*Ongoing*)