Aaryan Sharma
Electrical Engineering
Indian Institute of Technology Bombay

210110003
Dual Degree (B.Tech. + M.Tech.)
Gender: Male
DOB: 24/02/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	

Pursuing a **Minor** in **Artificial Intelligence and Data Science** at IIT Bombay

Scholastic Achievements

- Currently ranked among **top 7** within the Dual Degree Program in the Department of Electrical Engineering *(2023)*
- Among **top 15** out of 1200+ candidates to be awarded **Change of Branch** to **Electrical Engineering** *(2022)*
- Awarded **AP grades** in **Materials and Technology(MM152)** and **Planetary Sciences(GNR649)** course *(2023)*

Professional Experience

EPR Strategy Intern | IFP Petro Products Private Limited *(Dec 2022)*

- Developed models for improving sustainability of lubricant oil and improving supply chain for used oil collection
- Analyzed the **Used Oil policy** by NITI Aayog and Plastic EPR, researched on existing **EPR frameworks** available globally and provided recommendations for better implementation of **circular economy** and EPR in India

Key Projects

Pipelined and MultiCycle RISC Processor | Course Project *(Aug 2022- Apr 2023)*

Guide: Prof. Virendra Singh, Department of Electrical Engineering

- Implemented a **6-stage pipelined** RISC processor with **26** instructions in **VHDL** to achieve an IPC close to 1
- Optimized the pipelined structure using **hazard mitigation** techniques such as forwarding,flush and branch prediction
- Implemented a **multicycle RISC** based processor with optimized flow charts and **FSM states** to reduce CPI
- Tested and verified the design of both processors by viewing the simulated waveforms generated by **RTL Simulation**
- Designed **Mini-8085** microprocessor with level 2 flow chart, including datapath and controller organization

Digital Logic Design in VHDL | Course Project *(Jul 2022 - Nov 2022)*

Guide: Prof. Maryam Shojaei Baghini, Department of Electrical Engineering

- Designed a **Server Access provider** by priority using **FSM** in VHDL and tested the design using Xenon Board
- Performed **RTL** and **Gate level simulation** and tested designs with **UrJTAG** and **Scanchain** on Xenon board

Working with 8051 Microcontroller | Course Project *(Jan 2023 - Apr 2023)*

Guide: Prof. Saravanan Vijayakumaran, Department of Electrical Engineering

- Created and validated **embedded C** code for efficient **lab inventory tracking** of item issuance and returns
- Used a **USB-UART** module and realterm to couple keyboard with the **Pt-51** board through laptop for inputs
- Programmed Pt-51 board using embedded-C to simulate a **Stop-Watch** with an interfaced 16x2 **LCD** display
- Developed a voltage measuring device by interfacing potentiometer with **ADC MCP3008** using **SPI**

Data Analysis and Simulation | Course Project *(Jul 2022 - Nov 2022)*

Guide: Prof. D Manjunath, Department of Electrical Engineering

- Constructed a model to predict the height and weight of a person using **linear regression** on a given data set
- Estimated number of fishes in Powai Lake using the **Capture-Release-Recapture** process by maximizing probability
- Simulated a transmitter given the probability of receiving and transmitting data packets for **1,000,000 time steps**
- Formulated an algorithm using **Hoeffding's inequality** to maximize reward given three biased coins and fixed tosses

Analog Circuit Design | Course Project *(Jan 2023 - Apr 2023)*

Guide: Prof. Anil Kottantharayil, Department of Electrical Engineering

- Designed and implemented **active filters**, **differential** and **logarithmic amplifier** using LM741 and TL084 ICs
- Synthesized netlist, devised **Ngspice** commands to perform the simulations to obtain desired parameters for Log-Amp

Technical Proficiency

Programming	C/C++ | Python | Assembly | Embedded-C | VHDL | SQL | JavaScript | LaTeX | CSS | HTML
Software Tools	Intel Quartus | Keil μVision | Ngspice | MS-Office | GIT | ArduinoIDE
Machine Learning	NumPy | Pandas | MatPlotLib | PyTorch | TensorFlow | Scikit-learn | NLTK

Extracurricular Activities

- Secured **2nd** position in QuantHive's Algoswarm,Algo-Trading Hackathon,organised by Analytics Club (May 2023)
- Completed **Tinkering Bootcamp,Game Theory** and **Big Data Handling** in Learner's Space (Jul 2022)
- Built an **Obstacle Manoeuvring Bot** and completed the competition track conducted by ERC *(Aug 2022)*
- Mentored 7 mentees in an **Instagram Automation Tool** project using Selenium in **WiDS2.0** (Dec 2022)
- Undergone one year of training with **NSO Chess** to enhance chess playing abilities (2021-2022)
- Elected as a **Prefect**, in BVB Vidyashram School, responsible for maintaining discipline (2019-2020)