




Abhijat Bharadwaj

Major: Electrical Engineering
Spec.: Communication and Signal Processing
Minor: Computer Science and Engineering
Indian Institute of Technology Bombay (IITB),
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CGPA: 7.86
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Graduating year: 2026
Dual Degree (B. Tech + M. Tech)
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Professional Experience

Android Developer | DostX, Kriv Tech.

(May 2024-June 2024)

- Developed an android application for relieving burden and assisting the care-takers of chronically ill patients
- Implemented automated **WhatsApp** medicine reminder and **One Time Password** based secure login system
- Built a **multi-language support** functionality and built **customized page routers** in Flutter for performance

Front End Developer: My-IITB | Application Software Centre, IIT Bombay 

(May 2023-July 2023)

ASC provides software and portals for various academic and administrative purposes impacting **11,000+** residents

- Researched and developed models using technologies like **microservices**, **micro-frontends** and **webpack5**
- Developed solutions for **simultaneous rendering** of micro-frontends using **multiple** JavaScript frameworks
- Implemented a **CI/CD pipeline** on **CircleCI** and **GitLab** for seamless development, staging and deployment

Full Stack Web Developer | Trubuddy Solutions Pvt Ltd 

(July 2023-August 2023)

A web-based platform providing mentoring to students to help them choose a career more efficiently.

- Developed a commercial portal with **access-token** and **refresh-token** based login system secured by **OTP**
- Designed an optimized **search system** and employed **fuzzy algorithm** for an intuitive search to find mentors
- Integrated **Twilio** WhatsApp APIs, **Zoom** Meetings APIs, and **Stripe** Payments Portal, and deployed on **AWS**

Teaching Assistant | CS101: Computer Programming and Utilization 

(August 2023-November 2023)

An introductory level course offered by CSE department, taken by **500+ students** at IIT Bombay every semester

- Recognized for “**Excellence in Teaching Assistantship**” award for exceptional performance and dedication.
- Troubleshoot **XMin** setup on **WSL** for **over 200** students, ensuring smooth execution of programming labs
- Guided** students in learning programming concepts in **C++**, facilitating their understanding of the subject

Key Projects

Mess-I: Mess Management System | DevCom, IIT Bombay 

(May 2022-Present)

- Engineered a **scalable** software system to simplify **data handling** and **access control** using **RFID** technology
- Deployed the system in **14** out of **16** hostels and **20+** devices, covering **4,000,000+** meals and **16,000+** users
- Implemented live **web-socket** communication, remote **logging** and upgraded the codebase to **Flutter v3**
- Remodelled** the **deployment** of app, standardized **versioning**, and set-up organization **keystore** signature

Covariance Matrix Estimation via Compressive Sensing | Prof. Ajit Rajwade, CS754 

(April 2024)

- Conducted in-depth **review of papers** on covariance matrix estimation from **compressive measurements**
- Implemented a **biased** and an **unbiased** covariance matrix **estimator** as proposed in the research papers
- Achieved a **2x reduction of error** in unbiased estimator with a **similar execution time** for the algorithms

Medical Chat-Bot Using Llama 2 and FAISS | Prof. Amit Sethi, EE769 

(April 2024)

- Developed a Medical Chatbot using **open-source** technologies, including **Llama 2**, **LangChain** and **FAISS**
- Implemented **PDF reading capabilities** to extract and process medical information from PDF documents
- Utilized **Sentence Transformers** to convert pdf text into embeddings for better understanding and analysis

RFID based Inventory Management System | Prof. Siddharth Tallur, EE344 

(January 2024-April 2024)

- Developed a **rechargeable**, battery operated, hand-held **13.56 MHz RFID** handler device with hardware UI
- Designed and printed **PCB** with transceiver **antenna**, interfacing **I2C** and **SPI** components with Raspberry Pi
- Implemented **HTTP communication** to transmit data and **machine authentication** for permission control

SRNN training with differentiable quantization | Prof. Udayan Ganguly, EE746

(November 2023)

- Developed a Recurrent Neural Network based on Liquid State Machine (**LSM**) and differentiable quantization
- Implemented the **Spiking RNN** model with **Quantization Aware Training** to test against a research paper

Reduced Instruction Set Computer (RISC-IITB) | Prof. Virendra Singh, EE309 

(April 2023-May 2023)

- Designed **multi-cycled** RISC based **16-bit** pipelined **finite state** microprocessor with **FPGA** implementation
- Explored techniques like **branch prediction**, **forwarding**, etc for enabling an effective **hazard** mitigation

Computer Vision: Virtual Proctoring System | Prof. Sharat Chandran, CS763 (March 2023-April 2023)

- Developed an application using **YOLOv5** for **real-time** object detection and monitoring during online exams.
- Customized the model for detecting cheating behaviours, including **line of sight** and **smartphone** detection
- Utilized **dlib face detection** to develop multiple face identifier and **image-based conversation detector**

Amazon Product Tracking Bot | Self Project (March 2023)

- Developed an automated python bot to periodically track and analyse **Amazon** Products using **ASIN** numbers
- Integrated **Telegram APIs** to create a **chat-bot** for sending custom notifications and generating Excel reports

Positions of Responsibility

Overall Coordinator | DevCom, IIT Bombay (April 2024-Present)

- Leading multiple teams of designers and developers, overseeing project timelines and verifying deliverables
- Resolved **IP conflict** in **gymkhana servers** affecting **10K+ residents**, upgraded **proxmox ve to version 8**

Project Lead | DevCom, IIT Bombay (March 2023-March 2024)

- **Maintained** and **supervised** development of **production level** software and servers with **10,000+** userbase
- Actively improved **code quality** and **reliability** resulting in around **70% increase** in **user satisfaction**
- Planned and organised an **open-source** contribution event, accumulating approximately **300 participants**
- **Trained** over **20** junior developers and designers in developing and maintaining web and software systems

Other Projects

- **AutograderCPP** – Designed a modular and scalable python library for auto-grading C++ program files
- **InstiApp** – Supervised development and maintenance with **10,000+** downloads
- **Resobin** – Mentored developer team and maintained the academic resource portal
- **Carrom Simulator** – Made an executable carrom game and implemented rebound physics using C++

Scholastics

- Awarded a branch change to Electrical Engineering Dept. among the top few out of **1350+** students (2022)
- Secured the rank **2055** in JEE Advanced and a percentile of **99.79** with a **100%** in physics in JEE Main (2021)

Key Courses Taken

Signal Processing-I
Digital Signal Processing
Image Processing
Computer Vision
Advanced Image Processing
Communication Systems-I

Digital Systems
Microprocessors
Analog Circuits
Electronic Devices & Circuits
Control Systems
Control Systems Lab

Data Structures & Algorithms
Design & Analysis of Algorithms
Logic in Computer Science
Introduction to Machine Learning
Code Optimization for Object-Oriented Languages

Analog Lab
Digital Circuits Lab
Electronic Devices Lab

Microprocessors Lab
Communications Lab
Electronic Design Lab

Probability & Random Processes,
Markov Chains and Queuing Systems
Neuromorphic Engineering

Technical Skills

Languages

Python, C++, Dart, HTML, CSS,
JavaScript, TypeScript, MATLAB,
VHDL, embedded C, assembly
8085, LATEX

Libraries and Frameworks

Flutter, React, Vue, Angular,
Flask, Django, Django REST
Framework, OpenCV, Selenium,
NumPy, Webpack 5, Single-SPA,
Algolia, StreamLit, ChainLit, Soot

Other Skills

Module Federation, Sentry, Umami,
AWS, Jupyter, WSL, Ubuntu, CI/CD,
ngrok, Git, Vim, Arduino, Raspberry-
Pi, Figma, MongoDB, SQLite3, HiveDB,
PostgreSQL, FAISS, Llama2

(Proficient*)

Extra-Curricular Activities

- Directed, produced and acted in an **award winning** play in Main Dramatics General Championship (2023)
- Contributed to the dramatics contingent, standing **2nd** in the **Inter-IIT** Cultural Meet at IIT Madras (2023)
- Achieved **2nd** position in inter-hostel stage play and street play competitions, part of the acting crew (2022)
- Secured a position in **top 16** teams against **450+ participants** as a fresher in CodeWars Competition (2022)
- Orchestrated a **Sanskrit skit** in grade 10th, leading the production, direction, and stage performance (2019)