



**Tanmay Hiremath**  
**Electrical Engineering**  
**Indian Institute of Technology Bombay**

**19D070061**  
**Dual Degree (B.Tech. + M.Tech.)**  
**Gender: Male**  
**DOB: 14-11-2001**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	5.84
Intermediate	HSC	ASV Junior College, Navi Mumbai	2019	84.46%
Matriculation	CBSE	J.H. Ambani School, Panvel	2017	10

## SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 449** in the **JEE Advanced** amongst 0.2 million candidates (2019)
- Achieved **99.9** percentile in the **JEE Main** amongst 1.14 million candidates (2019)
- Awarded **Fellowship** in **Kishore Vaigyanik Protsahan Yojana** SX stream (2019)
- Awarded Certificate of merit for being in the top **1%** in NSEC & qualified for **INChO** (2019)
- Bagged the **1st** prize in **BSE International Finance Olympiad (BIFO)**, a BSE initiative (2017)
- Among the **4** candidates from Maharashtra to be awarded by the Minister of Information and Technology in the **Digital Wellness Challenge**, an initiative under the Digital India programme (2016)

## PROFESSIONAL EXPERIENCE

### Money Game Development

(May '21-Jul '21)

Backend Developer Intern | Swiflearn, Incassable Technologies Pvt. Ltd

Swiflearn is a full-stack online platform for academic courses for students

- Developed a **Money Game** for **10K+** active students which allowed them to spend and earn virtual money through various investments and purchases and gave them time based or other event based returns
- Integrated a feature where Teachers could fast forward the game of a particular student by some number of days for learning purposes and the state of the game could be restored completely back to the start
- Optimized **MySQL** queries and Python code to improve response time of demanding APIs with large data
- Successfully completed various assigned tasks like fixing bugs, new feature requests, flow automation
- Worked with **Vue.js**, **Django**, **Amazon Web Services** like **Simple Queue Service (SQS)**, **EC2**, **S3**

## MAJOR TECHNICAL PROJECTS

### Tinkerers' Laboratory Website

(Apr '20-Jul '20)

Seasons of Code | Web and Coding Club, IIT Bombay

- Developed an **E-Inventory management** system for **2500+** users to issue inventory items using **Angular**
- Constructed a relational **SQLite** database using **Django framework** to store the particulars of the items
- Included an **administartor panel** to manage inventory items and sent alerts by email to the administrators
- Incorporated **IIT Bombay's Single Sign On** authentication implemented using **OAuth 2.0**

### Mess Digitization

(Feb '21-Mar '21)

Project | Institute Technical Council, IIT Bombay

Digitizing the manual process of authenticating students to reduce the burden of mess workers

- Responsible for the backend designing and coding of the project as per the requirements provided
- Built a **Postgresql** database using Django and Django REST framework for creating API endpoints
- The students' data is stored in the database and the APIs inform the hardware side whether to allow a meal or not based on the time and card number verification which is then displayed to the mess workers

### Tapestry Pooling

(Dec '20-Apr '21)

Backend Web Development | Prof Manoj Gopalkrishnan

Using pooling techniques to help labs with detecting Covid19 virus and reduce the number of tests

- Responsible for the **Django** backend debugging and development of new features as required
- Improved integration of the web interface with the **Google Cloud** server for easier report downloading

### Real-time Chat Application

(Jul '20)

Self Project

- Developed a chatting application with frontend in **Ionic Angular** and backend in **ExpressJS**
- Incorporated a feature to create and join private rooms with a room code using Web Sockets in **SocketIO**
- Deployed the Android installable app as apk using **Android Studio** with the backend hosted on **Heroku**

## Smart Traffic Management System

(Apr '20-Jun '20)

*Institute Technical Summer Project | Institute Technical Council, IIT Bombay*

- Built a Traffic Management System which allocates time to each lane depending on the type and number of vehicles in each lane which were identified using Image Processing
- Designed the Image Detection Program using **OpenCV** for recognition of **80** different classes of objects adapted from **YOLOv3** for better accuracy of the Traffic Model in traffic-congested and low-light conditions
- Developed a GUI in Django for boot, input of images, and then displayed the status of the traffic signals

## ATM Simulator

(Mar '21-Apr '21)

*EE337 Course Project | Prof. V. Rajbabu & S. Vijayakumaran IIT Bombay*

- Coded a program to simulate an ATM on the **Atmel AT89C51** Micro-controller with a **LCD Module**
- Programmed the micro-controller in **Embedded C** using **Keil  $\mu$ Vision** and **Flip** softwares
- Used **UART** Module and **RealTerm** software for interfacing between keyboard and micro-controller

## Arithmetic and Logical Unit in VHDL

(Oct '20-Nov '20)

*EE224 Course Project | Guide: Prof Virendra Singh*

- Designed a 16 bit signed **Kogge Stone** fast adder and subtractor using **Structural VHDL** in Quartus
- Integrated adder, subtractor, XOR and NAND into an **ALU** using MUX circuit for controlling operation
- Implemented the XOR operation by using only 2x1 MUX via **Reduced Order Binary Decision Diagram**

## POSITIONS OF RESPONSIBILITY

**Web Manager** | *Insight, IIT Bombay*

(Apr '21-Present)

*Insight is IIT Bombay's Official Student Media Body*

- **Head** of the Web Team that maintains the official website and other microsites of Insight, IIT Bombay
- Migrated the **Wordpress** website to an **Elastic Compute Cloud** instance on Amazon Web Services
- Ensured various safety and **backup measures** for the main **MySQL** Database on the server
- Developed various microsites like Senior Survey, Freshie Newsletter using **Angular** and other tools
- Developing the backend in Django for integration of Machine Learning Model on the website where users can change various parameters to visualize the regression results dynamically

**Institute Sports Convener** | *Institute Sports Council*

(Jun '20-Apr '21)

*Among the 2 selected out of 30+ applicants to represent the interests of 10,000+ students*

- Responsible for maintaining and developing the **PHP** based official website of IITB Sports
- Currently developing the first-ever IIT Bombay Sports App which is a **Progressive Web App**, an installable, cross-platform, responsive web app using **Angular** as frontend and **NodeJS** for backend
- The app included features such as Live Score of GC, Court Booking, automatic E-Certificate Generator, etc.
- Building an **administrator panel** with three levels of access to provide a **user-friendly** interface to the authorized members of the Sports council for managing and updating the contents of the application

## TECHNICAL SKILLS

<b>Languages</b>	C, C++, Python, Julia, Bash, HTML, CSS, Javascript
<b>Softwares</b>	GNURadio, Adobe XD, Figma, Git, L <sup>A</sup> T <sub>E</sub> X, MATLAB, Amazon Web Services
<b>Development</b>	Angular, React, Vue.js, Next.js, Ionic, PHP, Django, Node.js, MySQL, Socket.IO
<b>Python Libraries</b>	Pandas, Matplotlib, Numpy, OpenCV

## KEY COURSES

<b>Electrical Engineering</b>	Microprocessors, Analog Circuits, Electromagnetic Waves*, Image Processing*, Probability and Random Processes, Digital Systems, Signal Processing-1
<b>Mathematics and Computer Science</b>	Data Structures and Algorithms, Calculus, Differential Equations-II, Complex Analysis, Computer Programming and Utilization

*\*To be completed by Fall 2021*

## EXTRACURRICULAR ACTIVITIES

- Pursuing a course for **Computer Vision** under Learners' Space and worked with **OpenCV**
- Department of Sustainable Social Development, **National Social Service** (2020)
  - Made educational **YouTube videos** on topics related to sustainable social development for middle school students as part of the Tarang subdivision
  - Awarded with a **special mention** for 80 hours of **exemplary** volunteering work
- Completed a course for **Data Analytics** under Learners' Space conducted by UGAC successfully (2020)
- Successfully conducted 2 major strategy games, which tested entrepreneurial skills, managing **300+** participants as part of E-Summit 2020 conducted by E-Cell, IIT Bombay (2020)
- Successfully finished the **12km** long **Cyclothon** organized by Techfest, IIT Bombay (2020)
- Publicised **Techfest, IIT Bombay** as an organiser, bringing in a total footfall of **175K+** (2019)