



**Hardik Rajpal**  
**Computer Science & Engineering**  
**Indian Institute of Technology Bombay**

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**B.Tech.**  
**Gender: Male**  
**DOB: 24/02/2002**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	
Intermediate	Telangana State Board of Intermediate Education	Narayana Junior College	2020	96.80%
Matriculation	Cambridge Assessment International Education	Rockwell International School	2018	92.67%

## 🏆 SCHOLASTIC ACHIEVEMENTS

- Awarded **3 AP** (Advanced Performer) and **28 AA** grades for exceptional performance. (2021)
- Received **Institute Academic Prize** (top **20** of CSE Batch) for stellar academic performance. (2021)
- Secured **All India Rank 6** in **JEE Advanced** amongst 1,50,000 candidates. (2020)
- Secured **All India Rank 111** in **JEE Main** (B.Tech) amongst 9,20,000 candidates. (2020)
- Received the **Reliance Foundation Scholarship** alongside **80** other candidates. (2020)
- Qualified for **Indian National Physics Olympiad** alongside **457** other students. (2019)
- Selected for **Kishore Vaigyanik Protsahan Yojana Exam**, ranking **73rd** in the aptitude test. (2019)

## 💼 WORK EXPERIENCE

### Quadeye Securities LLP | Internship

May 2023 - July 2023

❖ C++, R, RCpp, bash

👤 Quant Strategist

- Implemented and thoroughly optimized a historical trade simulator in **R**, **C++** and **RCpp** to test arbitrage strategies.
- Tested and analyzed various strategies, varying order types and equity-futures arbitrage choices.
- Wrote dozens of bash and R scripts to manipulate and analyze input and output data files spanning tens of gigabytes.

### Websites for ISI, Delhi | Freelance Assignment

May 2023 - July 2023

❖ Angular

👤 Frontend Developer

- Implemented two modular and responsive websites for the Indian Statistical Institute, Delhi with **Angular**.
- Abstracted design code from the content to minimize the effort necessary for updating the site.
- Led a watchful and thoroughly functional deployment of the sites on their server, clearing multiple hurdles.

### WinZO Games | Internship | Mr Abhishek Goyal, Mr Vasu Vardhan

May 2022 - July 2022

❖ React, Cassandra, Jest, PostgreSQL

👤 Backend Developer

- Designed and implemented unit testing suite from scratch for one of the key services using **Jest**.
- Implemented several endpoints, notably, an efficient one for player skill update using prefix sums in **Apache Cassandra**.
- Undertook research tasks: automated syntax documentation of API endpoints and extraction of debug logs from packages.

### Bodhitree | RnD | Prof. Kameswari Chebrolu

January 2022 - April 2022

❖ React Native

👤 App Developer

- Designed and implemented core app navigation structure with nested stack navigators and drawers.
- Implemented custom components to engage users with content such as a video player and question widgets.
- Produced a final release build covering all of the course content and functionality permissible with the API.

### FaceSafe | Internship | Mr. Javed Sheikh at Alorb Tech

December 2021 - January 2022

❖ Python, Javascript, HTML

👤 Full Stack Developer

- Migrated back-end services to a serverless architecture using AWS Amplify and Lambda.
- Migrated front-end codebase to modularized app in ReactJS.
- Implemented an attendance system making use of the face recognition API, Amazon Rekognition.

## 💡 PROJECTS

### CoReader | Personal Project

January 2022, June 2022, January-April 2023

❖ Flutter, NodeJS, PostgreSQL

→ Glossary and note-making **Flutter** app

- Integrated **Google Sign-In** in the app, as well as other APIs to get book covers, definitions and ratings.
- Implemented an **Express** app for remote back up of user data, with **PostgreSQL**, and group chat features.
- Prepared the app for future work, with a solid code base and a successful launch on the Play Store.

### CycOOPs: Artist | Personal Project

April 2022 - May 2022

❖ C++

→ Enhanced HTML5-canvas-inspired Graphics library

- Implemented a comprehensive class hierarchy for shapes and sprites to facilitate faster animations.
- Incorporated **multithreading** to permit sequential animation instead of iterative.
- Integrated **GTK event callbacks** to permit interactive animations responsive to clicks and key presses.

### **SimpleGraph** | Course Project for CS293 | Prof. Bhaskaran Raman

→ C++ library for working with graph data

- Implemented a hierarchy to process, and several practical functions to parse and modify graph data.
- Designed an efficient program to render the graphs dynamically in an interactive window.
- Established communication between the library and the application for rendering the graph.

October - December 2021

 C++, Electron, Javascript

### **Educare** | Course Project for CS251 | Prof. Amitabha Sanyal

→ Modular website for course instruction (a Learning Management System)

- Engineered a website for course management, with a CRUD API, email notifications, and code autograding.
- Designed a well-organized **CRUD API** and optimal database plans on a **Django** server.
- Led frontend development with **Angular**, implementing features like forums and assignment submissions.

September - November 2021

 Django, Angular

### **KnowYourTube** | Personal Project

→ WebApp to analyze one's Youtube Watch History

September 2021

- Utilized numpy for efficient filtering and organization of watch history data obtained from Google Takeout.
- Set up a **Django** server to accept takeouts and provide insights on frequency trends and top-viewed videos.
- Designed a user-friendly **Angular** website to analyze results with customized tags and filters.

 Django, Angular, Numpy

### **Jungle Chats** | Personal Project

→ WebApp to replay exported WhatsApp chats

September 2021

- Implemented an **Angular** app to fetch chat histories on the backend and display them.

 Angular, Django

### **GitHub Profiles** | Lab Assignment for CS251 | Prof. Amitabha Sanyal

→ Website to summarize user profiles on GitHub

August - September 2021

- Organized a database for users and their repositories on GitHub.

 Django, Bootstrap

### **GitHub Data API** | Lab Assignment for CS251 | Prof. Amitabha Sanyal

- Utilized the **GitHub Data API** to collect data about users' repositories and followers.

### **Design a smooth front-end website served by a Django server, summarizing collected information.**

## DIVERSE MINI PROJECTS

- Multi-part text selection widget in **Flutter**, employing nested gesture detectors and custom painters.
- **Selenium** script in python to scrape entire seasons of shows from a particular piracy website.
- Minimal C++ to x86 compiler as part of a course project, covering all control flow statements, using **bison** and **flex**.
- **Flutter** swiping app for matching prospective flatmates and assisting their hunt for accomodation.
- Part-of-speech tagger and word sense disambiguator implemented using **NLTK**, as part of a course's assignments.
- Multi-player secret word game incorporating an image search API to fetch images using guesses.

## TECHNICAL SKILLS

**Languages:** C, C++, Python, SQL, Typescript, HTML/CSS, Java, Dart, R/RCpp, Assembly, Bash and other Unix tools.

**Frameworks/Libraries:** Angular, React, Electron, Socket.io, Express, React Native, Android Development, Flutter, Django, Numpy, PyTorch, Selenium, OpenCV, NLTK.

**Applications:** DataGrip, pgAdmin, VS Code, Android Studio, Chrome Dev Tools.

**Others:** GitHub, AWS Amplify, GDB, CMake, Regex, Latex, AutoHotKey Scripting.

## RELEVANT COURSES

- **Computer Science:** Data Structures and Algorithms, Design and Analysis of Algorithms, Discrete Structures, Game Theory and Algorithmic Mechanism Design\*, Program Analysis\*, Automata Theory, Implementation of Programming Languages, Abstractions and Paradigms in Programming, Logic for Computer Science, Digital Logic Design and Computer Architecture, Computer Networks, Operating Systems, Database and Information Systems, Topics in Virtualization and Cloud Computing, Foundations of Network Security and Cryptography\*, Artificial Intelligence and Machine Learning, Speech and Natural Language Processing, Computer Vision.
- **Mathematics:** Linear Algebra, Data Analysis and Interpretation, Calculus, Introduction to Numerical Analysis, Probability-I\*.
- **Others:** Accounting and Finance, Marketing Management, Project Management.

\* Ongoing

## EXTRACURRICULARS

### Development:

- Collaborated on projects such as InstiApp, a No-Dues portal and Digipad used across the institute.
- Website developer for the winning team in the Inter IIT Tech Meet.
- Among the top 10 finalists for TSEC's 2023 Hackathon for app development.

March 2022

February 2018

### Writing and Language:

- Completed the month-long Rozmer Writing Challenge.
- Completed Level 1 Improv with Neville Bharucha and also attended a workshop at The Habitat.
- Secured 3rd Prize in IIT Bombay's creative writing competition.
- Completed 3 **Creative Writing** courses from **Wesleyan University** on Coursera.
- Ranked **2nd** in Glendale Academy International's inter-school Competition for poetry.

June 2023

January 2023

February 2022

July 2021

2017

### Volunteered with **NSS** to deliver lectures to high school students.

December 2020 - July 2021

### Secured **100%** and **97%** in the **DELF A2** and **A1** papers.

2022, 2018