



Mradul Sonkar
Computer Science and Engineering
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B.Tech.
Gender: Male
DOB: 04/09/2005

SCHOLASTIC ACHIEVEMENTS

- Secured a position in the top **0.58%** of over **180,000** candidates in the **JEE Advanced 2023** examination (2023)
- Achieved a **99.96 percentile** in **JEE Main**, ranking among the top candidates out of 1.1 million students (2023)
- Ranked in the **top 1%** among 36,831 students in the **National Standard Examination in Chemistry** (2022)
- Secured an **All India Rank 833** in **Kishore Vaigyanik Protsahan Yojana** conducted by IISc Bangalore (2021)
- Qualified the highly competitive **National Talent Search Examination (NTSE)** conducted by NCERT (2021)
- Achieved **All Rajasthan Rank 28** in the **State Talent Search Examination** conducted by RBSE (2020)

KEY PROJECTS

Stock Market Predictor | Course Project

(Jan'24 - April'24)

Instructor: Pushpak Bhattacharyya | Course: CS240

- Built a stock price predictor using **PyTorch** and **deep-river** with past prices and volume as input to the model
- Wrapped the **LSTM model** inside **RollingRegressor** from deep-river to enable **real-time learning** on streaming stock market data, so the model updates continuously and steadily improves predictions as new data arrives
- Improved forecasting performance by fine-tuning model parameters and optimizing data input structure for live use

VoxElectra | Seasons Of Code

(May'24 - July'24)

Web and Coding Club, IITB

- Developed a **transformer-based speech-to-text model**, achieving high accuracy across diverse audio inputs
- Explored various components of **audio data** and how they are manipulated to generate useful features from it
- Created a **sentiment analysis model** to detect user emotional tone, enhancing the interpretation of sentiments

NSS IITB App | Technical Project

(Dec'24 - Feb'24)

Web Department, National Service Scheme, IITB

- Built NSS IITB app using **Flutter** for frontend, with **Express.js** and **MongoDB** for a scalable backend system
- Managed teamwork using **Git** and **GitHub**, ensuring collaboration, **version control**, and organized workflow
- Implemented real-time notifications, event management features, calendar and live updates to boost engagement

Social Project Portal | Technical Project

(May'25 - Ongoing)

Web Department, National Service Scheme, IITB

- Building a **full-stack portal** for students to explore, wishlist, and apply for projects, with **intuitive UI/UX** and **responsive design** for various devices; optimized backend routes and **SQL** queries for efficient data handling
- Developing **secure authentication**, profile picture uploads, and user account management with persistent sessions

Attendance Portal | Technical Project

(Aug'24 - Sep'24)

Web Department, National Service Scheme, IITB

- Developed a **location-based attendance system** for NSS IITB using **PHP** language and **MySQL** backend
- Implemented **account management** and **role-based access control**, ensuring secure data entry and validation
- Integrated a **geofencing feature** to validate attendance locations, improving system reliability and compliance
- Designed an **intuitive and simple UI** for volunteers to mark attendance, greatly enhancing their user experience

Excel and SQL for Big Data Handling | Technical Summer School

(May'24 - July'24)

Analytics Club, IITB

- Mastered **Excel** formulas, functions, and data cleaning techniques, improving efficiency in big data handling tasks
- Utilized Excel tools like **VLOOKUP**, **HLOOKUP**, **pivot tables**, and **charts** for data analysis and visualization
- Gained proficiency in **SQL** queries and functions, enabling efficient and effective data manipulation for large datasets.

Plagiarism Detector | Course Project

(Aug'24 - Nov'24)

Instructor: Ashutosh Gupta | Course: CS213

- Developed a plagiarism detector using **KMP** algorithm for efficient string matching, ensuring precise content analysis
- Implemented advanced **multithreading** to enable simultaneous file checks, optimizing speed and resource utilization
- Applied **mutex locks** for thread safety, ensuring consistent and secure execution in a concurrent environment

- Analyzed a simple market model, exploring the **no-arbitrage principle**, risk and returns, and options strategies
- Examined risky and risk-free assets, including **bonds, stocks, and real estate**, applying valuation models to them
- Studied **portfolio management** techniques, assessing risk and return using the **Capital Asset Pricing Model**
- Explored **stochastic interest rates** and arbitrage pricing theory through binomial tree models for option pricing

DateSpark | Course Project

Instructor: Kameswari Chebrolu | Course: CS108

(Jan'24 - Apr'24)

- Developed **DateSpark**, a web application to match users based on their interests, facilitating personalized connections
- Designed an interactive user interface with **HTML, CSS, and JavaScript**, enhancing the overall user experience
- Implemented a secure **login and signup system**, ensuring data **privacy protection** throughout the application

Personal Portfolio Website | Self Project

(Sep'24)

- Created a personal portfolio with **Tailwind CSS** to showcase my skills and projects in a visually appealing format
- Presented my work and capabilities in a visually appealing format, improving user experience and engagement

TECHNICAL SKILLS

Programming	C/C++, Python, Javascript, Dart, PHP, Bash, MIPS32 Assembly, Markdown
Development	ReactJS, Tailwind CSS, Express.js, MongoDB, Flutter, Git, Github, MySQL \LaTeX
Libraries	scikit-learn, Tensorflow, deep-river, Seaborn, Librosa ,NumPy, Matplotlib, Pandas

COURSES UNDERTAKEN

Computer Science and Mathematics	Data Structures and Algorithms [†] , Design and Analysis of Algorithms, Artificial Intelligence and Machine Learning [†] , Operating Systems [†] , Computer Architecture [†] , Logic for Computer Science, Software Systems Lab, Discrete Structures, Data Analysis and Interpretation, Computer Programming and Utilization, Calculus, Linear Algebra and Differential Equations
Others	Design Thinking for Innovation, Introduction to Innovation & Entrepreneurship, Economics, Makerspace, Introduction Philosophy, Biology, Chemistry Lab, Physics Lab

[†]Course has corresponding lab

POSITIONS OF RESPONSIBILITY

Head of Department (Web) | National Service Scheme, IIT Bombay

(April'24 - Present)

- Leading the Web Department at NSS IIT Bombay, managing a team of Associate Associates (AAs) and overseeing the design and deployment of **institute-wide websites** and interactive public-facing portals for various events

Activity Associate (Web) | National Service Scheme, IIT Bombay

(Aug'24 - April'24)

- Part of a 4-developer team tasked with **ideating, developing, deploying, and maintaining** several innovative institute-wide websites and apps for NSS, ensuring unique solutions, smooth operation, and continuous improvements
- Developed and deployed **responsive websites** with **simple and intuitive UI** for multiple NSS sub-departments
- Spearheading the development of **NSS app** aimed at streamlining **attendance tracking, notifications, event and comprehensive records management**, marking a significant step towards enhancing NSS service delivery

Mentor | Winter in Data Science, Analytics Club

(Dec'24)

- Mentored a group of students on a **transformer-based Speech-to-Text** converter project, focusing on model design, data preprocessing, training pipeline, hyperparameter tuning, performance optimization, and evaluation
- Gave **technical guidance** and support throughout the program, ensuring timely progress and conceptual clarity

Organizer | E-Summit, E-Cell IIT Bombay

(Feb'24)

- Organized and managed the **IPL Auction** competition at **E-Summit'24**, hosted by E-Cell IITB, ensuring smooth execution across 3 competitive rounds with effective coordination, delivering a seamless experience for all participants