



Navya
Computer Science & Engineering
Indian Institute of Technology Bombay

22B1007
B.Tech.
Gender: Male
DOB: 03/11/2005

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	9.34
Intermediate	CBSE	Apala School Of Education	2022	97.20%
Matriculation	CBSE	Apala School Of Education	2020	97.40%

Pursuing Minor in Industrial Engineering & Operations Research from IIT Bombay

SCHOLASTIC ACHIEVEMENTS

- Secured an **All India Rank 20** in **Joint Entrance Examination Advanced** among **1,50,000+** students (2022)
- Secured an **All India Rank 18** in **Joint Entrance Examination - Mains** along with a **Perfect 100 Percentile** among **10,00,000+** students (2022)
- Awarded by the **KVPY Fellowship in Basic sciences** by the prestigious **Indian Institute Of Science** for achieving **All India Rank 13(SX Stream)** (2022)
- Got selected in **Indian Olympiad Qualifier in Physics**, one among the **300** students selected throughout the country (2022)
- Granted **AP (Advance performer)** grade(given to only top 1% students) in **Linear Algebra** as well as **Physical Chemistry**. (2023)

KEY PROJECTS

Tic-Tac-Toe

Autumn 2022

Guide: Prof. Ajit Rajwade | Course Project: Computer Programming and Utilization

IIT Bombay

- Made a user-friendly interface for playing tic-tac-toe offline using the **turtle sim graphics**, designed a 1v1 version and also a **Human Vs AI** version using C++ programming language where AI is intelligent enough to make a win or tie.
- AI uses **Deadlock checking** and **Depth First Search** for finding the best move, based on the **Minimax Algorithm**

Line Follower Bot

Spring 2022

Guide: Makerspace Team | Course Project: Makerspace

IIT Bombay

- Made an automatic line follower bot using **Arduino UNO** and **L298N Motor driver**. Involved **Circuit Integration**, **Information Gathering from environment** and **Mechanical Stabilization** of the vehicle.
- Involved **Laser Cutting**, **3D Printing** and **Designing Mechanical Parts** on **Autodesk Fusion 360(CAD)**
- The bot uses **infrared sensors** to detect a black-coloured line and accordingly translate and rotate

The Lost Relic

Autumn 2023

Guide: Prof. Avinash Bhardwaj | Course Project: Optimization Models

IIT Bombay

- Using **Mathematical modelling** to solve a chosen complex mission from a strategy PC game
- Converted the overall agenda into a collection of **decision variables** and constraints and used **simplex method** and **duality theorem** to solve it, all with a Motive to apply maths to seemingly unrelated problems
- The solution will be the values of decision variables satisfying the **optimization criteria** at best

Algo Trader

Autumn 2023

Guide: Prof. Ashutosh Gupta | Course Project: Data Structures and Algorithms

IIT Bombay

- Designed and integrated a trader component into the system, enabling it to automatically assess the current market situation, apply algorithmic strategies, such as **arbitrage**, and place orders seamlessly, ensuring timely and optimal execution.
- Implemented a model for **real world market** which processes the orders placed by people and do **match making**

Automatic Mailing System For Business

Spring 2022

Guide: Prof. Kameswari Chebrolu | Course Project: Software Systems Lab

IIT Bombay

- Designed a tool with the help of **Google Appscripts** which helps to manage data collected using frequently encountered **E-Forms** like Appointment forms and confirmation forms which are filled by customers
- Additionally designed scripts to filter the collected data and send e-mails to the respective receivers

Digit Recognition Using Neural Nets

Spring 2023

Winter in Data Science

WiDS

- Image Recognition by Convolutional Neural Networks (CNN) by utilizing **Convolution Filters** and **Activation Functions** to automatically learn hierarchical features from input images.
- Used **MNIST** data set to train the model with 60,000 images and tested it over 10,000 images.

OTHER PROJECTS

Musical Note Encoder

Autumn 2023

Guide: Prof. Biswabandan Panda | Course Project: Digital Logic Design and Computer Architecture IIT Bombay

- Designed a tool which can detect the major and minor chords of western music in a given sequence of notes.
- Used **Very High-Speed Integrated Circuit Hardware Description Language(VHDL)**, and **GTKWave**.
- Designed a **Finite State Machine** which incorporates **Memory usage Optimization**

Assembly Programming

Autumn 2023

Guide: Prof. Biswabandan Panda | Course Project: Digital Logic Design and Computer Architecture IIT Bombay

- Coded a **Microprocessor without Interlocked Pipeline Stages (MIPS)** Assembly program for **Merge Sort** and **Binary search** which return number of entries in a given list which are less than the input query
- Incorporated **Memory Usage Optimization and state modelling** with a goal to write the program with the optimum use of **Register File and Data memory**

Mountain Climber, XLR8

Autumn 2022

- Worked in a team of four under the guidance of XLR8 community, to make a user-controlled four-wheeler bot, guided through wifi signals to and from the bot
- Involved coding for **ESP-32**, used the Bluetooth module associated with it, used concepts like Signal **Width Modulation** for controlling speed instead of changing voltage and **Ackerman Steering Mechanism** for rotation

TECHNICAL SKILLS

Programming/Assembly Languages C, C++, Python, Bash

Data Science Matplotlib, NumPy, Pandas, pyTorch

Software Git, L^AT_EX, AutoCAD, Fracktory, ModelSim, GTKWave, GDB

POSITIONS OF RESPONSIBILITY

Teaching Assistant (Ongoing),

Spring 2023

Linera Algebra and Differential Equations

IIT Bombay

- Providing consistent support to a class of nearly 40 students in grasping challenging concepts and fostering a deeper understanding of mathematical principles.(Linear Algebra and Differential Equations)
- As TA, I am responsible for solving tutorial problems and teaching theory that students face difficult in.

COURSES UNDERTAKEN

Computer Science Computer Programming and Utilisation, Data Structures and Algorithms, Data Analysis and Interpretation, Software Systems Lab, Discrete Structures, Digital Logic Design and Computer Architecture, Data Structures and Algorithms Lab, Computer Architecture and Digital Logic Design Lab, Automata Theory and Logic*, Operating System*, Artificial Intelligence and Machine Learning*

Electives Medical Image Computing*

Mathematics Calculus, Linear Algebra, Differential Equations

Others Quantum Physics and applications, Makerspace, Optimisation Models, Economics

* To be completed by April 2024

EXTRACURRICULAR

- Completed a one year course on **Green Campus** under **National Social Service** from IIT Bombay (2022)
- Scored **3rd position** in **Akhil Bhartiya Sanskrit Gyan Pariksha** (2014)
- Involved in social work under **NGO Savera Sanstha**, Rajasthan, India (2020-2021)
- Participated in **Socially Useful Productive Work (SUPW) camps** a number of times and volunteered for cleaning school premises on many occasions. Gave **speeches** on **social values** to juniors in school
- Often try to find problems in daily life and solving them using mathematics in my free time
- Love to analyse thought process and decisions made by people through **principles of psychology**. Also compile my observations in **comprehensive articles**
- Did a field visit to **Keshav Srushti**, Maharashtra, India under **Green Campus** with a agenda to learn about Eco-Friendly products (Autumn 2022)
- Often involved in activites like trekking, allowing me to explore new cultures, people and food