



Sarthak Mittal
Computer Science & Engineering
Indian Institute of Technology Bombay

200050129
B.Tech.
Gender: Male
DOB: 09-02-2002

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	9.49
Intermediate	Maharashtra HSC	Pace Junior Science College	2020	96.31%
Matriculation	ICSE	Lilavatibai Podar High School	2018	99.00%

Pursuing **Honors** in Computer Science and **Minor** in **Machine Intelligence & Data Science**

SCHOLASTIC ACHIEVEMENTS

- Awarded **AP** (Advanced Performer) grade for exceptional performance in first semester course (2020)
CH105: Organic and Inorganic Chemistry (ranked among the top **7** out of **1400+** students)
- Secured **All India Rank 34** in Joint Entrance Examination Advanced among 1,50,000 candidates (2020)
- Achieved **All India Rank 261** in Joint Entrance Examination Mains among 1.1 Mn candidates (2020)

INTERNSHIP EXPERIENCE

Software Development Intern | *Greatfour Systems* (December 2021)

A team of 60 developing *Harmony*, a platform to aid pharmaceutical companies in medicine development

- Utilised **Python API** for **OpenCV** and **MTM** in image resizing and multi-scale template matching
- Implemented **3+** enhancements to improve speed of source template to destination matching by **60%**

Data Analyst Pre-Intern | *YoZu - IIT Bombay EdTech startup* (May 2021)

YoZu is developing an AI assistant for instant redressal of students' (K10) academic doubts

- Classified **450+** queries into **5** structural categories to optimize fine-tuning of **T5 transformer model**
- Enhanced **query-context** mapping of retrieval pipeline by improving **corpus** raising efficiency by **20%**

KEY PROJECTS

SNAP Moodle | *Course Project - Software Systems Laboratory* (Autumn 2021)

Guide: Prof. Amitabha Sanyal, Department of Computer Science & Engineering

- Implemented a **dynamic learning environment** with a **Django REST** framework for backend
- Developed a **modular object-oriented backend** consisting of **models** for Users, Assignments and Courses connected by a set of rules and access restrictions for Students, Teaching Assistants and Teachers
- Created an interactive **user interface** using **React JavaScript library** for the frontend

Introduction to App Development | *Web & Coding Club, IIT Bombay* (Summer 2021)

- Utilized **Flutter SDK** (Google's UI Toolkit) integrated with **Android Studio** and **Dart** programming language (developed by Google) as codebase to develop and debug applications on a virtual device
- Successfully built **3 Android applications** (apk packages) from scratch including a calculator, a quiz app and a location-based weather app (by integrating an externally offered weather **API**)

Interface for GitHub Profiles | *Course Project - Software Systems Laboratory* (Autumn 2021)

Guide: Prof. Amitabha Sanyal, Department of Computer Science & Engineering

- Developed an **HTML-based** interactive webpage to view and update stored user profile information
- Implemented the backend using **Django** with a **PostgreSQL database** managed by PgAdmin
- Designed a **user authentication** feature and used GitHub REST API to dynamically fetch data
- Deployed the Django project on **Heroku** Cloud Application Platform using Git integration and CLI

Scotland Yard | *Course Project - Software Systems Laboratory* (Autumn 2021)

Guide: Prof. Amitabha Sanyal, Department of Computer Science & Engineering

- Completed a partially implemented **Java** code for **8 × 8** grid Scotland Yard using **concurrency**
- Implemented a **client-server model** to simulate a socket connection with threads listening on ports

N²-Puzzle Game | *Course Project - Programming Paradigms Laboratory* (Spring 2021)

Guide: Prof. Rushikesh K. Joshi, Department of Computer Science & Engineering

- Implemented the **N²-puzzle** game with **dynamic graphics-based interface** designed using **FLTK**

OTHER PROJECTS

Mandelbrot Zoom | Course Project - Data Structures & Algorithms Lab (Autumn 2021)

Guide: Prof. Bhaskaran Raman, Department of Computer Science & Engineering

- Implemented Mandelbrot Zoom using **Simple DirectMedia Layer** library and Object-Oriented **C++**
- Used Binary Search **Tree**, Bipartite **Graph** and **Heap** as data structures for parts of the functionality

Maze Game | Course Project - Programming Paradigms Laboratory (Spring 2021)

Guide: Prof. Rushikesh K. Joshi, Department of Computer Science & Engineering

- Created a graphics-based $N \times N$ maze game using **FLTK** (Fast Light Toolkit) widget library and **C++**
- Automated designing of maze layout using an input array of values describing the **obstacle locations**

The Lasso Game | Course Project - Computer Programming and Utilization (Autumn 2020)

Guide: Prof. Bhaskaran Raman, Department of Computer Science & Engineering

- Visualized implementation of a single-player Lasso game in **C++** using **SimpleCPP Graphics** package
- Enhanced the game by introducing **5** additional features using concepts of classes, inheritance & vectors

Snake Game | Self Project - Learner's Space, IIT Bombay (Summer 2021)

- Implemented a graphics-based snake game using Object-Oriented **Python** and **PyGame** module

POSITIONS OF RESPONSIBILITY

Class Representative | Department of Computer Science & Engineering (August 2021 - Present)

- Serving as a **point of contact** between professors, CSE council and a batch of **175+** undergraduates
- Coordinated with Teaching Assistants of core courses in order to ensure **availability** and **easy access** of course material and **rescheduling** of lectures as per the convenience of the professors and students
- **Led the creation** of a Telegram group to host polls for collection of data representing batch opinion

Teaching Assistant | MA109 - Calculus I, IIT Bombay (December 2021 - Present)

- Selected as a Teaching Assistant to conduct weekly interactive doubt sessions for batch of **45+** UGs

TECHNICAL SKILLS

Languages	Python, C/C++, Java, Dart, Bash, Sed, Awk, Prolog
Data Science	NumPy, Pandas, Matplotlib, SciPy, OpenCV-Python
Development	Django, JS, HTML, CSS, React, Redux, PostgreSQL, Flutter, Prompt-Toolkit
Software	MATLAB, LaTeX, Git, Android Studio, GDB, Docker, ROS, Gazebo

COURSES UNDERTAKEN

Mathematics	Calculus, Linear Algebra, Differential Equations, Introduction to Probability Theory, Introduction to Derivative Pricing*
Computer Science	Computer Programming and Utilisation, Abstractions and Paradigms for Programming, Discrete Structures, Data Structures and Algorithms, Data Analysis and Interpretation, Software Systems Laboratory, Design and Analysis of Algorithms*, Computer Networks*, Logic for Computer Science*, Digital Logic Design and Computer Architecture*, Medical Image Computing*
Miscellaneous	Quantum Physics and Application, Basics of Electricity and Magnetism, Engineering Graphics and Drawing, Organic and Inorganic Chemistry, Physical Chemistry, Biology, Introduction to Electric and Electronic Circuits, Economics*

(* to be completed by May 2022)

EXTRACURRICULAR ACTIVITIES

- **Green Campus** | National Service Scheme, IIT Bombay (Autumn 2020 - Spring 2021)
 - Awarded **special mention** for exemplary volunteering work under Green Campus initiative
 - Completed **80+** hours of volunteering activities on topics related to ecological conservation
- **LaTeX Bootcamp** | Learner's Space, IIT Bombay (Summer 2021)
 - Implemented \LaTeX software to typeset technical and mathematical documents using a **workflow**
 - Successfully completed **3** assignments based on **text formatting**, designing a **résumé** and typesetting of a **technical document** having equations, matrices, tables and lines of programming languages
- Awarded '**A**' grade in Elementary drawing examination held by Directorate of Art, Maharashtra (2014)