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	9.77
Intermediate	Maharashtra HSC	Pace Junior Science College	2020	96.31%
Matriculation	ICSE	Lilavatibai Podar High School	2018	99.00%

Pursuing a **Minor degree** in **Applied Statistics & Informatics**

Scholastic Achievements

- Awarded **AP** (Advanced Performer) grade for exceptional performance in first semester course CH105: Organic and Inorganic Chemistry (ranked among the top **7** out of **1400**+ students) *(2020)*
- 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

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

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)
- Applied concepts of **Object-Oriented Programming**, inheritance and **API calls** for implementation

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

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

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

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

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

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

- Completing a partially implemented **Java** code for **8** $\times$ **8** grid Scotland Yard using **concurrency**
- Implementing a **client-server model** to simulate a socket connection with threads listening on ports

N^2-Puzzle Game | *Course Project - Programming Paradigms Laboratory* *(Spring 2021)*

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

- Implemented the **N^2-puzzle** game with **dynamic graphics-based interface** designed using **FLTK**

Other Projects

Mandelbrot Zoom | *Ongoing Course Project - Data Structures & Algorithms Lab* *(Autumn 2021)*
Guide: Prof. Bhaskaran Raman, Department of Computer Science & Engineering

- Implementing the Mandelbrot Zoom using **SimpleCPP Graphics** package and Object-Oriented **C++**
- Using **Stern-Brocot tree** as data structure and **Escape Time algorithm** for 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** × **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

Technical Skills

Languages	C/C++, Python, Prolog, Dart, Bash, Sed, Awk, Java
Data Science	Matplotlib, NumPy, Pandas, SciPy
Development	HTML, CSS, JavaScript, Android Studio, Flutter, Django, Docker
Software	MATLAB, LaTeX, Git, GDB

Courses Undertaken

Mathematics	Calculus, Linear Algebra, Differential Equations, Intro. to Probability Theory*
Computer Science	Computer Programming and Utilization, Abstractions and Paradigms for Programming, Discrete Structures*, Data Structures and Algorithms*, Data Analysis and Interpretation*, Software Systems Laboratory*
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*

(to be completed by December 2021)*

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)*