Pranay Midathana
Computer Science & Engineering
Indian Institute of Technology Bombay

210050096
B.Tech.
Gender: Male
DOB: 10/7/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2025	9.06
Intermediate	BIEAP	Sri Chaitanya Junior College	2021	95.90%
Matriculation	APSSC Board	Sri Chaitanya High School	2019	10

Scholastic Achievements

- Achieved **All India Rank 56** in **JEE Advanced** among over 1,41,700 eligible candidates *(2021)*
- Achieved **All India Rank 65** in **Joint Entrance Examination Mains** amongst 1 million students *(2021)*
- Achieved **State Rank 7** in **AP EAMCET** out of 1,75,000 candidates conducted by APSCHE *(2021)*
- Achieved **State Rank 7** in **TS EAMCET** out of 1,50,000 candidates conducted by TSCHE *(2021)*
- Secured **All India Rank 186** and was awarded the prestigious **KVPY** fellowship by IISc Bangalore, India *(2020)*
- Scored **418** out of **450** in the **BITSAT** conducted by the Birla Institute of Technology and Sciences *(2021)*

Olympiads and Scholarships

- Among the **top 60** students to clear **IOQP-Part 2**, Indian Olympiad Qualifier in Physics-2 and invited to attend the Orientation-Cum-Selection Camp for **International Physics Olympiad (IPhO)** *(2021)*
- Qualified for **Indian National Mathematics Olympiad (INMO)**,conducted by HBCSE for 2 years *(2019,2020)*
- Among the **top 35** students to clear **INJSO**, and invited to attend the Orientation-Cum-Selection Camp *(2019)*
- Among the **top 317** students selected for **Indian Olympiad Qualifier in Chemistry-2** (IOQC-Part 2) *(2021)*
- Recipient of the National Talent Search Examination **NTSE** Scholarship by NCERT, Govt. of India *(2019)*

Key Projects

Rail Planner | *Course Project* *(Aug '22 - Sept '22)*

Instructor: Prof. Supratik Chakraborty, Department of Computer Science & Engineering

- Created a real Rail Planner using **Queues, Lists, Hash Tables, Trees, KMP, Tries, Quick sort**
- Used hashing while storing; Trees, and Tries to organize; KMP, and Quicksort algorithms to search
- Optimized No.of comparisons and No.of updates by using **AVL** Trees instead of BST
- Advanced implementations of adding **filters** to interface of planner by day, cost, destination time, ticket price etc

Fast Chat | *Course Project* *(Oct '22)*

Instructor: Prof.Kavi Arya, Department of Computer Science & Engineering

- Developed a client-server network for secure communication, with some **servers** acting as **mediators**
- Achieved **high throughput** with limited resources dedicated for servers through effective load balancing
- Ensured **low latency** for message deliveries and implemented **E2E** encryption for all communication
- Using **RSA** library for authentication, **MySQL** server database and bash for collecting results

Image Processing and Data Analysis | *Course Project* *(Oct '22)*

Instructor: Prof. Suyash Awate, Department of Computer Science & Engineering

- Algorithm for Euclidian Planar **uniform** Sampling, implemantation of **PCA** for **Hyperplane Fitting**
- **Linear Regression** on scatter-plots; process **handwritten digits**, **Character Recognition using PCA**
- **Dimentionality Reduction**, visualize 28x28 pixel image on 84-D Hyperplane, maximize **Dispersion**
- **Reverse Image Processing** to get back Original image from 84-Coordinate system
- Process & Group similar looking fruits; measure of Closeness: **Frobenius** norm of the difference

Bubble Trouble | *Course Project* *(Jan '22 - Feb '22)*

Instructor: Prof. Parag Chaudhari, Department of Computer Science & Engineering

- Implemented bubble trouble game using **simplecpp** graphics library and **OOP**.
- Advanced implementation of game using gravity, various difficulty levels and collisons between objects.

Other Projects

Personal Website | *Course Project* *(Aug '22)*
Instructor:Prof.Kavi Arya, Department of Computer Science & Engineering

- Designed a personal website using **HTML, CSS and JavaScript**,demonstrating various features in them
- Made the webpage responsive using CSS and **Bootstrap** and added an interactive page using JavaScript.

Random Walkers | *Course Project* *(Aug '22 - Sep '22)*
Guide: Prof.Suyash Awate , Department of Computer Science & Engineering

- Implemented an algorithm to check the probability distribution of final position of random walkers as **gaussian**
- Verified the **Law of Large Numbers** by analysing the true and empirically computed mean and variance

Documentation of Data Structures | *Course Project* *(Sept '22)*
Instructor: Prof.Kavi Arya, Department of Computer Science & Engineering

- **Documented the data Structures** (Lists, Heap, BST, Trie) using both **Sphinx and Doxygen**.
- **Doctests** are added in documentation so that docs are always up to date with the code

Tic-Tac-Toe | *Course Project* *(Oct '22)*
Instructor: Prof.Kavi Arya, Department of Computer Science & Engineering

- Implemeted Tic-Tac-Toe using **socket programming**,and socket variables to connect **socket servers** and clients.
- **Synchronized** the boards of the players and checked if game has ended in a draw,loss or win for either of players

Language Processor | *Course Project* *(Oct '22)*
Instructor: Prof.Kavi Arya, Department of Computer Science & Engineering

- Implemented a translator using **Regex** in python script which translates a C++ code into latex script.

Positions of Responsibility

Sports Secretary | *(Mar '22 - Mar '23)*
Computer Science Department

- Responsible for organizing various events throughout the year for **1000**+ students in the CSE department.
- Successfully organized badminton, volleyball tournaments,department trek and various events in CSE Department.
- Promoting and improving interaction amongst students from various batches as a part of the **CSEA council**.

Teaching Assistant | *Dept of Computer Science & Engineering* *(Autumn 2023)*
Prof Sanjoy Pusti

- Selected as Teaching Assistant for **Calculus 1**, mentoring over 40 UG first year students.
- Conducted weekly tutorial sessions, helping with their assignments and evaluating their work.

Technical Skills

Languages	C/C++, Python, Java, Bash, Awk, Sed, Prolog, Haskell
Software	Git, LaTeX, MATLAB, AutoCAD, Doxygen, Sphinx
Development	HTML, CSS, JavaScript, Bootstrap

Courses Undertaken

Computer Science	Data Structures and Algorithms + Lab, Discrete Structures, Data Analysis and Interpretation, Software Systems Lab, Abstractions and Paradigms in Programming, Computer Programming and Utilization, Logic for CS*, Design and analysis of algorithms*,Computer Networks*, Computer Architecture*
Mathematics	Calculus, Linear Algebra, Differential Equations
Others	Introduction to Electrical and Electronics Circuits, Quantum Physics and Application, Basics of Electricity and Magnetism, Engineering Graphics and Drawing, Physical Chemistry, Organic and Inorganic Chemistry, Biology, Optimization Models

** To be completed by April 2023*

Extracurricular Activities

- Successfully Completed a year-long of **Badminton** under **National Sports Organisation**(**NSO**).
- Participated in **CodeWars-V1** (Bot programming contest) conducted by **WnCC** IIT Bombay.
- Won 1st prize in Inter School **Doubles Badminton Tournament** and runner ups in School Volley ball Tournament