



Tanay Vineet Tayal
Computer Science & Engineering
Indian Institute of Technology Bombay

210050155
B.Tech.
Gender: Male
DOB: 18/4/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2025	9.73
Intermediate	CBSE	RMG Maheshwari English High School	2021	95.60%
Matriculation	IGCSE	Fountainhead School	2019	87.75%

Pursuing Minor in Artificial Intelligence & Data Science

SCHOLASTIC ACHIEVEMENTS

- Secured an **All India Rank 15** in **Joint Entrance Examination Advanced** among 150,000 candidates ('21)
- Got an **All India Rank 59** in **Joint Entrance Examination Main** among 1,000,000 candidates ('21)
- Achieved **All India Rank 10** and was awarded the prestigious **KVPY fellowship** by IISc Bangalore, India ('21)
- Awarded **4 AP** (Advanced Performer) grades for exceptional performance in second semester courses ('22)
 - MA106: Linear Algebra** (ranked among the top 4 out of 1381 students with a score of 49/50 marks)
 - MA108: Differential Equations** (ranked among the top 7 out of 1374 students with 42/50 marks) and
 - PH108: Basics of Electricity and Magnetism** (ranked among the top 27 out of 1359 students)
 - CS213: Data Structures and Algorithms** (ranked **first** out of 202 students with 91/98 marks)
- Among the National **Top 1%** in **Indian Olympiad Qualifiers of Physics, Astronomy and Chemistry** ('21)
- Amongst the few curated students **invited** for the **Orientation Camp of International Physics Olympiad, International Chemistry Olympiad and International Astronomy Olympiad** ('21)

PROFESSIONAL EXPERIENCE

App Tester | Internship

(Jun '19 - Jul'19)

Atishae Web Private Limited

- Worked as an **app tester** (for an app made using **flutter**) and documented found bugs using **Jira** software
- Discovered potential bugs** in the apps by analyzing **source code** and testing for corner cases
- Interacted with the customers** during meetings to demonstrate numerous updates of the app

Web Development | Observership

(Apr '18)

4ever Solutions

- Learned about basic **Web Development** using **HTML, CSS and JavaScript** and created sample webpages
- Studied as well as **emulated past company projects** to get a hands on experience in Web Development

KEY PROJECTS

Railway Planner | Course Project

(Autumn '22)

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

- Designed a railway planner in **C++** using data structures such as **Dictionary, Trees, Heaps and Graphs**
- Efficient storing of journeys in the **dictionary** using a **hash table** allowing for searching in almost constant time
- Utilized **Quicksort** to sort the journeys and studied its effectiveness based on the selection of different pivots
- Optimized searching for station names using **Trie** data structure and querying reviews using **KMP** algorithm

Image Processing | Course Project

(Autumn '22)

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

- Implemented **linear regression** on scatter plots for finding the **first mode of maximal variance** and examined the scatter plot with the found linear relation for one almost linear data set and one non-linear data set
- Applied PCA for **Dimensionality Reduction** of images from a 28*28 pixel image to a 84-D hyperplane and did **reverse image processing** to reconstruct a compressed representation of the image with minimal quality loss
- Performed **PCA** on the **MNIST Database** and analyzed the different modes of **maximal variance** for each digit
- Generated closest representation of images in the given sample, using top **4 principal eigenvectors** and Frobenius norm of the difference as the measure of closeness, and compared it with the original image

Cinema A to Z | Course Project

(Autumn '22)

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

- Built a **web application** which contains necessary information about all web series, animes and movies
- HTML, CSS and JavaScript** are utilized to form an **interactive front end** for the web application
- Used the concepts of **Web Scraping** to scan through many websites and extract relevant information from them

OTHER PROJECTS

FER- Facial Expression Recognition | Ongoing Project

(Winter '22)

Winter In Data Science

- Studied the architecture, designing, and applications of **Convolutional Neural Networks** (CNNs)
- Engineered solution to Facial Expression Recognition problem, by implementing a state of the art model DeXpression: **Deep Convolutional Neural Network** for Expression Recognition by using **PyTorch** library, and CNNs

Random Walker Simulation | Course Project

(Autumn '22)

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

- Simulated** N random walkers and plotted their final locations on a histogram using **Numpy** and **Matplotlib**
- Verified the **Law of Large Numbers** by comparing the true and empirically computed **mean** and **variance**

Tic-Tac-Toe | Course Project

(Autumn '22)

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

- Formulated the multiplayer game Tic-Tac-Toe using the concepts of **socket programming** in **Java**
- Developed a **Client-Server model** having various ports, and multiple threads and sockets for each port

Personal website | Course Project

(Autumn '22)

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

- Fabricated a full fledged interactive **website** from scratch making use of **HTML**, **CSS** and **JavaScript**
- Incorporated **Bootstrap** to make the page more **responsive** to screen size changes and make it more **attractive**

Bubble Trouble | Course Project

(Autumn '21)

Guide: Prof. Parag Chaudhuri, Department of Computer Science & Engineering

- Programmed a **user-interactive** bubble shooting game with **C++** using SimpleCPP as my IDE
- Applied concepts of **Object Oriented Programming** (mainly **encapsulation**) to ensure safe programming

POSITIONS OF RESPONSIBILITY

Aahvan Coordinator | Aahvan

(May '22 - Present)

- Collaborated with **Decathlon** to promote sports within the institute using fun challenges
- Ideation and conduction of a half marathon with more than **5000 participants** in total

Institute Events Convener | Institute Sports Council

(May '22 - Present)

- Responsible** for ensuring the smooth conduction of various **sports council events** catering to the whole institute
- Organized and handled various **General Championships** with huge audiences inside the institute

TECHNICAL SKILLS

Languages	C/C++, Python, Java, Octave, Matlab, Bash, Awk, Sed
Development	HTML5, CSS, JavaScript, Git, Bootstrap, L ^A T _E X, Jira, Doxygen, Sphinx

COURSES UNDERTAKEN

Computer Science	Abstractions and Paradigms for Programming, Data Structures and Algorithms, Data Structures and Algorithms Lab, Data Analysis and Interpretation, Software Systems Lab, Discrete Structures, Computer Networks*, Logic for Computer Science*, Design and Analysis of Algorithms*, Digital Logic Design and Computer Architecture*, Digital Logic Design and Computer Architecture Lab*, Medical Image Computing*, Extremal Combinatorics*
Basic Engineering	Differential Calculus, Integral Calculus, Linear Algebra, Differential Equations, Organic and Inorganic Chemistry, Physical Chemistry, Quantum Physics and Application, Basics of Electricity and Magnetism, Engineering Graphics and Drawing, Biology, Introduction to Electronics and Electrical Circuits, Economics*

* to be completed by April 2023

EXTRACURRICULAR ACTIVITIES

Tech	Achieved 2nd place in Techradiance conducted by Harbour technologies in accordance with Radiance, IITB	('17)
Sports	Got 3rd place in basketball district tournament	('17)
	Selected for Inter IIT Badminton Pre Camp	('22)
	Won Gold Medal in Badminton and Silver Medal in Frisbee Aavhan	('22)
Misc.	Awarded with the Bronze Standard of The International Award For Young People, (Part of The Duke Of Edinburgh's International Awards)	('17)
	Took part in various community service projects at Fountainhead school, Surat	('18)