Atharva Abhijit Tambat | **210070014**
Computer Science & Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 26/02/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2025	

Pursuing **Minors** in **AI & Data Science** and **Honours** in **Computer Science & Engineering**

Scholastic Achievements

- Conferred **Institute Academic Prize** by IIT Bombay for securing **1st Place** among all students of First year *(2022)*
- Achieved **Department Rank 10** in CSE department due to excellent academic performance & conferred with **AP grade (Advanced Proficiency)** - highest grade in **5 courses**, given to very few **out of 1400+ students** *(2023)*
- Awarded **Change of Branch** to **Computer Science & Engineering** department among **18** out of **1000+** students
- Secured **All India Rank 1** in **Joint Entrance Examination Main** amongst 1 million+ students. *(2021)*
- Ranked within **top 102** out of **9000+ students**, attended **Astronomy Olympiad Orientation Camp** *(2021)*
- Awarded **Kishor Vaigyanic Protsahan Yojana** (**KVPY**) fellowship by Govt. of India for **AIR 119** *(2019, 2020)*

Internships, Research & Major Projects

Compressed Sensing for Terahertz Communications | *Research Internship*

Guide: Prof. Dr.-Ing. Thomas Kürner, ***Technische Universität Braunschweig, Germany*** *(May'23-July'23)*

- Studied formulation of **device discovery** process for Terahertz communication, as **Compressed Sensing** problem
- Proposed **re-weighted TV Norm Minimization** & **regularized Deep Inverse Priors** for signal reconstruction
- Provided **numerical and simulation results**, demonstrating a near **2x improvement** over known results
- Expected to result in **journal paper** in near future crediting me as **author/coauthor**, discussing proposed methods

Geo-Mapping & Route Optimization | *Winter Internship* | *IFP Petro* *(Dec '22)*

- Created **scoring model** based on **distance, transportation cost** data to **prioritize transportation** of used oil
- Utilized **Capacitated Vehicle Routing**, to **optimize real-time transportation** routes, **minimizing costs**
- Developed a web application to **streamline** & **automate** the **pickup requests** for used oil from various suppliers

Deep Retrosynthetic Prediction | *In-Semester Undergraduate Research Programme* | *Ongoing*

Guide: Raghavan B. Sunoj, Department of Chemistry *(Jan '23 - Present)*

- Studied **Augmented NLP Transformer Models** on **SMILES representation** of substrate for reaction prediction
- Reviewed **Graph Attention Neural Networks**, leveraging **masked self-attentional** layers, for reaction classification

Accurate and Efficient Distillation | *Reading Project*

Guide: Prof. Ganesh Ramakrishnan, Department of Computer Science & Engineering *(Jan '23 - May '23)*

- Investigated **challenges encountered** & methods to make **Knowledge Distillation** more **efficient** & **accurate**
- Demonstrated **4x** accuracy increase by **Weighted Distillation**, **Second Split Forgetting**, **Teacher-Guided Training**

Deep Reinforcement Learning for Stock Trading | *Self Project* *(May'23-July'23)*

- Created an **OpenAI Gym** environment to **simulate the stock market** by using authentic stock data
- Implemented **Deep Q Learning (DQL)** to **performs trading** on custom **OpenAI Gym** trading environment

Machine Learning for Algo-Trading | *Winter in Data Science* | *Analytics Club* *(Dec '22 - Jan '22)*

- Analyzed **market trend** using **technical indicators** and **XGBoost algorithm** on **BitMex** bucketed trade data
- Trained **Long Short-Term Memory** Neural Network for **predicting opening prices** of the indices in the future

Algorithmic Trading | *Limestone Data Challenge, Tower Research Capital* *(March '23)*

- **Fit Index values** to the stocks based on **predictive correlation** with sector returns using **Lasso regression**
- Implemented a **high sharpe ratio** trading strategy to **maximize daily returns**, **capping the risk** below a threshold

Technical Skills

Programming	C/C++, Python, Java, JavaScript, MySQL, Django, PostgreSQL, Bash, VHDL
Data Science	PyTorch, TensorFlow, spaCy, Keras, Scikit-Learn, OpenCV, NumPy, Pandas, Matplotlib

Positions of Responsibility

- **Teaching Assistant** - Department of Mathematics, IITB - **Calculus I** (MA109) and **Linear Algebra** (MA106). Responsible for **mentoring** and **conducting weekly tutorial sessions** for a batch of **40+** first-year students

Technical Activities & Extracurriculars

- Built ***Virus Wars*** game in **Python**, for **Codewars v1**, a **Bot-Programming Contest**, by Web & Coding Club
- **Trainee/ Inductee** - IITB Mars Rover Team - gained hands-on experience on **working in a team** to learn about **Computer Vision Algorithms** for Mars Rovers, **programming robots** (**ROS**) and **robot control & automation**