Akshat Thakur | **22B2110**
Electrical Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 13/09/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	

Pursuing a **Minor Degree** in **Artificial Intelligence and Data Science** from **C-MInDS**, IIT Bombay (CPI: 9/10)

SCHOLASTIC ACHIEVEMENTS

- Among the **top 10% of the batch** who were awarded **branch change** for exemplary academic performance *('23)*
- Awarded **AP** (Academic Proficiency) grade given to **top 1%** out of **1350+** students, in Introduction to Biology *('23)*
- Attained a rank of **968** in **JEE Advanced** examination | Achieved a percentile of **99.87** in **JEE Main** exam *('22)*
- Recipient of prestigious **KVPY** Fellowship, awarded by **IISc, Bengaluru** to **only 2%** of **0.1M+** candidates *('21)*

PROFESSIONAL AND RESEARCH EXPERIENCE

Option Pricing using Artificial Neural Networks | *SURP | Prof. S. Baskar* *(Jul '24 - ongoing)*

*Working to train an **ANN** on data generated via Black-Scholes model to **increase performance** in online computing*

- Utilised the **Black-Scholes** model to forecast option prices using Python & applied the model to NIFTY50 data
- Applied **Brownian Motion**, **Itô's Lemma** and **Monte-Carlo approx.** to model volatility using historical data

Quantitative Research Internship | *ProSpace* *(Jul '24 - ongoing)*

*Working to **classify market volatility**, spread to capitalize on recursive trends, utilizing **Iron Condor/Fly** strategies*

- Achieved **profit** of **INR 36.6K** on downward trending asset by identifying optimal **dual-threshold** buy-sell points
- Utilizing **mean-reverting process** to predict market-movements; built backtest engine to simulate **option trades**

Identifying Biomarkers for Meningioma | *RnD Project: DH307 | Prof. S. Srivastava (Jan '24 - May '24)*

*Conducted thorough analysis on **Proteomics** and **Transcriptomics** datasets for comprehensive data insights*

- Reduced the size of feature set by **95%** while still retaining **85%** variance by performing **MAD Scaling** and **PCA**
- Utilized **Partial Least Squares Analysis** to filter **70%** of insignificant features and identify key predictor variables
- Identified **10** potential biomarker genes for Meningioma using **t-Test**, **Hypothesis testing** & **Lasso regression**

KEY PROJECTS

Straddle Strategy Analysis | *Algorithmic Trading | Self Project* *(Apr '24)*

*Created **short straddle strategy** tailored for **BANKNIFTY FNO**, utilizing Python for algorithmic development*

- Realized a **CAGR** of **9.47%** with a maximum drawdown of **2.11%** when backtested on historical data from 2017
- Achieved a **Calmar Ratio** of **4.49** by incorporating **stop loss** and away-wing long positions for risk-management

Processor Design & FPGA Implementation | *Course Project: EE224 | Prof. Virendra Singh (Nov '23)*

*Collaborated in team of **4** to design an **8-register**, **16-bit** CPU in **VHDL**, capable of executing **14** instructions*

- Utilized a **Moore** type **Finite State Machine** & state-equivalence to design **22** total states, following **Turing ISA**
- Employed **FPGA-based design** to perform **hardware testing**, with real-time display of memory & register states

Mule Account Detection | *Convolve 2.0 | Analytics Club, IIT Bombay* *(Dec '23 - Feb '24)*

***Pan-IIT** data-analytics event, executed with data sourced from **IDFC Bank** | Shortlisted in top **25%** teams*

- Reduced input features from **177 to 30** by using Feature Selection Algorithms like **Chi-Square** & **Fischer's Score**
- Achieved **Precision** of **0.89** & **Recall** of **0.91** by evaluating classification efficacy of **Random Forest** & **AdaBoost**

POSITIONS OF RESPONSIBILITY

Sports Head, Football | *Aavhan, IIT Bombay* *(Feb '24 - May '24)*

*Part of 3-tier team of **60+** members to organize IIT Bombay's Sports Fest with **6K+** participants & budget **INR 1 Cr***

- **In-charge** of conducting the Aavhan Football Tournament, seeing **20+ teams** and cash prizes worth **INR 50K+**
- Allocated **over INR 60,000** towards essential resources, including refreshments, logistics and medical equipment

Mentor | *Seasons of Code | Web and Coding Club, IIT Bombay* *(May '24 - ongoing)*

*Part of a team of **250+** mentors who helped supervise **140+** coding related projects over a period of **2** months*

- Mentored group of **10** freshmen and sophomores; conducted test on probability for shortlisting from **50+** candidates
- **Curated 5+ assignments** on **Derivative Pricing** using Python for progress assessment; provided weekly resources

EXTRA-CURRICULAR ACTIVITIES

Football	• Stood **1st** in Freshiesta Football Tournament and Mech Dept Football Tournament **(Captain)** *('22)* • **1 of 25** selected from **15K+** for **Inter IIT Camp** | Represented IITB team at **Aavhan 2024** *('23)* • Secured **1st** position in CBSE Clusters | Participated in **CBSE Nationals** Championship (U17) *('19)*
Technical	• Utilised **Computer Vision** to develop **Facial Recognition** and **Virtual Painter** models *('23)* • One of **7** top-performers selected from **150+** institute-wide participants in Summer of Quant *('24)* • **Languages**: Embedded C, Python, VHDL, Assembly 51 | **Softwares**: LTSpice, Keil, Ansys, Quartus
Business Acumen	• Selected by **BCG** to make a 5-slide **pitch-deck** involving market research & entry strategy *('24)* • Planned healthcare startup's **market entry** at SJMSOM's Strategy Case Competition (BCC) *('23)*