



Piyush Raj
Economics
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22B3323
B.S.
Gender: Male
DOB: 21/12/2003

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

Pursuing a Minor in **Data Science** from the Center for Machine Learning and Data Science department, IIT Bombay

SCHOLASTIC ACHIEVEMENTS

- Achieved **AIR 602** and **932** in JEE Mains and Advanced, ranked among top **0.6%** applicants (2022)
- Received an **AP** grade in the course **CS101** given to **15** students out of a batch of **748** students (2023)
- Achieved **AIR 8** in ISI Entrance Examination and Interview among **50,000+** candidates (2022)
- Selected for the prestigious **KVPY Scholarship** with **AIR 680** among **1.5** lakh candidates (2021)
- Ranked in the **top 30** in astronomy (**IOQA**) and **top 100** nationally chemistry (**IOQC**) olympiads (2022)

PROFESSIONAL EXPERIENCE

Patent Journaling Intern | *Industrial Research Consultancy Center* (May '24 - Jul '24)

- Worked in a team of **13** to prepare **documentations** for **600+** patents to be listed on the **IRCC website**
- Prepared a high-level intelligible synopsis of **35+** patents across **8+** scientific domains for licensing pitches

High Dimensional Nearest Neighbour search | *Research Intern* (May '24 - ongoing)

Guide: Prof. Ajit Rajwade | Supervised Learning Project IIT Bombay

- Built on a novel **group testing NN** method having **100% recall** as part of an **Amazon-funded** project
- Tested a **grouping** approach on a **743** dimensional dataset, querying **10k** test vectors in just under **2193s**
- Implementing a new approach using **softmax features** on **VGGnet** to improve the paper's query time

KEY PROJECTS

Equity Report Analysis | Equity Research Competition | *Finance Club* (Sept '23 - Oct '23)

- Prepared an equity report for the **small-cap** solar company **Sterling & Wilson** which finished **top 10**
- Constructed a **Discounted Cash Flow (DCF) Model**, showing the stock to be undervalued by **75.09%**

Creating Algo-trading Strategies using Pine Script | *Investment Team* (Apr '24 - May '24)

- Constructed a **VWMA-RSI** strategy offering a **502.7%** return and a **4.3** sortino ratio over **10 years**
- Created an accurate and visual **back-testing framework** using historical data using **pandas**, and **yfinance**

Creating an Optimised Portfolio using Asset Pricing Theory | *Finsearch* (May '23 - Jul '23)

- Created a **long-term, low-risk** portfolio worth **10 lakh INR** in the **mid and small cap** equity market
- The portfolio has a projected **y-o-y growth rate** of **22.4%** based on asset pricing theories like **CAPM**

Playing Games via Reinforcement Learning Agent | *Summer of Code* (Jun '23 - Aug '23)

- Trained **DQN** and **PPO** agents to play **blackjack**, achieving a **42%** win rate with a **no memory** approach
- Trained a **PPO agent** to play **STREET FIGHTER II** beating the **Level 6 fighter** with an **80%** win rate

Predict data using noisy parameters | *Prof. Vinay Kulkarni | Course Project* (Oct '23 - Nov '23)

- Reduced **model complexity** using **PCA** to reduce the number of controllable parameters to **8** from **20**
- Trained a **SLR** model, to predict **time series data** with a **0.82** Rsquare, **1.38** MAE and **2.66** RMS metric

POSITIONS OF RESPONSIBILITY

Investment Analyst | *Investment Team | Finance Club* (Jul '23 - May '24)

- Actively managed a **INR 5 lakh** fund invested in **mid and small cap equities** and **options markets**
- Conducted analysis of startups like **Thekabadiwala** and **Smytten** with VC partner **Roots Ventures**

Summer Course Teaching Assistant | **CS101** | *Prof. Varsha Apte* (Sept '23 - May '24)

- Part of a **4-member** team formed after rigorous interviews to assist the professor in teaching **25+** students
- Assisted in conducting **programming lab sessions** and one-on-one **help sessions** attended by students

EXTRACURRICULAR ACTIVITIES

Competitions	<ul style="list-style-type: none">Achieved AIR 8 and AIR 6 at TOSC Logic Fest held under Techkriti IIT KanpurPitched a cloud kitchen startup in EnB Buzz competing against 100+ participantsReceived an honourable mention in the school level English Debate Competition
Sports	<ul style="list-style-type: none">Selected for the Institute Inter-IIT Basketball Camp among 50+ participantsRunner-Up in the Freshie Kho-Kho Tournament among 30+ participantsWinners in the ASISC Basketball Tournament in the Bihar-Jharkhand Region
Mentorship	<ul style="list-style-type: none">Mentored a total of 24 students for RL optimized trading under FinsearchMentored 6 students for Gen-AI under the Summer of Science initiative
Culturals	<ul style="list-style-type: none">Winner in the Freshie Group Dance Competition organised by INSYNC