



# Khushi Tongia

Roll No. 210123032

B.Tech. - Mathematics and Computing

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## EDUCATION

Degree/Certificate	Institute/Board	CGPA/Percentage	Year
B.Tech.	IIT, Guwahati	8.00 (Current)	2021 - Present
Senior Secondary	CBSE Board	93.6%	2021
Secondary	CBSE Board	95%	2019

## EXPERIENCE

- **BRAIN Research Consultant** Oct 2022 - Present  
*World Quant LLC*
  - Conducted quantitative research and used Recorded Market Data to develop and implement trading strategies.
  - Generated **50+** uncorrelated(with pairwise correlation less than **0.7**) trading strategies.
  - Alphas are back-tested on **10 Years US Equity Markets Data** and **Sharpe Ratio, Turnover** and **Return** are calculated.
  - **Annual returns** are in the range of **10% to 50%** and Sharpe ratio between **1.25 to 4.45**.
- **Research Internship** Oct 2022 - Feb 2023  
*IIM Udaipur*
  - Conducted in-depth research analysis on **Commercial Courts Act, 2015** under the guidance of **Dr. Bhavya Singhvi**.
  - Collected and analyzed both qualitative and quantitative data relating to the **commercial courts** in various states using appropriate statistical techniques(used **Pandas** Library).
  - Interpreted research findings and generated actionable recommendations based on data-driven insights.

## PROJECTS

- **Options and its pricing models** Dec 2022  
*Finance and Economics Club, IIT Guwahati* [GitHub Link](#)
  - Developed Option Pricing Models to estimate the price of **European Call** and **Put** options.
  - Implemented the **Black-Scholes-Merton** model and **N-step Binomial model** using **Python** libraries such as **NumPy** and **Yfinance**.
  - Generated and analysed **Payoff graphs** for European options.
- **Qon** Oct 2022  
*Finance and Economics Club, IIT Guwahati* [GitHub Link](#)
  - Performed portfolio optimization to generate the minimum variance portfolio using **Markovitz** model on **5** Indian Stocks.
  - Successfully coded and conducted comprehensive analysis of Technical indicators like **WilliamsR, Average True Range, Money Flow Index** and **Elder Force Index** utilizing **Pandas, Numpy** and **Matplotlib** library.
- **Optical Character Recognition** Jun 2023  
*JPMC QR Case Study challenge* [GitHub Link](#)
  - Preprocessed a dataset of 5000 images using techniques like **dilation and erosion**.
  - Obtained training and testing accuracy using **SVM, Random Forest Classifier, and Logistic Regression**.
  - Implemented a **CNN-based model** using **Keras** with **TensorFlow** backend to improve the accuracy further.

## ACHIEVEMENTS

- **Creative Shock 2023:** Secured **global rank 2** among 88 countries in the international social business case competition.
- **Creative Shock 2022:** Secured **global rank 5** among 88 countries in the international social business case competition.
- **Mentee 2023:** JP Morgan Chase Quantitative Finance Mentorship Program.
- **WorldQuant Alphathon'22:** Secured global rank 71, among 3k+ teams, won prize for submitting most alphas in a week.
- **JEE Advanced 2021:** Secured **AIR 2120** among 0.20 million candidates appearing for the test.
- **JEE Mains 2021:** Secured **99.78 percentile** among 1.2 million candidates appearing for the test.

## TECHNICAL SKILLS

- **Programming Languages:** Python, C++, C
- **Tools & Frameworks:** Numpy, Pandas, yfinance, scikit-learn\*, matplotlib
- **Database Management:** MySQL
- **Operating System:** Windows, Linux\* \* Elementary Proficiency

## KEY COURSES TAKEN

- **Finance:** Financial Engineering I, Financial Markets, Technical Analysis, Fundamental Analysis, Quantitative Finance, Derivatives
- **Mathematics:** Linear Algebra, Probability & Random Processes, Number Theory & Algebra, Discrete Mathematics
- **Computer Science:** Computer Architecture & Organization, Data Structures & Algorithms, Database Management Systems

## POSITIONS OF RESPONSIBILITY

- **Overall coordinator at Finance and Economics Club, IIT Guwahati** Mar 2023 - Present
  - Mentoring **120+** **sophomores** interested in Finance and Economics.
  - Responsible for conducting Webinars, Workshops, and Competitions to spread **Financial Awareness**.