Rishabh Jain | **20I190008**
Industrial Engineering & Operations Research | **M.Sc.**
Indian Institute of Technology, Bombay | **Gender: Male**
DOB: 25-09-1997

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2022	8.12
Graduation	University of Rajasthan	St. Wilfred's College	2019	62.78%
Graduation Specialization: Mathematics and Statistics				

Areas of Expertise

Programming (Python)
Data Structures & Algorithms | Statistical, Machine Learning and Optimization Modelling

Mathematics & Statistics
Linear Algebra | Optimization Models | Probability | Hypothesis Testing | Regression | ANOVA | Stochastic Processes | Markov Chains and Jump Processes | Time-Series Modelling | Bayesian Statistics

Financial Engineering
Mean-Variance Portfolio Theory | Models of Asset Returns | CAPM | Brownian motions and martingales | Stochastic calculus and Ito processes | Stochastic security price models | Option Pricing | Greeks | Binomial model | Black-Scholes | Risk-neutral probability measures | Cameron-Martin-Girsanov (CMG) Theorem | Credit Risk Models | Ruin Theory | Time Value of Money | Redington's Immunization Theory

Artificial Intelligence
Supervised Learning Models - Regression/Classification | Dimensionality Reduction - PCA, KPCA | Clustering Algorithms| Markov Decision Processes | Reinforcement Learning

Certifications

- NISM - Series - VIII : Equity Derivatives Certificate (May 2021)
- NISM - Series V A : Mutual Fund Distributors Certificate (Jan 2021)
- Algorithmic Trading & Quantitative Analysis Using Python (Jun 2021) | Udemy
- Applied Machine Learning (Dec 2020) | University of Michigan, Coursera

Other skills

Advance MS Excel | CBC Solver | PYOMO | LaTex | NumPy | Pandas | PyTorch | Keras

Achievements

- Ranked 2nd in IEOR department (M.sc)
- Scored 10 grade in Engineering Statistics and Optimization Models.

Co-Curriculars

The Logical Owl (YouTube Channel)
- Created 16+ hours of lectures on Actuarial Mathematics.
- More content on core actuarial statistics and machine learning in process.

Fitness - Running
- Achieved astonishing fitness goal by **loosing 41Kgs weight in 6 months** by training for marathons.

Experience

DSP Mutual Funds (formerly DSP BlackRock Mutual Funds), Mumbai
Risk and Quantitative Analysis (4 Months)
- Contributed extensively in **research on Factor Investing** focused on maximizing alpha using rule-based smart betas strategies.
- Reduced 90% runtime by **automating** the portfolio creation task using **Python** from raw data.
- Developed Machine learning model, which **generated 38.76% alpha** above benchmark BSE200 in three years period.

Position of Responsibility - Placement Office, IIT Bombay
- **Company Coordinator (2021-22) :** Part of a team of 45+ members responsible for placement of 1800+ students from 18 departments in the institute.
- **Internship Coordinator (2020-21) :** Part of the team of 35+ internships coordinator with the task of securing and managing the complete process of internships for 1800+ students of IIT Bombay.

Education

Ms.c Operation Research IIT Bombay
Admitted through JAM (Mathematical Statistics) by scoring AIR 54 **(Key Courses)**

Engineering Statistics | Introduction to Machine Learning | Deep Learning : Theory and Practice | Foundation of Intelligent and learning agents | Decision Analysis and Game Theory | Optimization Models and Techniques | Simulation Modelling and Analysis

Student Member - Institute of Actuaries of India, Mumbai
8 Exams Cleared | 2015 - Present
- Specializing in advance mathematical and statistical concepts used in quantifying risk.
- **Exams ->** Financial Mathematics | Financial Reporting | Probability and mathematical statistics | Models | Contingencies | Statistical Methods | Financial engineering and loss reserving | Business Awareness

Projects

Modelling a group of generators as Multi-Agent Reinforcement Learning (MARL) | M.sc Project
Prof. N. Hemachandra | Jul- Dec 2021 | (ongoing)
- Analyze and implement recent technical research paper to model a group of generators as decentralized MARL with networked agents using actor-critic algorithm.
- Collaborate with a PhD research student to devise new techniques and develop a model in Python.

(In process) | Deep learning Couse project
Prof. P. Balamurugan | Jul 2021-Dec 2021 | (ongoing)
- Analyze and implement latest research in deep learning from allotted paper and build a model in Python.

Credit Risk Prediction Problem | Hackathon
Univ.AI | Apr 2021
- **Secured 4th rank nationally** where more than 1000+ students from best institutions of India competed on the challenging problem and **scored roc_auc score of 89.19%** (highest was 89.20%).
- Implemented ensemble boosting tree algorithms such as XGBoost, LGBM and Catboost to get final result.

https://tinyurl.com/3vyzkxcw

Stock prediction using SVR | Machine learning course project
Supervisor : Prof. A. Sethi | Mentor : Arun Jain, Vice President at Credit Suisse, Raleigh ,USA| FEB 2021
- Received **letter of appreciation** for performing exceptionally from Arun Jain and **written a white paper**.
- Developed program to **automate data fetching** from Alpha Vantage API, to predict stock prices.
- Analyzed various **Technical indicators** (MACD, RSI, ATR, Bollinger Bands ADX) and **Fundamental factors** (Gross profit EPS etc.) to implement the model and achieved MSE of 2.8 (AAPL).

https://tinyurl.com/8su5pv3n

Bootstrap Methods | Seminar Project
Prof. P. Balamurugan | Feb 2021
- Analyzed the famous research paper on bootstrap methods about estimating the sampling distribution of a random variable from observed data using resampling methods and presented observations in seminar.

Optimization Models
IEOR Lab | Jan 2021
Implemented various non-linear **optimization algorithms** like Gradient Descent, Newton's Method, BFGS, etc.. Developed code from scratch **using only Numpy in Python** without using any standard libraries.

https://tinyurl.com/5v4msy9r