

AAKASH BANSAL

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Education

University of Illinois Urbana-Champaign

Aug 2024 - Dec 2025

Master of Science in Financial Engineering

3.81/4

Courses: Numerical Methods, Stochastic Calculus, Applied Portfolio Management, Financial Computing, Machine Learning

Birla Institute of Technology and Science, Pilani

Aug. 2018 – May 2022

Bachelor of Engineering in Electronics and Communications, Minor in Finance

8.18/10

Courses: Financial Management, Business Analysis & Valuation, Derivatives & Risk Management

Work Experience

JP Morgan Chase

Jan 2022 – July 2024

Modelling Risk Analyst - **Home Lending Risk**

Bangalore, India

- Redeveloped reporting on **Home Lending Origination Risk** and **reduced processing time** for Loss Forecasting, Competitive Intelligence, and Servicing Risk reports **by 90%**, leading to a precise and much faster strategic response.
- Implemented MSA-level analytics using **prepayment & default prediction models** for the Geo Risk framework.
- Used **Python, Alteryx, Tableau, SAS** and **SQL** to build a tool to determine data quality and automate reporting.
- Saved 100s of analysts' hours and achieved the **highest ratings** for my projects in Data Migration and Consolidation.

Projects

Options Pricing | C++ & Python

Aug 2024 -Dec 2024

- **Implied Volatility Prediction:** Built and compared Machine Learning models: Back Propagation Neural Networks and Random Forest for forecasting implied volatility in SPX options.
- **Enhanced Monte Carlo Methods:** Deployed variance reduction techniques like Antithetic and Control Variates to price Asian & American options, compared the Longstaff-Schwartz and BBSR methods for accuracy and compute.
- **Barrier Options:** Analyzed convergence and optimized compute using recursive memoization for pricing exotic "Up-and-out" and "Up-and-in" barrier options.

Rainfall & Runoff Prediction | MATLAB

Aug 2021 -Dec 2021

- Optimised *Wavelet Neural Network* (WNN) to **predict Rainfall and Runoff** at Lower Godavari Basin using parameters like temperature, humidity, longitude, and latitude with **historical time-series data**.
- Programmed **Long Short Term Memory** (LSTM) to compare model performances and determine the better model.
- Developed **Graphical User Interface** for both algorithms for **future research implementation**.

Other Projects | UIUC & BITS Pilani

- Developed the **Hidden Markov Model** to predict Returns and **Value at Risk** using Python: hmmlearn library.
- **Portfolio Optimization** using **Monte Carlo Simulation** in Python to find the Markowitz optimal return.
- Analysed / Compared Business Risk, Operating Leverage, Financial Leverage, and Total Leverage for competitor firms.
- Analysed Systematic and Unsystematic risks and interpreted optimal capital structure for publicly trading stocks.

Skills

Quantitative: Optimization, Fixed-income securities, Derivatives, Object-oriented programming

Programming: Python, SQL, SAS, C++, R Programming

Tools: Alteryx, AWS, GitHub, SAS Studio, Tableau, Bloomberg Terminal, MATLAB

Certifications: Bloomberg Market Concepts, Alteryx Designer Core, R Programming, Tableau, SQL

Extracurricular

VoluntHere - Co-Founder

August 2020 – Jan 2021

- Chaired the founding of a **Non-Profit Platform** to connect NGOs with student interns.
- Supervised 300 Applications, 15 partner NGOs, 25 Campus Ambassadors, 0 Investment.

Other - BITS Pilani

Fall 2018 – Spring 2022

- **TagHive:** Product Growth Intern, **180 Degrees Consulting:** Consultant, **Access Livelihood:** Consultant
- **National Service Scheme:** Led a team to teach Microsoft Office tools to underprivileged kids in a nearby school.
- **Student Welfare:** Managed student portal, mess registration, goodies sale, Merit-Need scholarship, and documents.
- **Nirmaan:** Organized events like local markets, volunteer day, donation drives, and merch sales for charity.
- **Placement Division:** Placement Coordinator **Entrepreneurship Cell:** Internship Drive Coordinator
- **Hobbies:** Podcasts, Chess, Table Tennis, Cooking, Badminton, Cricket, Poetry, E-sports