

Sachin Kumar

Bendheim Center for Finance, 20 Washington Road, Princeton, NJ
08544

Email: imsac201@gmail.com
Mobile: +91

EDUCATION

- **Jadavpur University** Jadavpur, N
2019-2021
Bachelor in Mechanical Engineering
 - **Anticipated Coursework:** Programming in C and C++, Numerical Analysis of data, Probability, Linear Algebra, Calculus, Differential Equations, Fixed Income, Financial Modelling
- **Indian Institute of Technology, Delhi** New Delhi, India
2014-2019
Master of Technology, Mathematics and Computing, GPA:
8.07/10 Bachelor of Technology, Mathematics and Computing,
GPA: 8.42/10
 - **Relevant Coursework:** Financial Mathematics, Stochastics of Finance, Linear Algebra, Calculus, Differential Equations, Data Structures, Data Mining, Probability and Stochastic Processes, Statistical Methods, Automata, Game Theory

INTERNSHIPS

- **Goldman Sachs** Bengaluru, India
May 2018 - Jul 2018
Market Risk Modelling - Mortgages
 - Derived insights into optimal risk factor benchmark time series for **mortgage backed securities** in SecDB by conducting **segmentation analysis** based on multiple attributes including coupon and vintage year
 - Implemented a distance based **agglomerative clustering** algorithm in Slang for split point determination
 - Devised **statistical tests** for similarity of time series using norm metrics and correlation curves
- **Citi Corp** Mumbai, India
May 2017 - Jul 2017
Retail Services - Risk Management
 - Performed **text mining** on unstructured collections data using **nlTK** to identify trends and inconsistencies
 - Developed **neural network models** in Python for classifying delinquency status of credit card holders
 - Utilized **Hadoop DFS** and the parallel processing of **MapReduce** to speed up computation on **big data**
 - Received '**Best Intern**' award based on continuous evaluation of project work by internship supervisors

PROJECTS & RESEARCH

- **Credit rating transitions modelling: M.Tech thesis project** (Guide: [Prof. S Dharmaraja](#)) Jul 2018 - Jun 2019
 - Formulated **expanded state approach** to deal with **rating momentum** in Markov rating transition models
 - Implemented transition matrix estimators in Python and Excel using data of 6469 companies rated by S&P
 - Achieved 6% increment of accuracy in **random forest** model predicting direction of next rating transition
- **Study of Markov decision processes: Mini Project** (Guide: [Prof. Vikas Vikram Singh](#)) Jan 2018 - May 2018
 - Researched variants of **stochastic dynamic programs** consisting of different policies and optimality criteria
 - Implemented backward induction algorithm in MATLAB for finite horizon inventory management problems
 - Compared efficiency of linear programming and policy iteration methods for infinite horizon problems

SCHOLASTIC ACHIEVEMENTS

- **Test Scores:** GRE: Verbal 165/170 Quantitative: 170/170; ToEFL: 118/120 (2018)
- **Teaching Assistant:** Guided UG students in courses 'Intro to Statistics', 'Theory of Computation' (2018-19)
- **MHRD scholarship:** Received from HRD ministry, Govt. of India for excellent academic record (2018-19)
- **Joint Entrance Examination Mains:** Secured 100 percentile among 1,000,000 students nationwide (2014)
- **KVPY scholarship:** Awarded by Govt. of India; Secured All India Rank 180 in prestigious examination (2013)

SKILLS AND INTERESTS

- **Languages and Software:** Java, Python, C++, R, MATLAB, OCaml, Slang, Stata
- **Music:** Junior diploma in Hindustani vocals; Awarded '*Significant Contribution to Music Club, IIT Delhi*' (2017)

- Director, Indian Music Society, IIT-Delhi; orchestrated performances for 12 institute events (2016-17)
- **Leadership and mentoring:** Awarded '*Excellence in mentorship*' by Mentorship Review Committee, IIT-D
 - (2017) Guided group of 5 freshmen to ensure academic and social well-being during transition to IIT-Delhi
 - Int'l Events Coordinator, Rendezvous: Led team of 30 to organize showcase event at college festival (2017)
- **Community work:** Worked with NGOs '*Wings association*', '*Nightingales Medical Trust*' & '*Make a Wish Foundation*' Taught music to underprivileged children; organized recreational activities for elderly at day care centre
- **Hobbies:** Music (progressive, fusion), Literature (Fantasy, non-fiction), Cricket, Trekking, Travelling