

Ayush Sharma

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EDUCATION

IIT GUWAHATI
BTECH IN MATHEMATICS & COMPUTING
Expected May 2019 | Guwahati, India
Cum. GPA: 8.44 / 10.0 (Current)

BHAVAN'S VIDYASHRAM
HIGH SCHOOL
May 2015 | Jaipur, India
Percentage: 91.40 % | CBSE

LINKS

Github:// **AShar97**
LinkedIn:// **ayushsharma97**

COURSEWORK

UNDERGRADUATE

Finance:

- Monte Carlo Simulation + Practicum
- Financial Engineering + Practicum
- Stochastic Calculus for Finance
- Statistical Analysis of Financial Data + Practicum
- Portfolio Theory & Performance Analysis
- Financial Risk Management & Modeling*

Humanities:

- Indian Business History*

Mathematics:

- Probability Theory & Random Processes
- Linear Algebra
- Optimization
- Game Theory & Economics
- Industrial Organization
- Queueing Theory & Applications*

Computer Science:

- Data Structures & Algorithms + Practicum
- Theory of Computation
- Databases + Practicum
- Computer Networks + Practicum

MOOC (taken adjunct to curriculum):
{Certifications: [goo.gl/uXw6tt](https://www.coursera.org/certificate/uXw6tt)}

- Machine Learning (Coursera) Specialization
- Deep Learning (Coursera) Specialization
- Advanced Machine Learning (Coursera) Specialization *

** To be completed in Spring 2019*

SKILLS

PROGRAMMING
C/C++ • Python

STATISTICAL TOOLS
R • MATLAB *

TOOLS/Frameworks
Keras • TensorFlow • scikit-learn • Git

MISCELLANEOUS
L^AT_EX • Arduino * • Microsoft Office

OPERATING SYSTEMS
Windows • Unix (macOS) • Linux

** Elementary Proficiency*

EXPERIENCE

TATA INSTITUTE OF FUNDAMENTAL RESEARCH, MUMBAI
VISITING STUDENTS' RESEARCH PROGRAMME 2018
May - July 2018 | Prof. Umang Bhaskar

- **Two Player Network Congestion Games:** Investigated from a computational viewpoint the two-player network congestion games, with focus on the bounds of convergence of the Nash dynamics.
- **Polynomial-time Algorithm for SPG & DAG:** Developed the polynomial-time algorithms to find Nash equilibria in the particular cases of series-parallel graphs and directed acyclic graphs.
- **Future Scope:** Determine the existence of a polynomial-time algorithm to find Nash equilibria in case of general graphs (or directed cyclic graphs).

PROJECTS

CRITICAL EMPIRICAL ANALYSIS OF ROSS RECOVERY THEOREM
BACHELOR'S THESIS PROJECT
Ongoing | Prof. N. Selvaraju
To perform a critical empirical analysis of the predictive capabilities of Ross Recovery Theorem, in contrast with the traditional Black Scholes Merton approach, on the Indian Equity & Derivatives Markets.

COLLECTIVE ROBOTICS
ROBOTICS CLUB, IIT GUWAHATI | goo.gl/2MtbD5
November 2016 - April 2017

- Implemented a modified version of the Particle Swarm Optimization algorithm, for the collaborative searching mechanism, to achieve rendezvous task by the cumulative effort of multiple autonomous robots, functioning independently sans any communication.
- Technology used: Python and Arduino.
- Future scope: Ameliorate via Reinforcement learning the accuracy and efficacy of the modified Particle Swarm Optimization algorithm.

SKIN DISEASE CLASSIFIER

Used transfer learning to fine-tune MobileNet-v2 to implement a multi-class classifier for classifying 8 generic skin diseases.

ACHIEVEMENTS

JP MORGAN QUANT CHALLENGE 2018
Campus 1st and overall 2nd in the 36-hour Quantitative Research and Data Science online competition.

GOLDMAN SACHS' GS QUANTIFY 2018
Finalist, campus 1st and overall 6th in the Quantitative Aptitude section of the 12-hour online contest.

MITACS GLOBALINK RESEARCH AWARD
Selected for the Mitacs - 2018 Globalink Research Internship Award to pursue research internship in Canada.

INSTITUTE MERIT SCHOLARSHIP
Awarded Institute Merit Scholarship for securing 1st position in the Department of Mathematics, in the academic session 2015-2016.

KVPY 2014-15
Selected (qualified) for the National Program for Fellowship in Basic Sciences (for high school students) by securing a position in the top 1% among 50,000 candidates.

NTSE 2010-11
Awarded (qualified for) the National Talent Search Scholarship by securing a position in top 1,000 candidates.

EXTRACURRICULARS

INTRA-BATCH SPORTS COMPETITION
Secured 3rd position in the table-tennis event.

COMMUNITY SERVICE
Tutored high school students, from an underprivileged background, in Physical Sciences and Mathematics, on weekends during academic session 2016-17.

FRESHMEN MENTORSHIP
Mentored freshmen under Peer Mentoring Programme of Students' Welfare Board, IIT Guwahati, during academic session 2017-18.