

# ASHISH CHANDRA

Krannert School of Management,(Quantitative Methods) ◊ Purdue University  
aashishc@purdue.edu ◊ Phone No. +1 765 775 8682

## EDUCATION

- **Krannert School of Management, Purdue University.** *August 2016 - Current*  
Ph.D in Quantitative Methods. (CPI : 4.0/4.0)
- **Indian Institute of Technology, Bombay. ( IIT Bombay )** *July 2013 - June 2016*  
Master of Science in Operations Research. (CPI : 9.15/10)
- **UM-DAE Centre for Excellence in Basic Sciences, Mumbai.** *August 2010 - June 2013*  
Bachelor of Science in Mathematics. (CPI: 8.54/10)

## ACADEMIC ACHIEVEMENTS AND FELLOWSHIPS

- Awarded **Charpak Scholarship** by the French Government. *(May - July 2015)*
- Awarded **Teaching Assistant fellowship** by IIT, Bombay. *(July 2013 - June 2016)*
- Awarded **Summer Research Fellowship** by the prestigious National Program on Differential Equations - Theory, Computation & Applications (NPDE-TCA). (Department of Science & Technology) *(May - June 2013)*
- Awarded **Summer Research Fellowship**, jointly by the Indian Academy of Sciences, the Indian National Science Academy and the National Academy of Sciences. *(May - July 2012)*
- Recipient of the “Innovation in Science Pursuit for Inspired Research” **INSPIRE Fellowship**, offered by the Department of Science & Technology. (Government Of India) *(August 2010 to April 2013)*

## ACADEMIC RESEARCH PROJECTS

- 1) Systemic Risk in Financial Networks.** *(March 2015 - June 2016)*
  - Studied different methods to measure the defaulting risk faced by a firm in a financial network.
  - Read about the contagion in financial networks and tried to relate it to the concepts coming from the study of epidemics.
  - Obtained the optimal value of the short and long term returns on investments made by banks in a financial environment, which maximized the overall surplus associated with the system.
  - Worked on systemic risk and its time evolution in heterogeneous banking environments.
- 2) Brownian Motion on One dimensional Grid with Random Deletions points.** *(August - November 2014)*
  - Studied simple random walks done on random Voronoi tilings in  $\mathbb{R}^d$ ,  $d = 1,2,3 \dots$  with emphasis to study the transient or recurrent properties of these random walks using the concepts of electrical circuits.
  - Studied the extension of these transient and recurrent ideas for random walks done on more general random environments.
  - Read about the Brownian motion done on Poisson Voronoi cells.
  - Came up with some performance measures of a Brownian Motion done on integers with random deletions. Also obtained analogies and applications of this kind of Brownian Motion in mobile network communications, which could be used to study the variations in the signal strength received by a mobile user moving on a one dimensional grid.
- 3) Modeling and Simulation project.** *(August - November 2014)*
  - Modeled and simulated the functioning of a shopping complex using *AnyLogic* software.
  - Using Java code, optimized different performance measures like average number of carts, number of employees in order to minimize customer loss and maximize the net-profit earned by the shopping center.
- 4) Nash Equilibrium in Distributed Systems and Applications in Road Traffic.** *(January - April 2014)*
  - Read network structures and distributed systems from a Game theoretic approach.
  - Learned about the different ideas and methodologies used to find the Nash Equilibrium in distributed systems, when the number of agents involved is very large.
  - Studied the applications of these ideas in choosing the best responses for the commuters in complex traffic systems, in order to avoid congestion and also to optimize the travel time.

## RESEARCH INTERNSHIPS

### 1) French Institute for Research in Computer Science and Automation.

(May - July 2015)

Guide : Prof. Konstantin Avrachenkov.

Project: Random Walks with Restarts and Applications in Optimization.

- Worked on optimizing polynomials using the concept of random walks with restarts.
- Given a polynomial, via simulations compared the expected time of convergence to the global optima using the simple line search method and the proposed method of line search combined with random restarts.
- Theoretically derived and verified via simulations the expression for the optimal restart probability, for which the proposed algorithm converged the fastest.
- Worked to extend these ideas to higher degree polynomials.

### 2) Indian Institute of Technology, Bombay (IEOR Department).

(May - June 2013)

Project Guide : Prof. K.S. Mallikarjuna Rao.

Reading Project: Partial Differential Equations.

- Read about the different types of partial differential equations, and the computational methods used to solve them.
- Studied the characteristic curves as a part of the hyperbolic partial differential equation.

### 3) Indian Institute of Science, Bangalore.

(May - July 2012)

Guide : Prof. Manjunath Krishnapur.

Project: Random Walks and Electric Networks.

- Learned basics of graph theory and read about random walks done on  $\mathbb{R}^d$ ;  $d = 1, 2, 3, \dots$  and other deterministic networks.
- Studied the transient and recurrent properties of these random walks using ideas from the theory of electrical circuits.
- Worked on proving the results mathematically which were already obtained using electrical concepts.

## TEACHING EXPERIENCE

- Teaching assistant at Purdue University; (Fall 2016, Spring 2017, Fall 2017).

Course : MGMT 30600, Management Sciences.

- Teaching assistant for a masters level course Introduction to Stochastic Models at IIT, Bombay. (July - November 2015).

## WORKSHOPS ATTENDED

- Lectures on Probability and Stochastic Processes IX, Indian Statistical Institute, Kolkata.

(December 2014)

- Winter School on Probability, Indian Statistical Institute, Kolkata.

(December 2013)

- Lecture Workshop on Mathematics, Indian Institute of Sciences, Bangalore.

(20 - 21, June 2012)