HAMIDUR RAHMAN
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Integrated M.Sc. - Ph.D.
Industrial Engineering and Operations Research (IEOR), IIT Bombay

(+91) 9833426816 (Phone)
Date of Birth: January 01, 1990
July 2011 - Present

Objective

- To work in a challenging environment which is open to learning and implementation of new ideas and innovative techniques.

Education

Examination	Specialization	University/Board	Institute	Year	CPI/%
PG (Int. Ph.D.) *	IEOR	IIT Bombay	IIT Bombay	Pursuing	8.27
UG (B.Sc.)	Mathematics (Honours)	University of Calcutta	Presidency College (Now University), Kolkata	2010	71.38
Class XII	Pure Science	WBCHSE	A.C. Institution, Malda	2007	78.86
Class X		WBBSE	Kaliachak High School (H.S.)	2005	82.75

***** : *As a part of a permissible exit option, I intend to graduate from IIT Bombay in June 2015 with a Master of Science in Industrial Engineering and Operations Research (IEOR).*

Areas of Interest

- Operations Research: Optimization Models and Techniques, Operations Analysis, Integer Programming, Convex Analysis, Convex Optimization, Supply Chain Management.
- Currently working on Global Optimization - Quadratic Programming (Continuous and Discrete).

Key Academic Projects

- **A Study on Non-convex Mixed Integer Nonlinear Programming (MINLP)**
  M.Sc.-Ph.D. Project Phase III, Advisor: Prof. Ashutosh Mahajan Autumn 2013
  - Studied the Convex Extensions and Convex Envelopes of various non-convex functions.
  - Surveyed various relaxation techniques and algorithms for Factorable functions including Polyhedral relaxation.
  - Where and how to apply Spatial Branch-and-Bound algorithm for Non-convex MINLP.
  - Came up with the best Branching and Bound Tightening strategies.
  - Softwares: AMPL, COUENNE.

- **Solving MINLP : Algorithms Based on Outer Approximation**
  M.Sc.-Ph.D. Project Phase II, Advisor: Prof. Ashutosh Mahajan Spring 2013
  - Studied the Linear Relaxation technique for Convex MINLP by Outer Approximation.
  - Presented an Outer Approximation based algorithm with the convergence analysis to solve a class of Convex MINLP.
  - Also, studied and presented the algorithm based on Lagrangian Decomposition Approach and it's convergence analysis.
  - Softwares: AMPL, FilMINT.

- **Numerical Methods of Solving Semi-Infinite Programming (SIP)**
  M.Sc.-Ph.D. Project Phase I, Advisor: Prof. K.S. Mallikarjuna Rao Autumn 2012
  - Surveyed different types of formulations and Discretization methods of SIP.
  - Proposed and presented an algorithm to solve SIP along with it's convergence analysis.
  - Also, proposed and presented an algorithm for Min-Max SIP along with it's convergence analysis.

Technical Seminar

- **Flight Crew Scheduling**
  M.Sc.-Ph.D. Technical Seminar, Advisor: Prof. Vishnu Narayanan Spring 2012
  - Presented a seminar on Flight Crew Scheduling problem.
  - Reviewed various mathematical modeling techniques of flight crew scheduling available in the literature to solve the problem.
  - Literature review of various heuristics, Column Generation to solve Crew Scheduling models.
  - Came up with decent formulation taking care of all types of costs involved in Flight Crew Scheduling.

Other Academic Projects

- **A Disjunctive Cutting Plane Algorithm For Convex MINLP**
  Convex Analysis Course Project, Advisor: Prof. Ashutosh Mahajan Autumn 2013
  - Extended a Disjunctive Cutting Plane algorithm of Mixed Integer Linear Programming to a class of Convex Mixed Integer Nonlinear Programming.
  - Proposed an algorithm for solving a class of Convex MINLP.
  - Softwares: AMPL, FilMINT, SNOPT.

- **Case Study - FOOD WORLD B**
  Supply Chain Management Course Project, Advisor: Prof. Jayendran Venkateswaran Spring 2013
  - The project involved addressing the supply chain issues such as merchandising decision, vendor development and distribution strategy. The challenge was to come up with a decent vendor development strategy.
  - Concepts Used: Hub-spoke model, Layout design, Vendor managed inventory, RFID, 3PL.

- **My Dream Company - The Cotton Inc.**
  Manufacturing Planning and Control Course Project, Advisor: Prof. A. Subash Babu Autumn 2012
  - The project involved all the decision making aspects of setting up a cotton fabric processing plant, such as assembly line balancing, capacity planning, forecasting, plant layout, MRP, EOQ, etc.
  - The challenge was to come up with the best production planning strategy.

Academic Achievements

- **All India rank 5** in Mathematics in IIT JAM (Joint Admission test for Master of Science), 2011.
- Was awarded with a **Certificate of Honour** by the Presidency University, Kolkata for being the third ranker in Mathematics (Honours) in Presidency University, 2011.
- Qualified (one among the 35 candidates at all India level) the written test for National Board for Higher Mathematics (NBHM) Masters Fellowship Examination, 2010.

Positions of Responsibility

- **Logistics Manager** of Research Scholar's Cofluence 2015, IIT Bombay.
- **Academic Unit Representative for Academic Affairs (AURAA)** - Ph.D. 2014-15, IIT Bombay.
- **Teaching Assistant** for the course 'Modeling and Computational Lab (IE 507)', Autumn 2014.
- **Service Coordinator of Mood Indigo - 2013, IIT Bombay**. Mood Indigo is the largest college cultural festival in Asia, with a budget exceeding INR 20 million and a participation of over 90,000 students from over 650 colleges from across the country.
- **In-charge of the Logistic Team** of Research Scholars and Alumni Symposium - 2014, IIT Bombay.
- **Teaching Assistant** of the course 'Integer Programming: Theory and Computation (IE 716)', Spring 2014.
- **Departmental Coordinator** of Institute Research Scholars Companion Program (IRSCP), 2013-14, IIT Bombay.

Conferences and Workshops Attended

- Attended The 'Operations Management Conclave' 2013 and 2014 at S.P. Jain Institute of Management and Research, Mumbai.
- Attended the '3^{rd} Winter School of Optimization and Control', a workshop on Optimization and Control theory. January 2014, IIT Bombay.
- Attended the conference/workshop 'CIMPA UNESCO India Research School'. November - December 2013, University of Delhi, New Delhi, India.
- Attended the 'International Simulation Conference of India (ISCI) - 2012', IIT Bombay.
- Attended the 'National Seminar of Mathematics 2011', University of Calcutta, Kolkata, India.

Programming Skills

Optimization Model: AMPL.

Optimization Solver: GUROBI, SNOPT, CPLEX, SeDuMi, Couenne.

Languages: Scilab, Mathematica.

Operating Systems: Linux, Microsoft Windows.

Others: Proficient in LaTeX.