Ravi Kumar

CONTACT INFORMATION

School of Operations Research &
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CITIZENSHIP

India

EDUCATION

Cornell University, Ithaca, NY USA

PhD Candidate, Operations Research (expected graduation date: August, 2015)

- Concentration: Applied Probability and Statistics
- PhD Minors: Applied Mathematics, Computational Science and Engineering
- Selected PhD Coursework:

Stochastic Processes	Probability
Statistical Principles	Optimal Learning
Stochastic Dynamic Programming	Simulation
Math Programming	Nonlinear Programming
Computational Methods in OR	Revenue Management
Inventory Management	Microeconomics
Matrix Computations	Structure of Information Network

- GPA: 3.92/4.00

University at Buffalo, The State University of New York, Buffalo, NY USA

M.S., Mechanical Engineering, August 2007-August 2009

- Thesis Topic: Image-Guided Tracking of Internal Organ Motion for Radiation Therapy
- Area of Study: Dynamics, Optimal Control and Estimation
- Coursework includes: Discrete Optimization, Engineering Optimization, Nonlinear Control, Optimal Control, Detection and Estimation, Systems Analysis
- GPA: 3.95/4.00

Indian Institute of Technology Delhi, New Delhi, INDIA

B.Tech., Mechanical Engineering, August 1999-June 2003.

- Major Project: An algorithm for computing equilibrium composition of combustion products by minimizing Gibbs free energy
- GRE: VR 760/800, QR 800/800, AW 4.0/6.0

HONORS AND AWARDS

- Teaching Assistant of the Year at School of Operations Research and Information Engineering, Cornell University. 2013 - 2014
- State University of New York at Buffalo Graduate student tuition scholarship. 2007-2008

RESEARCH INTERESTS

Stochastic Dynamic Programming, Optimization Under Uncertainty, Revenue Management, Dynamic Resource Management, Control of Queueing Systems, Energy Aware Control of Telecommunications Networks

Publications

- Dynamic resource management for parallel queues with shared pool of flexible servers. (*working paper*)
- Dynamic service rate control of single server queue with Markov modulated arrivals (with Mark Lewis and Huseyin Topaloglu) *Naval Research Logistics*; vol. 60, no. 3, pp. 661-677, 2013
- Modeling and uncertainty quantification of motion of lung tumors for image guided radiation therapy (with Tarunraj Singh and Puneet Singla); *American Control Conference (ACC)*, 2010, Baltimore, MD
- Design of input shapers using modal cost for multi-mode systems (with Tarunraj Singh); *Automatica* , vol. 46, no. 3, pp. 598-604, 2010

Invited Talks

- **INFORMS Annual Meeting, Nov. 2014**: Dynamic Resource Management for Parallel Queues with Shared Pool of Flexible Servers.
- **INFORMS Annual Meeting, Nov. 2013**: Optimal Allocation Policy for Parallel Queues with a Shared Pool of Servers.
- **American Control Conference (ACC), July 2010**: Modeling and uncertainty quantification of motion of lung tumors for image guided radiation therapy.

Academic Experience

Instructor

Cornell University

Introduction to Engineering Stochastic Processes: ORIE 3510/5510 (Summer 2014): taught undergraduate and graduate students the basic concepts and techniques of random processes with emphasis on their use in building practical models for variety of problems related to the area of Operations Research.

Research Assistant

- Cornell University: Fall 2010, Summer 2011
- SUNY Buffalo: Fall 2009, Summer 2009
- Indian Institute of Technology: Delhi, Summer 2003

Teaching Assistant

Stochastic Processes	Simulation
Optimization I	Optimization II
Systems Engineering	Systems Analysis
Math Programming	Nonlinear Programming
Continuous control systems	Introduction to Instrumentation

Industry Work Experience

Bharat Heavy Electricals Limited, New Delhi, India

Design Engineer **September 2003 to June 2007**

Responsibilities included: Design of building Management Systems & Controls for Electrical Sub-stations, HVAC package for Electrical Sub-stations, Vendor Management

Professional Affiliation

- Member, Society for Industrial and Applied Mathematics (SIAM)
- Member, INFORMS

Computer Skills

Python (Beginner), Proficient in MATLAB, LaTeX and MS Office

Other Interests

Volunteer in ASHA for Education (A Non-Profit involved in providing access to education to underprivileged children), Competitive ping-pong and badminton player