Ashwinkumar Badanidiyuru Varadaraja

Contact Information
Office
488 Rhodes Hall
Department of Computer Science
Ithaca, New York 14853

E-mail: ashwin85@cs.cornell.edu
Mobile: 607-220-6070
Citizenship: Indian
http://www.cs.cornell.edu/∼ashwin85

Research Interest

- Sequential Decision Making (Online Learning)
- Submodular and Combinatorial Optimization
- Game Theory and Social Networks

My research interest is in the design and analysis of algorithms for optimization. I am strongly motivated by applications, particularly in machine learning and the design of electronic markets. As a theoretician, I believe in formulating problems that are fundamental to these applications and yet sufficiently general to be applicable to a wide variety of domains. This has led me to focus on two areas, sequential decision making and discrete non-linear optimization, introducing broad new problem formulations and solving them by novel algorithmic techniques.

Education
August 2008 - May 2014 (Expected)
Doctoral Student in Computer Science
Advisor: Prof. Robert Kleinberg
Cornell University
G.P.A.: 4.138/4.00
August 2004 - May 2008
Bachelor of Technology *(B.Tech)* in Computer Science and Engineering
Indian Institute of Technology Madras
Cumulative G.P.A.: 9.43/10

Honors

- Secured an **All India Rank** of **348** in the **IIT JEE** Main Examination.

Professional Experience

- *Research Intern*, Microsoft Research New York, May-August 2013
  Mentor: Aleksandrs Slivkins, Comentors: John Langford, Miroslav Dudík
- *Research Intern*, Microsoft Research Silicon Valley, September-November 2012
  Mentor: Moshe Babaioff, Comentor: Aleksandrs Slivkins
- *Research Intern*, IBM Almaden, May-September 2012
  Mentor: Jan Vondrák
- *Research Intern*, Northeastern University, May-July 2007
  Mentor: Ravi Sundaram

Teaching Experience (Teaching Assistant)

- Fall 09 - Analysis of Algorithms (Graduate course)
- Spring 09 - Introduction to Analysis of Algorithms (Undergraduate course)
- Fall 08 - Java Programming

Publications (Conference)

1. "Fast algorithms for maximizing submodular functions"
   with Jan Vondrák. (SODA 2014)
2. "Bandits with Knapsacks"
   with Robert Kleinberg, Aleksandrs Slivkins. (FOCS 2013)
3. "Learning on a Budget: Posted Price Mechanisms for Online Procurement"
   with Robert Kleinberg, Yaron Singer. (ACM EC 2012)
4. "Optimization with Demand Oracles"
   with Shahar Dobzinski, Sigal Oren. (ACM EC 2012)
5. "Approximating Low-Dimensional Coverage Problems"
   with Robert Kleinberg, Hooyeon Lee. (SOCG 2012)
6. "Sketching Valuation Functions"
   with Shahar Dobzinski, Hu Fu, Robert Kleinberg, Noam Nisan, Tim Roughgarden. (SODA 2012)
7. "Buyback Problem - Approximate Matroid Intersection with Cancellation Costs"
   (ICALP 2011)
8. "Randomized Online Algorithms for the Buyback Problem"
   with Robert Kleinberg. (WINE 2009)
9. "On Tradeoff Between Network Connectivity, Phase Complexity and Communication Complexity of Reliable Communication Tolerating Mixed Adversary"
   with Arpita Patra, Ashish Choudhary, Kannan Srinathan, C. Pandu Rangan. (PODC 2008)

Publications (Journal)

1. "On the Tradeoff Between Network Connectivity, Round Complexity and Communication Complexity of Reliable Message Transmission"
   with Arpita Patra, Ashish Choudhary, Kannan Srinathan, C. Pandu Rangan. (JACM 2012)

Publications (Under Submission/Preparation)

1. "Learning from Manager Feedback."
   with Alekh Agarwal, Miroslav Dudìk, Robert E. Schapire, Aleksandrs Slivkins.
2. "Resource constrained contextual bandits"
   with John Langford, Aleksandrs Slivkins
3. "Non-adaptive methods for adaptive seeding"
   with Christos Papaditimiriou, Aviad Rubinstein, Lior Seeman, Yaron Singer

Invited Talks

- Bandits with Knapsacks
  - Microsoft Research Silicon Valley November 2013
  - University of Washington CS Theory Seminar November 2013
- Approximating Low-Dimensional Coverage Problems
  - Cornell University CS Theory Seminar April 2012

Conference talks

- Bandits with Knapsacks - FOCS 2013
- Learning on a Budget: Posted Price Mechanisms for Online Procurement - ACM EC 2012
- Optimization with Demand Oracles - ACM EC 2012
- Approximating Low-Dimensional Coverage Problems - SOCG 2012
- Sketching Valuation Functions - SODA 2012
- Buyback Problem - Approximate Matroid Intersection with Cancellation Costs - ICALP 2011
- Randomized Online Algorithms for the Buyback Problem - WINE 2009

Referee Service for Conferences and Journals

- STOC 2011, WINE 2011, SODA 2012, COLT 2012, STACS 2012, COCOON 2012, SODA 2013, ICALP 2013, WINE 2013, SAGT 2013, SODA 2014, STACS 2014.
- Informs journal of computing, Algorithmica.

Courses taken at Cornell

Analysis of Algorithms, Structure of Information Networks, Complexity theory, Undergraduate Algebra, Combinatorial Optimization, Algorithmic Game theory, Information theory, Probability, Database Systems.

Courses taken at IIT

Advanced Courses:- Cryptography, Advanced Algorithms, Distributed Algorithms, Quantum Computation and Quantum Information,
Mathematics Courses:- Elements of Calculus, Vector Matrices and Differential Equations 2, Basic Graph Theory, Probability and Random Processes, Linear Algebra.
Core courses:- Switching Theory and Digital Design, Languages Machines and Computation, Principles of Communication, Computer Organization, Data Structures and Algorithms, Paradigms of Programming, Language Translators, Operating Systems, Introduction to Database Systems, Computer Networks, Principles of Software Engineering, Pattern Recognition, Computer System Design.

Tools

Skilled in C++. Reasonably familiar with Python, Java, SQL, PHP, HTML

References

- Robert Kleinberg
  Computer Science Department, Cornell University
  Email Address - rdk@cs.cornell.edu
- Jan Vondrák
  IBM Almaden Research Center
  Email Address - jvondrak@us.ibm.com
- Aleksandrs Slivkins
  Microsoft Research New York
  Email Address - slivkins@microsoft.com