Avinash Bhardwaj

Contact Information

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Current Position

Postdoctoral Fellow at the Center for Operations Research and Econometrics (CORE)
Université Catholique de Louvain, Louvain-La-Neuve, Belgium. **January, 2017 – Present**
Principal Collaborators: Dr. Laurence Wolsey and Dr. Mathieu Van Vyve.

Past Positions

Associate Specialist in the Department of Industrial Engineering and Operations Research
University of California Berkeley, Berkeley, USA. **July, 2016 – Dec, 2016**
Principal Collaborators: Dr. Alper Atamtürk.

Postdoctoral Fellow in the H. Milton Stewart School of Industrial and Systems Engineering
Georgia Institute of Technology, Atlanta, Georgia, USA. **Sep, 2015 – June, 2016**
Principal Collaborators: Dr. George Nemhauser and Dr. Shabbir Ahmed.

Research Interests

Conic integer programming, polyhedral cutting planes for mixed-integer programming, superadditive lifting techniques, polyhedral combinatorics, optimization under uncertainty

Education

University of California Berkeley, Berkeley, CA, USA

Doctor of Philosophy in Operations Research **May, 2010 – Aug, 2015**

- *Thesis:* Binary Conic Quadratic Knapsacks
- *Advisor:* Dr. Alper Atamtürk

Masters of Science in Operations Research **Aug, 2009 – May, 2010**

Indian Institute of Technology Delhi, Delhi, India

Bachelor of Technology in Industrial Engineering **July, 2004 – Aug, 2008**

- *Research Topic:* Analytics Driven Shelf Space Planning in Retail Stores
- *Advisor:* Prof. Sanjeev Deshmukh

Teaching Experience

Instructor IEOR 162 : Linear Programming, Fall 2014
Department of Industrial Engineering and Operations Research, University of California Berkeley

Head Teaching Assistant IEOR 262A : Mathematical Programming I, Fall 2013
Instructor : Prof. Alper Atamtürk
Department of Industrial Engineering and Operations Research, University of California Berkeley

Publications

A. Bhardwaj, A. Atamtürk, *Supermodular Covering Knapsack Polytope*
Discrete Optimization, Volume 18, 74-86, September 2015

A. Bhardwaj, P. Rostalski, R. Sanyal, *Deciding Polyhedrality of Spectrahedra*
SIAM Journal on Optimization, Volume 25(3), 1873-1884, September 2015

A. Bhardwaj, A. Atamtürk, *Network Design with Probabilistic Capacities*
(Submitted)

A. Bhardwaj, A. Atamtürk, *Submodular Knapsacks : A Discussion*
(Submitted)

A. Bhardwaj, V. Narayanan, *On the Square Root Rank of Regular n-gons*
(In Preparation)

A. Bhardwaj, S. Ahmed, G. Nemhauser, *Exact Augmented Lagrangian for Mixed Integer Quadratic Optimization*
(In Preparation)

Invited Talks

A. Bhardwaj, A. Atamtürk, "Submodular Knapsacks – A Polyhedral Discussion,"
at the *Discrete Optimization Seminar*, Georgia Institute of Technology, Atlanta, GA, Oct 2015

A. Bhardwaj, A. Atamtürk, "The Submodular Knapsack Polytope,"
at the *INFORMS Annual Meeting*, San Francisco, CA, Nov 2014

A. Atamtürk, A. Bhardwaj, "Network Design under Uncertain Arc Capacities,"
at the *Mixed Integer Programming Workshop*, Columbus, OH, July 2014

A. Bhardwaj, A. Atamtürk, "Submodular Knapsack Polytope : A Discussion,"
at the *University of California Davis*, Davis, CA, April 2014

A. Bhardwaj, A. Atamtürk, "Valid Inequalities for Supermodular Knapsack Polytope,"
at *Indian Institute of Technology Bombay*, Mumbai, INDIA, Jan 2014

A. Bhardwaj, A. Atamtürk, "Valid Inequalities for Supermodular Knapsack Polytope,"
at *Indian Institute of Technology Delhi*, New Delhi, INDIA, Jan 2014

A. Bhardwaj, A. Atamtürk, "Network Design under Correlated Arc Capacities,"
at the *SIAM Network Science Conference*, San Diego, CA, July 2013

A. Bhardwaj, A. Atamtürk, "Network Design under Uncertain Arc Capacities,"
at the *INFORMS Annual Meeting*, Phoenix, AZ, Oct 2012

A. Bhardwaj, A. Atamtürk, "Network Design under Uncertain Arc Capacities,"
in the 4^{th} *INFORMS Optimization Society Conference*, Miami, FL, Feb 2012

A. Bhardwaj, S. Deshmukh, "Analytics Driven Shelf Space Allocation in Retail Stores,"
at the 40^{th} *Annual Convention of The Operational Research Society of India (ORSI)*, New Delhi, India, Dec 2007

Poster Presentations

A. Bhardwaj, A. Atamtürk, "Network Design under Correlated Arc Capacities,"
at the *Mixed Integer Programming Workshop*, Madison, WI, July 2012

A. Bhardwaj, A. Atamtürk, "Network Design under Uncertain Arc Capacities,"
at the *Mixed Integer Programming Workshop*, Davis, CA, July 2012

Scholarly Achievements

- Recipient of **CORE Postdoctoral Fellowship**, 2016.
- Nominated and invited to attend the **INFORMS Future Academician Colloquium**, 2012
- Recipient of the **IEOR Department Chair Summer Fellowship Award**, 2012, 2013, 2014
- Recipient of the **MIP Student Travel Award**, 2012, 2013
- Recipient of the **Katta G. Murty Best Paper Prize in Optimization**, 2011
- Recipient of **Berkeley Graduate Fellowship** for the year 2009-2010
- Recipient of the **Suresh Chandra Memorial Trust award for best B.Tech Thesis** in Mechanical Engineering Department, Indian Institute of Technology Delhi, 2008

- Recipient of the **Institute Merit Award** for securing the highest Grade Point Average, Indian Institute of Technology Delhi, Aug, 2008
- Recipient of the **Summer Undergraduate Research Award** for exceptional research potential displayed at the undergraduate level, by the Industrial Research and Development Centre, Indian Institute of Technology Delhi, Dec, 2006
- Recipient of **IIT Delhi Merit Fellowship** (July 2004 - May 2008)

Service, Affiliations and Professional Activities

Reviewer for Mathematical Programming C, Operations Research, Discrete Applied Mathematics, Discrete Optimization, Computational Optimization and Applications, Optimization Methods and Software

Member of INFORMS (Institute for Operations Research and the Management Sciences), 2012-Present.

Computational Skills

Programming : C, C++, Java, MATLAB, Python

Optimization Tools : AMPL, ILOG CPLEX Concert, GUROBI, YALMIP

Other : LaTeX

Other Interests

Mountain Running, Charcoal Painting, Digital and Film Photography, Creative Writing.