Vishal Gupta

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CONTACT INFORMATION	Marshall School of Business University of Southern California 3670 Trousdale Parkway, BR 401 G Los Angeles, CA 90025	Email: guptavis@usc.edu

RESEARCH INTERESTS

Data-driven optimization models for preferences, behavior and uncertainty.
Applications in energy, risk-management, data-analytics and robust optimization.

EMPLOYMENT

Marshall School of Business, Los Angeles CA · **2014- Present**
Assistant Professor of Data Sciences and Operations

Analytics Operations Engineering, Inc., Boston MA · **Summer 2011**
Summer Associate

Barclays Capital, New York, NY · **2005-2009**
New York Head of Commodities Tactical Modeling · 2008-2009
Manager, Quantitative Analytics Commodities Modeling Group · 2007-2008
Analyst, Quantitative Analytics Commodities Modeling Group · 2005-2007

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA · **2009-2014**
Ph.D. in Operations Research
- Thesis: Data-Driven Models for Uncertainty and Behavior
- Advisor: Prof. Dimitris Bertsimas

University of Cambridge, Cambridge, England · **2004-2005**
Part III Mathematics Tripos
- Graduated with Distinction
- Essay: Hedging Financial Derivatives as a Differential Game

Yale University, New Haven, CT · **2000-2004**
B.A. Mathematics and Philosophy
- Graduated with Honors, Magna Cum Laude
- Phi Beta Kappa

HONORS / AWARDS

- Evan C. Thompson Teaching and Learning Innovation Award, 2016
- Finalist in the George Nicholson Student Paper Competition, 2013
- Best Student Paper Prize MIT Operations Research Center, 2013
- MIT Teaching Certificate, 2013
- Honorable Mention, Hubway Data Visualization Challenge, 2013
- Best Student Presentation, INFORMS Financial Services Section, 2012
- Nominated for Excellence in Teaching Award, 2012
- Charles M. Vest Presidential Fellowship for Doctoral Studies, 2009-10
- Paul Mellon Fellowship for Graduate Research, 2005
- Timothy Dwight Masters Cup, 2004

GRANTS

Optimization in the Small Data Regime · **2017-2019**
Role: Principal Investigator · Amount: $25,00
Outlier Research Grant
Institute for Advanced Study in Business, USC
With Paat Rusmevichientong, Phebe Vayanos.

JOURNAL PUBLICATIONS	"Near-Optimal, Bayesian Ambiguity Sets for Distributionally Robust Optimization." Under review.

"Robust SAA," with D. Bertsimas and N. Kallus. *Awarded 2013 Best Student Paper MIT Operations Research Center.* Under review

"Data-Driven Robust Optimization**,"** with D. Bertsimas and N. Kallus. *Finalist in the 2013 George Nicholson Student Paper Competition.* Under review

"A Comparison of Monte Carlo Tree Search and Mathematical Optimization for Large Scale Dynamic Resource Allocation," with D. Bertsimas, D. Griffith, M. Kochenderfer, V. Misic. Under review.

"Data-Driven Estimation in Equilibrium using Inverse Optimization," with D. Bertsimas and I. Ch. Paschalidis, *Mathematical Programming,* vol. 0025-5610, pgs. 1-39, 2014.

"Advanced Software Tools for Operations Research and Analytics," with I. Dunning, A. King, J. Kung, M. Lubin and J. Silberholz, *INFORMS Transaction on Education,* Volume: 15 (2), pp. 169-179, 2015.

"Inverse Optimization: A New Perspective on the Black-Litterman Model," with D. Bertsimas and I. Ch. Paschalidis, *Operations Research* vol. 60 (6), pgs. 1389-1403, 2012.

TEACHING

BUAD425 Data-Analysis for Decision-making   **2016, 2017**
Undergraduate Core
USC Marshall School of Business
Instructor, Course Coordinator
Redesigned course with new emphasis on critical thinking and decision-making. Authored cases, created online videos, and developed new curriculum content.

BUAD311 Introduction to Operations Management   **2015**
Undergraduate Core
USC Marshall School of Business
Instructor

15.S60 Software Tools for Operations Research   **2013, 2014**
Ph.D., MBA and Executive MBA Elective
MIT Sloan School of Management
Instructor
Designed new course with primary role in curriculum development. Oversaw course logistics and lectured on select topics in convex optimization.

15.S05 Risk Management   **2012, 2013**
Executive MBA Program Elective
MIT Sloan School of Management
Teaching Assistant
Assisted with curriculum development, course logistics and advising students on term projects.

15.060 Data, Models and Decisions   **2012**

MBA Core
MIT Sloan School of Management
Teaching Assistant
Lead weekly recitation and office hours, co-authored exams, and graded case-studies and problem sets.

15.081J Introduction to Mathematical Programming   **2011**
Ph.D. Core
MIT Sloan School of Management
Teaching Assistant
Lead weekly recitation and office hours, lectured select topics, designed exams and problem sets.

OTHER PROJECTS   **Data-Driven Uncertainty Sets (DDUS)**   **2014-2015**
Software Developer
- Created open-source library in Julia implementing a variety of data-driven methods for robust optimization (available via GitHub)
- Used by graduate classes at MIT, Columbia and others

Sloan Educational Services (SES), Cambridge MA   **2010-2014**
Consultant
- Liased with educational services to design custom suite of software tools to streamline internal processes.
- Tools included:
  - *ClassE* - A tool for fair and efficient scheduling/timetabling of classes. *ClassE* has been used to schedule classes at Sloan since Spring 2012.
  - A tool to partition students in the Sloan Fellows Program into learning cohorts. Cohorts should be diversified in terms of gender, nationality, work experience and age.

INVITED TALKS   *Optimization in the Small-Data Regime*
- 5th International Conference on Continuous Optimization (ICCOPT), Tokyo, Japan (8/2016). *Invited Session Chair for "Recent Advances in Data-Driven Optimization."*
- INFORMS Annual Meeting, Nashville, TN (11/2016)

Data-Driven Distributionally Robust Optimization
- USC Viterbi, Electrical Engineering Group, Los Angeles, CA (1/2016)

Near-Optimal Ambiguity Sets Distributionally Robust Optimization
- INFORMS Annual Meeting, San Francisco, CA (11/2014)
- Southern California OM/OR Conference, UCLA (5/2015)
- British-French-German Conference on Optimization, London, UK (6/2015)
- 22nd International Symposium on Mathematical Programming (ISMP), Pittsburgh, PA (7/2015)
- INFORMS Annual Meeting, Philadelphia, PA (11/2015)

Modeling Uncertainty in Optimization
- DSO Graduate Research Forum, USC Marshall, Los Angeles, CA (2/2015)

Data-Driven Robust Optimization
- Massachusetts Institute of Technology, Cambridge, MA (4/2014)
- Carnegie Mellon University, Pittsburgh, PA (2/2014)
- University of Michigan, Ann Arbor, MI (2/2014)
- University of Texas at Austin, Austin, TX (2/2014)
- Marshall School of Business, Los Angeles, CA (2/2014)
- Stern School of Business, NYU, New York, NY (1/2014)
- London Business School, London, UK (1/2014)
- Sloan School of Management, Cambridge, MA (11/2013)
- INFORMS Annual Meeting, Minneapolis, MN (10/2013)
- MSOM Conference, Paris, France (7/2013)
- Conference on Computational Management Science, Montreal, Canada (5/2013). *Invited Session Chair for "Robust Optimization II"*

Inverse Optimization Approaches to Estimation
- 21st International Symposium on Mathematical Programming (ISMP), Berlin, Germany (6/2012)
- INFORMS Annual Meeting, Phoenix, AZ (10/2012). *Invited Session Chair for "Optimization under Uncertainty."*

Constructing Investor Risk Preferences from Data
- INFORMS Annual Meeting, Minneapolis, MN (10/2013)
- INFORMS Annual Meeting, Phoenix, AZ (10/2012)

Inverse Optimization: A New Perspective on the Black-Litterman Model
- INFORMS Annual Meeting, Charlotte, NC (11/2011)

PROFESSIONAL SERVICE	• Reviewer
	  o Operations Research
	  o Management Science
	  o NIPS (2016)
	  o Management Science and Operations Management
	  o Production and Operations Management
	  o OR Letters
	  o SIAM Journal on Control and Optimization
	  o SIAM Review
	  o INFORMS Journal on Computing
	  o IISE Transactions
	• DSO Seminar Series Coordinator, 2014-Present
	• MIT ORC Informal Research Seminar Coordinator 2012-2014
	• ORC Seminar Series Coordinator, Spring 2013
	• INFORMS Student Chapter President 2009

LANGUAGES	English (native), Spanish (conversational), Hindi (conversational)
COMPUTING	Julia, Python, C++, VBA, Matlab, R, CPLEX/Gurobi
INTERESTS	Running (5K – Half-Marathon), Rock-climbing, Tai Chi Chuan
CITIZENSHIP	USA

REFERENCES   Available upon request