

CONTACT INFORMATION	Marshall School of Business University of Southern California 3670 Trousdale Parkway, BR 401 G Los Angeles, CA 90025	Email: <a href="mailto:guptavis@usc.edu">guptavis@usc.edu</a>
RESEARCH INTERESTS	Data-driven optimization in settings with scarce data, or high-dimensional uncertainty. Applications in causal inference, risk-management, and pricing.	
EMPLOYMENT	<b>Marshall School of Business</b> , Los Angeles CA <i>Assistant Professor of Data Sciences and Operations</i>	<b>2014- Present</b>
	<b>Analytics Operations Engineering, Inc.</b> , Boston MA <i>Summer Associate</i>	<b>Summer 2011</b>
	<b>Barclays Capital</b> , New York, NY <i>New York Head of Commodities Tactical Modeling</i> <i>Manager, Quantitative Analytics Commodities Modeling Group</i> <i>Analyst, Quantitative Analytics Commodities Modeling Group</i>	<b>2005-2009</b> 2008-2009 2007-2008 2005-2007
EDUCATION	<b>Massachusetts Institute of Technology</b> , Cambridge, MA Ph.D. in Operations Research <ul style="list-style-type: none"> <li>• Thesis: Data-Driven Models for Uncertainty and Behavior</li> <li>• Advisor: Prof. Dimitris Bertsimas</li> </ul> <b>University of Cambridge</b> , Cambridge, England Part III Mathematics Tripos <ul style="list-style-type: none"> <li>• Graduated with Distinction</li> <li>• Essay: Hedging Financial Derivatives as a Differential Game</li> </ul> <b>Yale University</b> , New Haven, CT B.A. Mathematics and Philosophy <ul style="list-style-type: none"> <li>• Graduated with Honors, Magna Cum Laude</li> <li>• Phi Beta Kappa</li> </ul>	<b>2009-2014</b>     <b>2004-2005</b>     <b>2000-2004</b>
HONORS / AWARDS	<b>Finalist in the 2018 Pierskalla Best Paper Competition</b> Awarded by the Health Applications Society of INFORMS for the paper “Maximizing Intervention Effectiveness” (w. B.R. Han, S.H. Kim and H. Paek). INFORMS selects 3-5 finalists each year to recognize research excellence in the field of health care management science.	<b>2018</b>
	<b>Finalist in the 2018 Service Science Best Paper Competition</b> Awarded by the INFORMS Service Science Section for the paper “Value of Personalized Pricing” (w. A. Elmachtoub and M.Hamilton). 8 finalists are chosen each year to recognize outstanding papers in theory, methodologies and applications of Service Science.	<b>2018</b>
	<b>Finalist in the 2018 POMS CHOM Best Paper Competition</b> Awarded by the College of Healthcare Operations Management (CHOM) for the paper “Maximizing Intervention Effectiveness” (w. B.R. Han, S.H. Kim and H.	<b>2018</b>

*Paek*). CHOM selects 3-5 finalists each year to honor outstanding papers in the field of Healthcare Operations Management.

**Evan C. Thompson Teaching and Learning Innovation Award 2016**

Awarded to one Marshall Faculty per year for developing innovative course materials, implementing new learning pedagogies and demonstrating commitment to students' learning and success.

**Finalist in the George Nicholson Student Paper Competition 2013**

Awarded for the paper "Data-Driven Robust Optimization," (*w. D. Bertsimas and N. Kallus*) The George Nicholson Prize Committee selects approximately 8 papers each year to identify and honor outstanding papers in the field of operations research written by a student.

**Best Student Paper Prize MIT Operations Research Center 2013**

Awarded for the paper "Robust SAA," (*w. D. Bertsimas and N. Kallus*). Awarded to one paper written by students each year in the MIT ORC PhD Program, recognizing outstanding achievement in operations research.

**MIT Teaching Certificate 2013**

Issued at the completion of a semester long, intensive course on best-practice for teaching in higher education

**Honorable Mention, Hubway Data Visualization Challenge 2013**

Open challenge to create a visualization for data comprising a half-million rides on Boston's Bike-Share network (*w. H. Barrigan and A. Calmon*).

**Best Student Presentation, INFORMS Financial Services Section 2012**

Awarded for "Fitting Investor Risk Preferences to Data."

**Nominated for Excellence in Teaching Award 2012**

Awarded for Teaching Assistant to the MBA Core Course "Data, Models and Decisions" at MIT Sloan. Selected by MBA students.

**Charles M. Vest Presidential Fellowship for Doctoral Studies 2009-10**

Awarded to only three first-year graduate students at MIT across all fields to support their doctoral work, covering their tuition and stipend.

**Paul Mellon Fellowship for Graduate Research 2005**

Awarded to only one graduating Yale senior to support two years of study (tuition and stipend) at the University of Cambridge, UK, in the discipline of their choice.

**Timothy Dwight Masters Cup 2004**

Awarded each year to a graduating senior who exemplifies high academic rank, scholarly achievement, and the values of Timothy Dwight College at Yale.

GRANTS

**Optimization in the Small Data Regime 2017-2020**

Role: Principal Investigator  
NSF Grant CMMI-1661732

Amount: \$221,592

**Small Data Linear Optimization 2017-2018**

Role: Co-Principal Investigator Amount: \$25,00  
 Outlier Research Grant  
 Institute for Advanced Study in Business, USC

#### JOURNAL PUBLICATIONS

“Data-Pooling in Stochastic Optimization,” with N. Kallus. **Under Review.**

“Value of Personalized Pricing,” with A. Elmachetoub and M. Hamilton.  
*Finalist in the 2018 INFORMS Service Science Best Paper Competition.*  
*Accepted to The 15th Conference on Web and Internet Economics (WINE), 2019*  
**Under Review.**

“Small-Data, Large-Scale Linear Optimization,” with P. Rusmevichientong.  
**Minor Revision at *Management Science*.**

“Maximizing Intervention Effectiveness,” with B.R. Han, S.H. Kim, and H. Paek.  
*Finalist in the 2018 Pierskalla Best Paper Competition.*  
*Finalist in the 2018 POMS College of Healthcare Operations (CHOM) Best Paper Competition.*  
**Minor Revision at *Management Science*.**

“Near-Optimal, Bayesian Ambiguity Sets for Distributionally Robust Optimization.”  
*Management Science (to appear).*

“Robust SAA,” with D. Bertsimas and N. Kallus.  
*Awarded 2013 Best Student Paper MIT Operations Research Center.*  
*Mathematical Programming*, doi:10.1007/s10107-017-1174-z, pgs. 1-66, 2017.

“Data-Driven Robust Optimization,” with D. Bertsimas and N. Kallus.  
*Finalist in the 2013 George Nicholson Student Paper Competition.*  
*Mathematical Programming*, doi:10.1007/s10107-017-1125-8, pgs. 1-58, 2017.

“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,  
*European Journal of Operations Research*, doi.org/10.1016/j.ejor.2017.05.032, 2017.

“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.

#### INVITED TALKS

*Data-Pooling in Stochastic Optimization*

- INFORMS Annual Meeting, Phoenix, AZ (11/2018)
- Joint Industrial Engineering and Operations Research and Decision, Risk and Operations Departmental Seminar, **Columbia University**, NY, New York (12/2018)
- Models and Algorithms for Sequential Decision-Making Problems Under Uncertainty Workshop, **Banff International Research Station**, Banff, Canada (1/2019)
- Southern California OR/OM Day, **UC Irvine**, Irvine, CA, (5/2019)
- Operations and Information Technology Departmental Seminar, **Stanford Graduate School of Business**, Palo Alto, CA (5/2019)
- 6<sup>th</sup> International Conference on Continuous Optimization (**ICCOPT**), Berlin, Germany (8/2019).
- Industrial and Systems Engineering Departmental Seminar, **University of Southern California**, Los Angeles, CA (9/2019)
- Operations Management Departmental Seminar, **Booth School of Business at University of Chicago**, Chicago, IL (Scheduled: 9/2019)
- Desautels Faculty of Management Departmental Seminar, **McGill University**, Montreal, CA (Scheduled: 10/2019)
- Technology and Operations Departmental Seminar, **University of Michigan Ross School of Business**, Ann Arbor, MI (Scheduled: 12/2019)
- Decisions, Operations and Technology Management Seminar, **UCLA Anderson School of Management**, Los Angeles, CA (Scheduled: Fall 2019)

*Discrete Optimization in the Small-Data, Large-Scale Regime via Decomposition*

- **INFORMS Annual Meeting**, Seattle, WA (10/2019\*)

*Optimization in the Small-Data, Large-Scale Regime*

- 5<sup>th</sup> 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)
- **INFORMS Annual Meeting**, Houston, TX (10/2017)
- DSO Graduate Research Forum, **USC Marshall**, Los Angeles, CA (12/2017)
- Operations and Logistics Division Seminar, **UBC Sauder School of Business**, Vancouver, Canada (1/2018)
- Technology and Operations Management Group Seminar, **INSEAD**, Paris, France (4/2018)
- Decision Sciences Group, **Duke Fuqua School of Business**, Durham, NC (5/2018)
- 23<sup>rd</sup> International Symposium on Mathematical Programming (**ISMP**), Bordeaux, France (7/2018)
- 29<sup>th</sup> European Conference on Operations Research (**EURO**), Valencia Spain (7/2018)
- Management Sciences and Operations Department Seminar, **Imperial College School of Business**, London, UK (7/2018)

*Calibrating Uncertainty Sets in the Small-Data, Large-Scale Regime*

- Distributionally Robust Optimization Workshop, **Banff International Research Station**, Banff, Canada (3/2018)

*Maximizing Intervention Effectiveness*

- **INFORMS Annual Meeting**, Nashville, TN (11/2016)\*
- **MSOM Conference**, Chapel Hill, NC (6/2017)\*
- **INFORMS Annual Meeting**, Houston, TX (11/2017)\*
- **POMS Best Healthcare Paper Competition**, Houston, TX (5/2018)\*
- **MSOM Healthcare SIG**, Dallas TX (7/2018)\*
- International Conference on Stochastic Optimization (**ICSP**), Trondheim, Norway (7/2019). *Co-Chair of Mini-symposium: ``Doing Good with Good RO.*

*Value of Personalized Pricing*

- **INFORMS Annual Meeting**, Houston, TX (11/2017)\*
- **POMS Annual Meeting**, Houston, TX (5/2018)\*
- **INFORMS Revenue Management and Pricing (RMP) Conference**, Toronto CA (6/2018)\*

*Data-Driven Distributionally Robust Optimization*

- Electrical Engineering Group, **USC Viterbi**, 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 (**BFG**) Conference on Optimization, London, UK (6/2015)
- 22<sup>nd</sup> 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*

- Conference on **Computational Management Science (CMS)**, Montreal, Canada (5/2013). *Invited Session Chair for “Robust Optimization II”*
- **MSOM Conference**, Paris, France (7/2013)
- **INFORMS Annual Meeting**, Minneapolis, MN (10/2013)
- Operations Management Seminar, **MIT Sloan School of Management**, Cambridge, MA (11/2013)
- **London Business School (LBS)**, London, UK (1/2014)
- **NYU Stern School of Business**, New York, NY (1/2014)
- **USC Marshall School of Business**, Los Angeles, CA (2/2014)
- **McCombs Business School** at University of Texas at Austin, Austin, TX (2/2014)
- Industrial and Operations Engineering at **University of Michigan**, Ann Arbor, MI (2/2014)
- **Carnegie Mellon University**, Pittsburgh, PA (2/2014)

*Inverse Optimization Approaches to Estimation*

- **21<sup>st</sup> 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**, Phoenix, AZ (10/2012)
- **INFORMS Annual Meeting**, Minneapolis, MN (10/2013)

*Inverse Optimization: A New Perspective on the Black-Litterman Model*

- **INFORMS Annual Meeting**, Charlotte, NC (11/2011)

*An asterisk (\*) by a presentation above indicates that it was given by a student co-author.*

TEACHING	<b>BUAD425 Data-Analysis for Decision Making</b>	<b>2016, 2017</b>
	Undergraduate Core	
	USC Marshall School of Business	
	Instructor, Course Coordinator	
	<i>Redesigned course with new emphasis on critical thinking and decision-making.</i>	
	<i>Authored cases, created online videos, and developed new curriculum content.</i>	
	<b>BUAD311 Introduction to Operations Management</b>	<b>2015, 2019</b>
	Undergraduate Core	
	USC Marshall School of Business	
	Instructor	
	<b>15.S60 Software Tools for Operations Research</b>	<b>2013, 2014</b>
	Ph.D., MBA and Executive MBA Elective	
	MIT Sloan School of Management	
	Instructor	
	<i>Designed new course with primary role in curriculum development. Oversaw course logistics and lectured on select topics in convex optimization.</i>	
	<b>15.S05 Risk Management</b>	<b>2012, 2013</b>
	Executive MBA Program Elective	
	MIT Sloan School of Management	
	Teaching Assistant	
	<i>Assisted with curriculum development, course logistics and advising students on term projects.</i>	
	<b>15.060 Data, Models and Decisions</b>	<b>2012</b>
	MBA Core	
	MIT Sloan School of Management	
	Teaching Assistant	
	<i>Lead weekly recitation and office hours, co-authored exams, and graded case-studies and problem sets.</i>	
	<b>15.081J Introduction to Mathematical Programming</b>	<b>2011</b>
	Ph.D. Core	
	MIT Sloan School of Management	

## Teaching Assistant

*Lead weekly recitation and office hours, lectured select topics, designed exams and problem sets.*

## PHD MENTORSHIP

- Advisor
  - Michael Huang, USC Marshall (2017-Present)
- Co-Author
  - Brian Rongqing Han, USC Marshall, (2016 – Present)
  - Michael Hamilton, Columbia IEOR (2016-Present)
- Dissertation Committee
  - Junyi Liu, USC ISyE (2019)
  - Michael Hamilton, Columbia IEOR (2019)

## 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*

- Liaised 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.

## UNIVERSITY SERVICE

### **DSO OM Group Tenure-Track Hiring Committee**

**2019 - Present**

*Co-Chair*

Leads hiring committee, coordinating logistics with faculty and candidates for fly-outs and interviews.

### **DSO OM Group PhD Committee**

**2017-Present**

*Member*

Designs curriculum requirements for PhD requirements, including required classes and screening exams. Also serves on PhD admissions committee, including reviewing applications and interviewing candidates.

### **DSO Seminar Series Coordinator**

**2014-Present**

*Member*

Invites visiting faculty to present research in departmental seminar. Coordinates all logistical aspects of visits and curates yearly speaker series.

## ACADEMIC SERVICE

### **Associate Editor – *Management Science***

**2019 - Present**

Big Data Analytics Section

### **Journal Reviewer / Referee**

*Operations Research, Management Science, Management Science and Operations Management, Production and Operations Management, OR Letters, SIAM Journal on Control and Optimization, SIAM Review, INFORMS Journal on Computing, INFORMS Journal on Optimization, IISE Transactions, Optimization Letters*

## **Conference Program Committee / Reviewer**

- NIPS (2016)
- AAAI (2019)
- AISTATS (2019)

## **National Science Foundation (NSF) Panel Reviewer**

- CMMI / OE Program (2017)

## **OTHER SERVICE**

- MIT ORC Informal Research Seminar Coordinator (2012-2014)
- ORC Seminar Series Coordinator (Spring 2013)
- INFORMS Student Chapter President (2009)

## **LANGUAGES COMPUTING**

English (native), Spanish (conversational), Hindi (conversational)  
Julia, Python, C++, VBA, Matlab, R, CPLEX/Gurobi

## **INTERESTS CITIZENSHIP REFERENCES**

Running (5K – Half-Marathon), Rock-climbing, Tai Chi Chuan  
USA  
Available upon request