

Allison Kelly O'Hair

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

PhD in Operations Research, June 2013

Cumulative GPA: 5.0/5.0

Thesis title: "Personalized Diabetes Management"

Advisor: Dimitris Bertsimas

University of California, Davis, Davis, CA

Bachelor of Science in Mathematics with Highest Honors, June 2009

Phi Beta Kappa; Overall GPA: 3.97/4.0, Major GPA: 4.0/4.0

Thesis title: "*The Geometric Structure of Spanning Trees and Applications to Multiobjective Optimization*"

RESEARCH EXPERIENCE

2009-2013

Massachusetts Institute of Technology, Operations Research Center
Research Assistant

Studied healthcare applications of optimization methods and a robust optimization approach to constructing risk-adverse utilities with Professor Dimitris Bertsimas.

2007-2009

University of California, Davis, Mathematics Department
Undergraduate Researcher

Studied spanning trees, matroids, multiobjective optimization, and linear programming with Professor Jesús De Loera. Helped implement the MOCHA (Matroid Optimization: Combinatorial Heuristics and Algorithms) software available in the COIN-OR repository.

2007, 2008
(Summer)

University of California, Davis, Mathematics Department
VIGRE Research Experience for Undergraduates (REU)

Researched graphs of spanning trees, polytopes, linear programming, and convex maximization under the mentorship of Professor Jesús De Loera.

TEACHING AND LEADERSHIP EXPERIENCE

2013

(Spring)

Instructor for the MIT Sloan MBA and EMBA programs

Courses 15.071 and 15.s17: The Analytics Edge

Professor: Dimitris Bertsimas

I taught classes where the students learned the statistical programming language R, as well as helped with course management and development.

2012
(Spring)

Teaching Assistant for the MIT Sloan MBA and EMBA programs
Courses 15.071 and 15.s17: The Analytics Edge

Professor: Dimitris Bertsimas

In addition to typical teaching assistant duties, I also helped develop course material.

2011
(Spring)

Teaching Assistant for the MIT Sloan Executive MBA program
Course 15.730: Data, Models, and Decisions

Professor: Dimitris Bertsimas

In addition to typical teaching assistant duties, I also helped write the following case studies for the course:

“The Analytics Edge of Google’s Search Engine”

“How Google Changed It’s Fortunes”

“The Analytics Edge in Baseball”

all by Dimitris Bertsimas and Allison O’Hair

2010-2011

Graduate Student Teaching Certificate Program

Massachusetts Institute of Technology

Completed program to develop better teaching skills through a variety of workshops.

2008-2009

Mathematics Department Academic Peer Advisor

University of California, Davis

Duties included advising math students on academic matters, performing basic office duties, and planning and executing several departmental events.

2008

Math Circle Teaching Assistant

University of California, Davis

Helped excellerated high school students learn advanced mathematics to encourage them to pursue a degree in math. Devised lesson plans as well as assisted students individually throughout the classes.

2007

Math Modeling Experience (MME)

University of California, Davis

Completed several projects in applied mathematics, including modeling the spread of influenza and predicting weather based on cloud formations. Also helped high school students with similar projects, and participated in a national team modeling contest.

2006-2008

Trustee of the Foundation Board

International Order of the Rainbow for Girls in California (IORG)
Assisted in making financial decisions, allocated funds, and served as the representative for the members of IORG, a nonprofit masonic affiliated community service organization.

PUBLICATIONS

BOOKS

“The Analytics Edge,”

Dimitris Bertsimas, Allison O’Hair, and William Pulleyblank.
Dynamic Ideas, Belmont, Massachusetts (in preparation).

JOURNAL ARTICLES

“Personalized Diabetes Management: A Robust Optimization Approach,”
Dimitris Bertsimas and Allison O’Hair (submitted).

“An Analytics Approach to Designing Clinical Trials for Cancer,”
Dimitris Bertsimas, Allison O’Hair, Stephen Relyea, and John Silberholz
(submitted).

“Learning Preferences Under Noise and Loss Aversion: An Optimization Approach,”
Dimitris Bertsimas and Allison O’Hair. *Operations Research* (forthcoming).

“Computation in Multicriteria Matroid Optimization,”
Jesús De Loera, David Haws, Jon Lee, and Allison O’Hair.
ACM Journal of Experimental Algorithmics, December 2009.

PRESENTATIONS

“Personalized Diabetes Management,” INFORMS 2012.

“Learning Preferences Under Noise and Loss Aversion: An Optimization Approach,” International Symposium on Mathematical Programming (ISMP) 2012.

“On the Geometric Structure of Spanning Trees,”
Eleventh Annual Nebraska Conference for Undergraduate Women in Mathematics, January 2009.

“On the Geometric Structure of Spanning Trees,”
19th Annual UC Davis Undergraduate Research Conference, April 2008.

HONORS AND AWARDS

- Recipient of the MIT Ida M. Green Fellowship (2009-2010).
- Recipient of the University of California Regents Scholarship (2007-2009).
- Recipient of the VIGRE-NSF Research Fellowship (Summer 2007, 2008).

- Completed the Integrated Studies Honors Program at the University of California, Davis (2005-2006).
- Meritorious Winner in the Mathematical Contest in Modeling (2008).
- Public Speaking, Leadership, and Community Service Awards earned through the International Order of the Rainbow for Girls (2003-2006).
- California Governor's Award for Academic Achievement (2005).

ACTIVITIES

- Community service officer for the MIT Ashdown graduate student dorm, 2010-2012
- Treasurer of the MIT INFORMS (Institute for Operations Research and the Management Sciences) student chapter, 2010
- Majority Member and Past State Officer (2005-2006) of the International Order of the Rainbow for Girls, a nonprofit masonic affiliated community service organization; active member from 1999-2007

SKILLS AND INTERESTS

- Programming: C/C++, MATLAB, Maple, and AMPL.
- Software Packages: Gurobi, CPLEX, R.
- Platforms: Windows, Unix/Linux, and MAC OS X.

CITIZENSHIP Citizen of the United States of America