

David B. Brown

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Academic Positions **Fuqua School of Business, Duke University** 2006-current
Professor, 2020-
Associate Professor (with tenure), 2013-2020
Associate Professor (without tenure), 2010-2013
Assistant Professor, 2006-2010

Visiting Scholar Positions

IEOR Department, Columbia University Fall 2014
Graduate School of Business, Stanford University Spring 2015

Education **Massachusetts Institute of Technology** 2001-2006
Department of Electrical Engineering and Computer Science
Laboratory for Information and Decision Systems
Dissertation title: Risk and robust optimization
Minors: Management (Sloan), Merrill-Lynch Financial Technology Option.

Stanford University 1996-2001
Department of Electrical Engineering
M.S., March, 2001
B.S. with distinction, June, 2000

Teaching **Fuqua School of Business, Duke University** 2006-current
Decision Analytics and Modeling (Master of Quantitative Management: Business Analytics), 2022
Probability and Statistics (Daytime MBA), 2021
Spreadsheet Modeling and Decision Analysis (Master of Management Studies: Duke Kunshan University), 2021
Decision Models (Daytime MBA), 2007-2014, 2018-2020
Decision Models (Weekend MBA), 2014-2017
Convex Optimization (Ph.D.), 2007, 2009, 2011, 2013, 2015, 2017
Global Academic Travel Experience (GATE): China (Daytime MBA), 2008, 2009

Publications

- Brown, D.B. and J. Zhang. 2021. Dynamic programs with shared resources and signals: dynamic fluid policies and asymptotic optimality. *Operations Research*, to appear.
- Balseiro, S.R., D.B. Brown, and C. Chen. 2021. Dynamic pricing of relocating resources in large networks. *Management Science*, 67(7), 4075-4094
– First Place, Jeff McGill Student Paper Award (C. Chen),
Revenue Management & Pricing Section. INFORMS, 2019.
- Brown, D.B. and J.E. Smith. 2020. Index policies and performance bounds for dynamic selection problems. *Management Science*, 66(7), 3029-3050.
- Balseiro, S.R. and D.B. Brown. 2019. Approximations to stochastic dynamic programs via information relaxation duality. *Operations Research*, 67(2), 577-597.
- Balseiro, S.R., D.B. Brown, and C. Chen. 2018. Static routing in stochastic scheduling: performance guarantees and asymptotic optimality. *Operations Research*, 66(6), 1641-1660.
- Brown, D.B. and M.B. Haugh. 2017. Information relaxation bounds for infinite horizon Markov decision processes. *Operations Research*, 65(5), 1355-1379.
- Brown, D.B. and J.E. Smith. 2014. Information relaxations, duality, and convex stochastic dynamic programs. *Operations Research*, 62(6), 1394-1415.
- Brown, D.B. and J.E. Smith. 2013. Optimal sequential exploration: bandits, clairvoyants, and wildcats. *Operations Research*, 61(3), 644-665.
– Decision Analysis Society Best Publication Award. INFORMS, 2015.
- Brown, D.B., E. De Giorgi, and M. Sim. 2012. Aspirational preferences and their representation by risk measures. *Management Science*, 58(11), 2095-2113.
- Brown, D.B. and J.E. Smith. 2011. Dynamic portfolio optimization with transaction costs: heuristics and dual bounds. *Management Science* 57(10), 1752-1770.
- Bertsimas, D., D.B. Brown and C. Caramanis. 2011. Theory and applications of robust optimization. *SIAM Review* 53(3), 464-501.
- Brown, D.B., B. Carlin and M.S. Lobo. 2010. Optimal portfolio liquidation with distress risk. *Management Science* 56(11), 1997-2014.
- Ben-Tal, A., D. Bertsimas and D.B. Brown. 2010. A soft robust model for optimization under ambiguity. *Operations Research* 58(4), 1220-1234.

Brown, D.B., J.E. Smith and P. Sun. 2010. Information relaxations and duality in stochastic dynamic programs. *Operations Research* 58(4), 785-801.

Bertsimas, D. and D.B. Brown. 2009. Constructing uncertainty sets for robust linear optimization. *Operations Research* 57(6), 1483-1495.

– Second Place, George Nicholson Student Paper Competition. INFORMS, 2005.

Brown, D.B. and M. Sim. 2009. Satisficing measures for analysis of risky positions. *Management Science* 55(1), 71-84.

– First Place, Junior Faculty Interest Group Paper Competition. INFORMS, 2007.

Brown, D.B. 2007. Large deviations bounds for estimating conditional value-at-risk. *Operations Research Letters* 35(6), 722-730.

Bertsimas, D. and D.B. Brown. 2007. Constrained stochastic LQC: a tractable approach. *IEEE Trans. Aut. Control* 52(10), 1826-1841.

Working Papers Brown, D.B. and J.E. Smith. 2021. Information relaxations and duality in stochastic dynamic programs: A review and tutorial.

Brown, D.B. and J. Zhang. 2021. On the strength of relaxations of weakly coupled stochastic dynamic programs.

Brown, D.B. and C. Uru. 2021. Sequential search with acquisition uncertainty.

Conference Papers Balseiro, S.R., C. Chen, and D.B. Brown. 2019. Dynamic pricing of relocating resources in large networks. *Proceedings of the ACM on Measurement and Analysis of Computing Systems*, to appear (extended abstract).

Honors/Awards Award for Innovation and Excellence in Teaching, MMS DKU Class of 2021 (for the core course Spreadsheet Modeling and Decision Analysis).

Excellence in Teaching Award, Weekend Executive MBA Class of 2017 (for the core course Decision Models).

Decision Analysis Society Best Publication Award for “Optimal Sequential Exploration: Bandits, Clairvoyants, and Wildcats,” with J.E. Smith. INFORMS,

2015.

Distinguished Service Award, *Management Science*, INFORMS, 2013.

Meritorious Service Award, *Operations Research*, INFORMS, 2012.

First Place, Junior Faculty Interest Group Paper Competition, INFORMS, Seattle, WA, 2007.

Second Place, George Nicholson Student Paper Competition, INFORMS, San Francisco, CA, 2005.

Presidential Fellow, MIT, 2001.

Terman Award, Stanford Class of 2000.

Tau Beta Pi, Stanford chapter, 1999.

President's Award, Stanford University, 1997.

Presidential Scholar, Stanford Class of 2000.

Academic Service

Associate Editor, *Operations Research* (Decision Analysis and Financial Engineering Areas), 2012-

Associate Editor, *INFORMS Journal on Computing* (Stochastic Models and Reinforcement Learning Area), 2019-

Referee for: *Operations Research*, *Management Science*, *SIAM Journal on Optimization*, *Math. Programming*, *Mathematics of Operations Research*, *Journal of Economic Theory*, *IEEE Transactions on Automatic Control*, *Manufacturing & Service Operations Management*, *INFORMS Journal on Computing*, *Operations Research Letters*, *Annals of Operations Research*, *SIAM Journal on Financial Mathematics*, *Quantitative Finance*, *Computational Optimization and Applications*, others.

George Nicholson Prize Committee, INFORMS, 2014, 2015.

Panelist for evaluating National Science Foundation grant proposals, 2007.

Service at Duke

Chair, Curriculum Committee, 2016-2018.

EMBA Redesign Committee, 2016.

Curriculum Committee, 2013-2014, 2015-2016.

Master of Engineering Management Faculty Oversight Committee, 2013-current.

Professional Experience

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| Goldman Sachs Asset Management , Quantitative Equity Group (New York, NY) | 2004 |
| American Express , Asset Management Group (Cambridge, MA) | 2003 |
| Cariden Technologies, Inc. (Menlo Park, CA) | 2001 |
| Hummingbird Hedge Fund (Palo Alto, CA) | 2001 |
| Panopticon/Broadbase Software (Menlo Park, CA) | 2000 |

Select Invited Talks

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| 2021 | UCLA Anderson, Decisions, Operations, & Technology Management Seminar. McGill Desautels, Management Science Research Centre Seminar. Imperial College London, Control and Optimisation Seminar. |
| 2020 | NYU Stern, Department of Technology, Operations, and Statistics Seminar. |
| 2019 | University of British Columbia, Sauder School of Business, Operations Management & Logistics Division. International Conference on Stochastic Programming, Trondheim, Norway (semi-plenary). Dartmouth College, Tuck School of Business, Operations and Management Science Area. UT Austin McCombs, Department of Information, Risk, and Operations Management. |
| 2018 | University of Virginia, Darden School of Business, Quantitative Analysis Area. University of Illinois at Chicago, Information and Decision Sciences Department. UT Austin McCombs, Department of Information, Risk, and Operations Management. |
| 2017 | Princeton, Operations Research and Financial Engineering Department. Northwestern Kellogg, Operations Department. USC Marshall, Data Sciences and Operations Department. |

- 2016
International Conference on Stochastic Programming, Búzios, Brazil
(semi-plenary).
- 2015
Mostly OM Workshop, Tsinghua University.
Stanford GSB, Operations, Information & Technology Area.
- 2014
Ga. Tech, School of Industrial Systems and Engineering.
Columbia University, IEOR Department.
- 2013
UT Austin McCombs, Department of Information, Risk, and Operations
Management.
Naval Postgraduate School, Operations Research Department.
- 2012
Columbia GSB, Decision, Risk, and Operations (DRO) Division.
Stanford University, Department of Management Science and Engineering.
- 2011
University of Michigan, Department of Industrial Engineering and Operations.
Duke University, Department of Computer Science.
University of Auckland, Department of Engineering Science.
DIMACS/CCICADA Workshop on Risk-Averse Algorithmic Decision
Making, Rutgers University.
IBM Research, Yorktown Heights, NY.
- 2010
Workshop on Robust Optimization, Institute for Pure and Applied Mathematics,
UCLA.
Risk, Uncertainty, and Decision (RUD) Conference, Paris, France.
National Academy of Sciences Workshop on Computing for Sustainability,
Washington, D.C.
- 2009
UNC Chapel Hill, Department of Statistics and Operations Research.
CMU Tepper, Operations Research Area.
Stanford GSB, Operations, Information & Technology Area.
MIT, Operations Research Center.

2008

Duke University, Department of Computer Science.

Lehigh University, Department of Industrial and Systems Engineering.

2007

RISK: Perception, Policy & Practice Workshop, Statistical and Applied
Mathematical Sciences Institute, Research Triangle Park, NC.

UT Austin, Department of Operations Research and Industrial Engineering.

2006

Duke University, Department of Computer Science.

University of Chicago GSB, Operations Management Area.

Duke University Fuqua School of Business, Decision Sciences Area.

2005

Stanford University, Department of Management Science and Engineering.