

# DAN ZHANG

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## Research Interests

Data-driven decision making and large scale optimization with applications in revenue management and pricing, supply chain management, and healthcare operations

## Academic Positions

Associate Professor, Leeds School of Business, University of Colorado Boulder, August 2015 –

Assistant Professor, Leeds School of Business, University of Colorado Boulder, 2011 – 2015

Assistant Professor, Desautels Faculty of Management, McGill University, 2007 – 2011

Visiting Scholar (Advisor: Professor Daniel Adelman), University of Chicago, Graduate School of Business (now Booth School of Business), 2005 – 2006

## Education

Ph.D. (Advisor: Professor William L. Cooper), Industrial Engineering, University of Minnesota, 2005

M.E. (with outstanding graduate honor), Manufacturing Engineering, Chongqing University, 2000

B.E. (ranked No. 1 in class upon graduation), Mechanical Engineering, Chongqing University, 1997

## Teaching Experience

Coursera MOOC, five course specialization Data Analytics for Business Bootcamp (together with David Torgerson and Manuel Laguna), offered since September 2016.

Leeds School of Business, University of Colorado Boulder

Nominated for Frasca Teaching Excellence Award, Leeds School of Business, 2013.

Data Analytics (core course for MS Analytics and MS Supply Chain Management, MBA elective), Fall 2014, Fall 2015, Fall 2016.

Instructor ratings (1-6 scale): 5.5, 5.65, 5.0.

Operations Management (undergraduate core for OPIM), Fall 2012 (two sections), Fall 2013 (three sections), Fall 2014 (two sections), Fall 2015 (two sections), Fall 2016 (two sections).

Instructor ratings (1-6 scale): 5.6, 4.8, 5.2, 5.8, 5.6, 5.7, 5.6, 5.4, 5.6, 5.1, 5.7.

Business Statistics (undergraduate core), Spring 2012 (two sections), Fall 2012 (one section).

Stochastic Dynamic Programming (PhD course), Spring 2012.

Desautels Faculty of Management, McGill University

Data, Models, and Decisions (MBA elective), Fall 2008, Fall 2009, Fall 2010.

Business Statistics (undergraduate core), Fall 2007 (three sections), Fall 2008 (two sections), Fall 2009 (two sections), Fall 2010 (two sections).

Revenue Management (executive course), Fall 2008.

## Journal Articles (Published/Accepted)

(“†” indicates a supervised PhD student or postdoctoral fellow)

- [21] Nelson Granados, Kunsoo Han, and Dan Zhang. Demand and Revenue Impacts of an Opaque Channel: Evidence from the Airline Industry. Forthcoming, *Production and Operations Management*.
- [20] Saied Samiedaluie†, Beste Kucukyazici, Vedat Verter, and Dan Zhang. Managing Patient Admissions in a Neurology Ward. Forthcoming, *Operations Research*.
- [19] Dan Zhang and Larry Weatherford. Dynamic Pricing for Network Revenue Management: A New Approach and Application in the Hotel Industry. Forthcoming, *INFORMS Journal on Computing*. Featured as Editor’s Pick.
- [18] Xiaofeng Nie†, Tamer Boyacı, Mehmet Gumus, Saibal Ray, and Dan Zhang. Joint Procurement and Demand-Side Bidding Strategies under Price Volatility. Forthcoming, *Annals of Operations Research*.
- [17] Xiao Huang†, Tamer Boyacı, Mehmet Gumus, Saibal Ray, and Dan Zhang. 2016. United We Stand or Divided We Stand? Strategic Supplier Alliances under Order Default Risk. *Management Science*, 62(5): 1297–1315.
- [16] Mark Zais† and Dan Zhang. 2016. A Markov Chain Model of Military Personnel Dynamics. *International Journal of Production Research*, 54(6): 1863–1885.
- [15] Thomas Vossen and Dan Zhang. 2015. Reductions of Approximate Linear Programs for Network Revenue Management. *Operations Research*, 63(6): 1352–1371.
- [14] Thomas Vossen and Dan Zhang. 2015. A Dynamic Disaggregation Approach to Approximate Linear Programs for Network Revenue Management, *Production and Operations Management*, 24(3): 488–503.
- [13] Qi Feng, Sirong Luo, and Dan Zhang. 2014. Dynamic Inventory-Pricing Control under Backorder: Demand Estimation and Policy Optimization. *Manufacturing and Service Operations Management*, 16(1): 149–160.
- [12] Wenqing Zhang†, Shanling Li, Dan Zhang, and Wenhua Hou. 2014. On the Impact of Advertising Initiatives in Supply Chains. *European Journal of Operational Research*, 234(1): 99-107.
- [11] Yalçın Akçay, Tamer Boyacı, and Dan Zhang. 2013. Selling with Money-Back Guarantees: The Impact on Prices, Quantities, and Retail Profitability. *Production and Operations Management*, 22(4): 777–791.
- [10] Dan Zhang and Zhaosong Lu. 2013. Assessing the Value of Dynamic Pricing in Network Revenue Management. *INFORMS Journal on Computing*, 25(1): 102–115.
- [9] Qian Liu and Dan Zhang. 2013. Dynamic Pricing Competition with Strategic Customers under Vertical Product Differentiation. *Management Science*, 59(1): 84–101.
- [8] Weifen Zhuang†, Mehmet Gumus, and Dan Zhang. 2012. A Single-Resource Revenue Management Problem with Random Resource Consumptions. *Journal of the Operational Research Society*, 63, 1213–1227.

- [7] Adam Mersereau and Dan Zhang. 2012. Markdown Pricing with Unknown Fraction of Strategic Customers. *Manufacturing and Service Operations Management*, 14(3): 355–370. **Lead article.**
- [6] Dan Zhang. 2011. An Improved Dynamic Programming Decomposition Approach for Network Revenue Management. *Manufacturing and Service Operations Management*, 13(1): 35–52.
- [5] Dan Zhang and Daniel Adelman. 2009. An Approximate Dynamic Programming Approach to Network Revenue Management with Customer Choice. *Transportation Science*, 43(3): 381–394.
- [4] Dan Zhang and William L. Cooper. 2009. Pricing Substitutable Flights in Airline Revenue Management. *European Journal of Operational Research*, 197(3), 848–861.
- [3] Dan Zhang and Royce Kallesen. 2008. Incorporating Competitive Price Information in Revenue Management. *Journal of Revenue and Pricing Management*, 7(1): 17–26.
- [2] Dan Zhang and William L. Cooper. 2008. Managing Clearance Sales in the Presence of Strategic Customers. *Production and Operations Management*, 17(4): 416–431.
- [1] Dan Zhang and William L. Cooper. 2005. Revenue Management for Parallel Flights with Customer Choice Behavior. *Operations Research*, 53(3): 415–431.

## Selected Working Papers

(“†” indicates a supervised PhD student or postdoctoral fellow)

- [W1] Dan Zhang and Thomas Vossen. 2014. An Approximate Dynamic Programming Approach to a Rolling-Horizon Appointment Scheduling Problem. Under revision.
- [W2] Yacheng Sun and Dan Zhang. 2015. A Model of Customer Reward Programs with Finite Expiration Terms. Major revision, *Management Science*.
- [W3] Chuan He and Dan Zhang. 2014. The Promise and Peril of Dynamic Targeted Pricing. Under revision.
- [W4] Dan Zhang. 2008. Pricing and Capacity Management for Multi-Class Stochastic Service Systems. Working paper.
- [W5] Jiannan Ke†, Dan Zhang, and Huan Zheng. 2017. Approximate Dynamic Programming for Network Pricing Problems. Working paper.
- [W6] Xiao Huang and Dan Zhang. 2017. Product Design and Return Policies. Working paper.
- [W7] The Value of Online Review Data for Revenue Management. Work in progress.

## Student Supervision

### PhD students

Wenqing Zhang (McGill University, co-supervisor), 2008–2012. Current position: Assistant Professor, Labovitz School of Business and Economics, University of Minnesota Duluth

Saied Samiedaluie (McGill University, co-supervisor), 2009–2011. Current position: Assistant Professor, Alberta School of Business, University of Alberta, Canada

Mark Zais (University of Colorado Boulder, co-supervisor). 2013–2014. Current position: Operations Research Analyst, Office of the Secretary of Defense

Jiannan Ke (Visiting PhD student from Shanghai Jiao Tong University). 2015–2016.

### Co-supervisor, postdoctoral fellows

Lei Xie (McGill University), 2010–2011. Current position: Associate Professor, Shanghai University of Finance and Economics, China

Xiao Huang (McGill University), 2009–2010. Current position: Associate Professor, Concordia University, Canada

Weifen Zhuang (McGill University), 2009–2010. Current position: Associate Professor, Xiamen University, China

Xiaofeng Nie (McGill University), 2008–2010. Current position: Assistant Professor, Nanyang Technological University, Singapore

Committee member, PhD students

Subhamoy Ganguly (University of Colorado Boulder). 2011–2013. Current position: Assistant Professor, Indian Institute of Management Udaipur, India

Paul Intrevado (McGill University). 2010–

Jose Ramirez (University of Colorado Boulder). 2012–2014. Current position: faculty member, West Point Military Academy

## University Service

Leeds School of Business, University of Colorado Boulder

Primary Unit Evaluation Committee for reappointment of Tracy Jennings, Fall 2016

Primary Unit Evaluation Committee for reappointment of Lori Seward, Fall 2016

Co-organizer, summer all faculty brown-bag seminar series, Summer 2016

Operations Management faculty recruitment committee, 2016

Co-organizer, summer all faculty brown-bag seminar series, Summer 2015

Primary Unit Evaluation Committee for reappointment of Lauran Ramsey, Spring 2015

Chair, Primary Unit Evaluation Committee for reappointment of Keith Stockton, Fall 2014

PhD Director, Operations and Information Management, Fall 2014 –

Leeds Executive Committee, 2013 – 2015

Technology Committee, 2012 – 2014

Desautels Faculty of Management, McGill University

Undergraduate Committee, 2007 – 2008

Associate Director, Management Science Research Center, 2009 – 2011

Research Committee, 2010 – 2011

## Professional Service

Vice Chair/Chair-Elect, INFORMS Pricing and Revenue Management Section, 2016-2017.

Cluster chair for “Pricing and Revenue Management”, INFORMS International, Hawaii, June 12–15, 2016.

President, INFORMS Rocky Mountain Chapter, 2016 – 2017

Vice President/President Elect, INFORMS Rocky Mountain Chapter, 2015 – 2016

2014 *Manufacturing and Service Operations Management* Meritorious Service Award.

Senior Editor, *Production and Operations Management*, 2014 –

2013 *Management Science* Meritorious Service Award.

Invited panelist on “Teaching Pricing and Revenue Management”, POMS Annual Conference, Denver, May 3–6, 2013.

2012 *Manufacturing and Service Operations Management* Meritorious Service Award.

Track co-chair for “Pricing and Revenue Management” (36 sessions in total), INFORMS 2012 Annual Meeting, Phoenix, October 14–17, 2012.

Judge, 2009 POMS College of Supply Chain Management Student Paper Competition.

Session Chair, INFORMS Annual Meetings, 2008, 2009, 2010, 2011, 2012, 2013, 2014

Selected participant, INFORMS Future Academician Colloquium, Denver, October 22–23, 2004.

President, IIE Student Chapter at University of Minnesota, 2002–2004.

Selected participant, CIBER Doctoral Consortium on International Operations Management, Purdue University, November 20–23, 2003.

Member

INFORMS, INFORMS Revenue Management and Pricing Section, Manufacturing and Service Operations Management Society

Journal reviewer

*Operations Research, Management Science, Manufacturing and Service Operations Management, Production and Operations Management, INFORMS Journal on Computing, Transportation Science, Mathematics of Operations Research, European Journal of Operational Research, Naval Research Logistics, IIE Transactions, Mathematical Programming, Decision Sciences, Journal of Operational Research Society, Mathematical Methods of Operations Research, Transportation Research Part E, International Journal of Revenue Management, Journal of Systems Science and Systems Engineering, Journal of Revenue and Pricing Management*

Conference reviewer (2–3 full-length papers each)

MSOM 2011 Service SIG, MSOM 2012 Service SIG, MSOM 2015 SIG

Reviewer for grant proposals

Natural Sciences and Engineering Research Council of Canada (NSERC)  
Research Grants Council (RGC) of Hong Kong

## Corporate/Consulting Experience

Advisory board, Tech Valley Inc. (China), 2015 –

The Walt Disney Company, Orlando, Florida. Consultant on resort hotel pricing. 2012.

Lufthansa, Frankfurt, Germany. Consultant on network revenue management optimization based on an approach proposed in my paper “An Improved Dynamic Programming Decomposition Approach for Network Revenue Management,” 2010.

Transat A.T. Inc., Montreal, Canada. Consultant on current practice and trends in revenue management, 2008.

2006 – 2007, Member of Science Group, PROS Revenue Management, Houston, Texas.

1997 – 2000, Analyst/Programmer, Automobile Research Institute and Center for Computer Applications, Chang’an Automobile Corporation, Chongqing, China, 1997–2000.

## Research Grants

2009 – 2012, FQRSC New Researcher Grant, Models and analysis for competitive revenue management, \$39,600.

2008 – 2013, NSERC Discovery, Modeling consumer behavior in revenue management, \$85,000.

2008 – 2011, SSHRC, Integrated operational risk management in supply chains, \$129,000. (Joint grant with Saibal Ray, Tamer Boyaci, and Mehmet Gumus; share: 25%).

2007 – 2010, McGill University Startup Grant, \$60,000.

## Invited Seminars/Workshops

School of International Business Administration, Shanghai University of Finance and Economics, China, May 2016

School of Management, University of Science and Technology of China, May 2016

Institute of Industrial Engineering and Logistics Optimization, Northeastern University of China, May 2016

CUHK Business School, Chinese University of Hong Kong, China, May 2016

Invited speaker, AGIFORS Revenue Management 2015 and 2nd Chinese Airline Revenue Management Summit Joint Conference, Shanghai, China, May 2015

School of Management, Xiamen University, May 2015

Antai School of Management, Shanghai Jiao Tong University, May 2015

College of Business, City University of Hong Kong, May 2015

Rocky Mountain INFORMS Chapter Seminar Series, September 2014

School of Business, Sichuan University, June 2013

School of Business, University of Miami, May 2013

School of Business, University of Alberta, May 2013

Leeds School of Business, University of Colorado Boulder, Faculty summer research seminar series, June 2012

Invited speaker, Choice-based Revenue Management Conference, Georgia Institute of Technology, May 2012

Invited speaker, 2nd Annual Operations Management Research Symposium for Junior Faculty, University of North Carolina, March 2012

Leeds School of Business, University of Colorado Boulder, Marketing Division Seminar, January 2012

Division of Economics and Business, Colorado School of Mines, November 2011

Leeds School of Business, University of Colorado Boulder, Management Division Seminar, November 2011

College of Business, City University of Hong Kong, February 2011

Department of Industrial Engineering and Logistics Management, Hong Kong University of Science and Technology, February 2011

HP Labs, Palo Alto, California, February 2011

Lee Kong Chian School of Business, Singapore Management University, Singapore, February 2011

Leavey School of Business, Santa Clara University, Santa Clara, California, January 2011

Krannert School of Management, Purdue University, West Lafayette, Indiana, January 2011

Leeds School of Business, University of Colorado Boulder, Boulder, Colorado, January 2011

Invited tutorial lecture on “Dynamic Pricing in Revenue Management”, SOCCER 2010, University of Heidelberg, Germany, July 2010

GERAD, University of Montreal, Canada, March 2010

Smith School of Business, University of Maryland, February 2010

Transat A.T. Inc., Montreal, Canada, September 2008

School of Management, Southwest Jiao Tong University, China, January 2008

Desautels Faculty of Management, McGill University, Montreal, Canada, January 2007

Department of Mechanical and Industrial Engineering, University of Illinois at Chicago, Chicago, Illinois, February 2006

Graduate School of Business, University of Chicago, Chicago, Illinois, March 2005

NUS Business School, National University of Singapore, Singapore, February 2005

Department of Industrial Engineering, Texas A&M University, College Station, Texas, February 2005

Department of Industrial and Manufacturing Systems Engineering, University of Texas at Arlington, Arlington, Texas, February 2005

## Conference Presentations

(\* indicates presentations made by co-authors)

“A Model of Consumer Loyalty Reward Programs”

2016 INFORMS International Meeting, Kona, Hawaii, June 12–15, 2016

2014 INFORMS Annual Meeting, San Francisco, California, November 9–12, 2014

INFORMS RM Section Conference, Istanbul, Turkey, June 4–6, 2014

“Service Encounters at an Outpatient Care Clinic”

2015 INFORMS Annual Meeting, Philadelphia, PA, November 1–4, 2015 \*

“Solving Large-Scale Network Revenue Management Problems: An Aggregation Perspective”

2014 INFORMS Annual Meeting, San Francisco, California, November 9–12, 2014 \*

“A Markov Chain Model of Military Personnel Dynamics”

7th Annual Meeting of Midwest Economics Association, Evanston, Illinois, March 21 – 23, 2014 \*

“The Promise and Peril of Dynamic Targeted Pricing”

Frank M. Bass UT Dallas Frontiers of Research in Marketing Science (UT Dallas FORMS) Conference, Dallas, Texas, February 27 – March 1, 2014 \*

- 2013 INFORMS Annual Meeting, Minneapolis, Minnesota, October 6–9, 2013  
 35th ISMS Marketing Science Conference, Istanbul, Turkey, July 11–13, 2013 \*
- “An Approximate Dynamic Programming Approach to a Rolling-horizon Appointment Scheduling Problem”
- 2013 INFORMS Annual Meeting, Minneapolis, Minnesota, October 6–9, 2013
- “Reductions of Approximate Linear Programs for Network Revenue Management”
- AGIFORS Revenue Management 2015 and 2nd Chinese Airline Revenue Management Summit Joint Conference, Shanghai, China, May 13–16, 2015  
 INFORMS RM Section Conference, Istanbul, Turkey, June 4–6, 2014 \*  
 2013 INFORMS Annual Meeting, Minneapolis, Minnesota, October 6–9, 2013 \*  
 6th CSAMSE Annual Conference, Peking University, June 30–July 2, 2013  
 POMS Annual Conference, Denver, May 3–6, 2013
- “A New Approach to Hotel Pricing”
- 2012 INFORMS Annual Meeting, Phoenix, Arizona, October 14–17, 2012
- “A Dynamic Disaggregation Approach to Approximate Linear Programs for Network Revenue Management”
- 2012 INFORMS Annual Meeting, Phoenix, Arizona, October 14–17, 2012  
 2012 INFORMS MSOM Conference, Columbia Business School, June 17–19, 2012  
 Second Annual Operations Management Research Symposium, UNC Kenan-Flagler Business School, March 24, 2012
- “Markdown Pricing under Uncertain Strategic Customer Behavior”
- INFORMS Annual Meeting, Charlotte, NC, November 13–16, 2011
- “Supplier Alliances under Default Risk”
- 2014 INFORMS Annual Meeting, San Francisco, California, November 9–12, 2014 (scheduled) \*  
 2013 INFORMS Annual Meeting, Minneapolis, Minnesota, October 6–9, 2013 \*  
 6th CSAMSE Annual Conference, Peking University, June 30–July 2, 2013 \*  
 INFORMS Annual Meeting, Charlotte, NC, November 13–16, 2011 \*  
 IMST, Montreal, QC July 2011 \*  
 POMS Annual Meeting, Reno, NV, May 2011 \*  
 INTRIM, Syracuse, NY, August 2010 \*  
 OCSAMSE, Beijing, China, July 2010 \*  
 POMS Annual Conference, Vancouver, BC, Canada, May 2010 \*  
 POMS Annual Conference, Denver, May 3–6, 2013 \*
- “Admission Policies in a Neurological Hospital Ward”
- 2014 INFORMS Annual Meeting, San Francisco, California, November 9–12, 2014  
 2013 INFORMS Annual Meeting, Minneapolis, Minnesota, October 6–9, 2013 \*  
 INFORMS Healthcare 2013, Chicago, IL, June 23–26, 2013 \*  
 2012 INFORMS Annual Meeting, Phoenix, Arizona, October 14–17, 2012 \*  
 INFORMS Annual Meeting, Charlotte, NC, November 13–16, 2011 \*



- INFORMS Healthcare Conference 2011, Montreal, Canada, June 20-22, 2011 \*
- POMS Annual Conference, Denver, May 3-6, 2013 \*
- “Dynamic Pricing Competition with Strategic Customers under Vertical Product Differentiation”
- INFORMS Annual Meeting, Charlotte, NC, November 13-16, 2011
- INFORMS Annual Meeting, Austin, TX, November 7-10, 2010
- INFORMS RM Section Conference, Cornell University, June 16-18, 2010
- Mostly OM 2010, Tsinghua University, May 26-28, 2010 \*
- INFORMS Annual Meeting, San Diego, CA, October 11-14, 2009
- “Does the Opaque Channel Increase Revenues? Empirical Evidence from the Airline Industry”
- INFORMS RM Section Conference, Cornell University, June 16-18, 2010
- “An Improved Dynamic Programming Decomposition Approach for Network Revenue Management”
- Choice-based Revenue Management Conference, Georgia Institute of Technology, May 21-22, 2012
- INFORMS Annual Meeting, San Diego, CA, October 11-14, 2009
- MSOM 2009 Conference, MIT, June 28-30, 2009
- INFORMS RM Section Conference, Northwestern University, June 22-23, 2009
- AGIFORS RM and Cargo 2009, Amsterdam, Netherlands, May 17-18, 2009
- “Estimation, Pricing, and Strategic Customer Behavior”
- INFORMS Annual Meeting, San Diego, CA, October 11-14, 2009
- MSOM 2009 Conference, MIT, June 28-30, 2009 \*
- INFORMS Annual Meeting, Washington DC, October 12-15, 2008
- “Incorporating Competitive Price Information in Revenue Management”
- PROS 13th Annual RM Conference, Houston, Texas, April 22-25, 2007
- AGIFORS RM and Cargo 2007, Jeju Island, South Korea, May 14-17, 2007 \*
- “Pricing and Capacity Management for Multi-Class Stochastic Service Systems”
- MSOM 2008 Conference, University of Maryland, June 5-6, 2008.
- “Price and Quantity Competition in Dynamic Revenue Management”
- INFORMS Annual Meeting, Washington DC, October 12-15, 2008
- INFORMS RM Section Conference, Montreal, Canada, June 18-20, 2008.
- “An Approximate Dynamic Programming Approach to Network Revenue Management with Customer Choice”
- INFORMS RM Section Conference, New York, June 5, 2006
- INFORMS Annual Meeting, Pittsburgh, November 7, 2006
- “Managing Clearance Sales in the Presence of Strategic Customers”
- INFORMS Annual Meeting, San Francisco, CA, November 13, 2005
- “Revenue Management for Parallel Flights with Customer Choice Behavior”
- INFORMS Annual Meeting, Atlanta, October 19, 2003
- INFORMS Revenue Management and Pricing Section Conference, New York, June 5-6, 2003 \*

## Personal Information

Male; married with two sons; citizen of China; permanent resident of the United States