

# SHAWN MANKAD

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## PERSONAL INFORMATION

### Educational Background

- Ph.D., Statistics, University of Michigan, 2013
- M.A., Statistics, University of Michigan, 2012
- B.S., Mathematics, Carnegie Mellon University, 2008

### Academic and Professional Appointments

- Assistant Professor of Operations, Technology and Information Management, Samuel Curtis Johnson Graduate School of Management, Cornell University, 2015 – Present
  - Graduate Field Member in Statistics, 2017 – Present
  - Fellow of the Institute for Healthy Futures, Cornell University, 2016 – Present
- Assistant Professor of Business Analytics, Robert H. Smith School of Business, University of Maryland, 2013 – 2015
  - Affiliate Faculty of Applied Mathematics and Scientific Computation, University of Maryland, 2014 – 2015
- Federal Contractor, the U.S. Commodity Futures Trading Commission, 2009 – 2013
- Dissertation Intern, Federal Reserve Board of Governors, Summer 2012

## RESEARCH, SCHOLARLY AND CREATIVE ACTIVITIES

### Working Papers

1. “Interconnectedness in the Interbank Market”, with Celso Brunetti, Jeff Harris, and George Michailidis, Submitted.
2. “Single Stage Prediction with Online Reviews for Mobile App Development and Management”, with Shengli Hu, Anandasivam Gopal, Submitted.
3. “A Quality Value Chain: Linking Supply Chain Quality to Customer Lifetime Value”, with Masha Shunko and Qiuping Yu, Submitted.
4. “Identifying Moral Hazard in New York City Restaurant Hygiene Inspections with Online Reviews”, with Jorge Mejia and Anandasivam Gopal, Submitted.
5. “More Than Just Words: On Discovering Themes in Online Reviews to Explain Restaurant Closures”, with Jorge Mejia and Anandasivam Gopal, Submitted.
6. “Avoiding the Ambiguity with Textual Data: Topic Modeling for Linear Models”, with Yuan Chen, Submitted.

### **Articles in Refereed Journals**

7. "A Feedback and Evaluation System that Provokes Minimal Retaliation by Trainees", with Keith Baker and Bishr Haydar, *Anesthesiology*, 126:327-337, 2017.
8. "Understanding online hotel reviews through automated text analysis", with Hyun Jeong Han, Joel Goh, and Srinagesh Gavirneni, *Service Science* 8.2, 124-138, 2016.
9. "Measuring Influence in Twitter Ecosystems using a Counting Process Modeling Framework", with Donggeng Xia and George Michailidis, *Technometrics*, 58.3, 360-370, 2016.
10. "Computational and Empirical Studies Predict Mycobacterium tuberculosis-Specific T Cells as a Biomarker for Infection Outcome", with Marino, S., Gideon, H. P., Gong, C., McCrone, J. T., Lin, P. L., Linderman, J. J., Flynn, J. L., Kirschner, D. E., *PLoS Comput Biol* 12(4): e1004804, 2016.
11. "Analysis of multiview legislative networks with structured matrix factorization: Does Twitter influence translate to the real world?", with George Michailidis, *The Annals of Applied Statistics* 9.4, 1950-1972, 2015.
12. "Threshold Value Estimation Using Adaptive Two-Stage Plans in R", with George Michailidis, and Moulinath Banerjee, *Journal of Statistical Software*, 67(3), 1 – 19, 2015
13. "Two-stage plans for estimating the inverse of a monotone function", with Runlong Tang, Moulinath Banerjee, and George Michailidis, *Technometrics*, Vol. 57, Iss. 3, 2015
14. "Biclustering Three-Dimensional Data Arrays with Plaid Models", with George Michailidis, *Journal of Computational and Graphical Statistics*, Vol. 23, Iss. 4, 2014
15. "Structural and functional discovery in dynamic networks with non-negative matrix factorization", with George Michailidis, *Physical Review E*, 88(4), 042812, 2013
16. "Discovering the Ecosystem of an Electronic Financial Market with a Dynamic Machine-Learning Method", with George Michailidis and Andrei Kirilenko, *Algorithmic Finance*, 2:2, 151-165, 2013

### **Industry Publications**

17. "What Guests Really Think of Your Hotel: Text Analytics of Online Customer Reviews", with Hyun Jeong Han, Nagesh Gavirneni, and Rohit Verma. *Cornell Hospitality Report*, 16(2), 3-17, 2016

### **Published Conference Proceedings**

### **Refereed Conference Proceedings**

18. “Visual Analytics for Network- Based Market Surveillance”, with George Michailidis and Celso Brunetti, *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop*, 2014
19. “Discovery of Path-Important Nodes using Structured Semi-Nonnegative Matrix Factorization”, with George Michailidis, *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, 288-291, 2013

## **Conferences, Workshops and Talks**

### ***Invited Presentations***

1. INFORMS Annual Meeting, (2016, Nashville, TN)
2. Cornell University, Department of Statistical Science, (2016, Ithaca, NY)
3. Joint Statistical Meetings (2016, Chicago, IL)
4. Statistical Learning and Data Science Meeting, (2016, Durham, NC)
5. International Chinese Statistical Association, (2016, Atlanta, GA)
6. Production and Operations Management Society Annual Meeting, (2016, Orlando, FL)
7. INFORMS Annual Meeting, (2015, Philadelphia, PA)
8. 45<sup>th</sup> Symposium of the Interface on Computing Science and Statistics, (2015, Morgantown, WV)
9. Cornell University Johnson Graduate School of Management, (2015, Ithaca, NY)
10. Production and Operations Management Society Annual Meeting, (2015, Washington, D.C.)
11. INFORMS Conference on Business Analytics & Operations Research, (2015, Huntington Beach, CA)
12. INFORMS Annual Meeting, (2014, San Francisco, CA)
13. Conference of the MIT Center for Finance and Policy, (2014, Boston, MA)
14. Office of Financial Research, U.S. Treasury, (2014, Washington, D.C.)
15. International Society of Non-Parametric Statistics, (2014, Cadiz, Spain)
16. Statistical Learning and Data Mining Meeting on Data Mining in Business and Industry, (2014, Durham, NC)
17. USC Marshall Statistics Group, (2014, Los Angeles, CA)
18. Cornell University Johnson Graduate School of Management, (2014, Ithaca, NY)
19. IEEE Computational Advances in Multi-Sensor Adaptive Processing, (2013, Saint Martin)
20. The Board of Governors of the Federal Reserve System, (2012, Washington, D.C.)
21. Department of Statistics Highlighted Student Talk, University of Michigan (2012, Ann Arbor, MI)

### ***Refereed Presentations***

1. Cornell Hospitality Research Summit, (2014, Ithaca, NY)
2. Joint Statistical Meetings, (2014, Boston, MA/2012)
3. SIGMOD Data Science and Macro-Modeling Workshop, (2014, Snowbird, UT)
4. Research Meeting of the Consortium for Systemic Risk Analysis, MIT Sloan (2013, Boston, MA)
5. INFORMS Annual Meeting, Service Science Sponsored Session (2013, Minneapolis, MN)
6. American Finance Association Annual Meeting, (2012, Chicago, IL), acceptance 13.4%
7. Joint Statistical Meetings, (2012, San Diego, CA)

8. Joint Statistical Meetings, (2011, Miami, FL)
9. University of Maryland Complexity in Business Conference, (2010, College Park, MD)

## **TEACHING, MENTORING AND ADVISING**

### **Courses Taught**

Spring 2018

- NBA-6920, Advanced Data Analytics Applications and Methods
- NBA-6550, Introduction to Statistical Programming and SQL
- NBA-6480, Digital Technology Practicum

Summer 2017

- NBA-6550Y, Introduction to Statistical Programming and SQL

Spring 2017

- NBA-6920, Advanced Data Analytics Applications and Methods
- NBA-6550, Introduction to Statistical Programming and SQL
- NBA-6480, Digital Technology Practicum

Spring 2016

- NBA-6920, Advanced Data Analytics Applications and Methods, enrollment: 56, evaluation: 4.49/5
- NBA-6550, Introduction to Statistical Programming and SQL, enrollment: 47, evaluation: 4.02/5
- NBA-6480, Digital Technology Practicum, enrollment: 30, evaluation: 3.76/5

Fall 2015

- Management Science Practicum, SQL Bootcamp, enrollment: 55, evaluation: NA

Spring 2015

- BMGT 431, Data Analytics, enrollment: 35, evaluation: 3.31/4
- BMGT 431F, Data Analytics, enrollment: 20, evaluation: 3.50/4
- BUDT 758B, Google Online Challenge and Analytics, enrollment: 5, evaluation: 3.33/4
- BUDT 758A, Google Online Challenge and Analytics, enrollment: 5, evaluation: 2.00/4

Fall 2014

- BMGT 430, Linear Statistical Models in Business, enrollment: 42, evaluation: 3.57/4

Spring 2014

- BMGT 430, Linear Statistical Models in Business, enrollment: 33, evaluation: 3.46/4
- BMGT 431, Data Analytics, enrollment: 21, evaluation: 3.76/4

### **Other Teaching Activities**

- Introduction to Data Mining, Graduate Student Instructor at University of Michigan, Winter 2011

- Introduction to Statistics, Graduate Student Instructor at University of Michigan, Fall 2008 – Fall 2010 (5 semesters)
- Introduction to Programming, Teaching Assistant at Carnegie Mellon University, Fall 2006 – Winter 2007 (2 semesters)

## **Advising**

### **Doctoral**

- Shengli (Meredith) Hu (Operations, Technology, and Information Management), Cornell University, Expected graduation Spring 2020, Primary Advisor
- Saram Han (School of Hotel Administration), Cornell University, Expected graduation Spring 2021, Thesis Committee member
- Hechao Sun (Applied Statistics), Graduated Summer 2017 from University of Maryland, Thesis Committee member
- Jorge Mejia (Information Systems), Graduated Spring 2016 from University of Maryland, Thesis Committee member, Assistant Professor at Indiana University
- Bin Han, (Applied Mathematics), Graduated Spring 2015, Thesis Committee member from University of Maryland, Blackrock
- Stuart Price, (Decisions, Operations & Information Technologies) from University of Maryland, Graduated Winter 2015, Thesis Committee member
- Hisham Taluker, (Applied Mathematics), Graduated summer 2014 from University of Maryland, Thesis Committee member, Dow Jones & Company

### **Undergraduate**

- Theodore Michalik, Graduated Spring 2015 from University of Maryland, Thesis Advisor

## **EXTERNAL FUNDING, AWARDS, AND RECOGNITION**

### **External Funding and Research Fellowships**

- NSF BIGDATA: Too Interconnected to Fail? Network Analytics on Complex Economic Data Streams for Monitoring Financial Stability, PI, 2016 – 2020
- Microsoft Azure Educator Grant Award, PI, 2016
- Cornell University Half-Century Faculty Research Fellowship, 2016
- Wharton Customer Analytics Initiative Data Grant, 2015
- Wharton Customer Analytics Initiative Data Grant, 2014

### **Awards**

- “CHR 2017 Industry Relevance Award”, 2017, Cornell University, Given to a single Cornell Hospitality Research paper each year
- “Distinguished Teaching Award”, 2015, University of Maryland awarded to faculty in the top 15% of teaching evaluation scores

- 1st Place Award in Student Research Competition, Midwest Statistics Research Colloquium, 2012, Midwest Statistics Research Colloquium
- "Graduate Student Instructor Excellence in Teaching Award", 2011, University of Michigan Statistics Department

## Recognition in Media

### Research

1. Jan 2014, "Academic devise formula to gauge how well U.S. regulators listen", *Reuters, Chicago Tribune*
2. Mar 2014, "Do Regulators Listen to Public? Study Says Yes", *The Wall Street Journal, Compliance Building*
3. Dec 15, 2014, *Marketing Pilgrim* <http://www.marketingpilgrim.com/2014/12/can-yelp-reviews-predict-restaurant-closures-researchers-say-yes.html>
4. Dec 15, 2014, *Hospitality Industry News* [http://www.hospitality-industry.com/index.php/news/comments/researchers\\_use\\_text-mining\\_software\\_to\\_predict\\_success\\_failure\\_of/](http://www.hospitality-industry.com/index.php/news/comments/researchers_use_text-mining_software_to_predict_success_failure_of/)
5. Dec 15, 2014, *Virtual Strategy Magazine* <http://www.virtual-strategy.com/2014/12/15/researchers-use-text-mining-software-predict-success-failure-dc-restaurants#axzz3M4GWTUvV>
6. Dec 15, 2014, *Gnomes National Service* <http://news.gnom.es/pr/researchers-use-text-mining-software-to-predict-success-failure-of-d-c-restaurants>
7. Dec 15, 2014, *Forward Geek* <http://www.forwardgeek.com/article/Researchers-Use-Text-Mining-Software-to-Predict-Success-Failure-of-DC-Restaurants-20141215?article=Researchers-Use-Text-Mining-Software-to-Predict-Success-Failure-of-DC-Restaurants-20141215#>
8. Dec 15, 2014, *Minyanville* <http://finance.minyanville.com/minyanville/news/read?GUID=28907763>
9. Dec 16, 2014, *QSR Web* <http://www.qsrweb.com/news/researchers-use-text-mining-software-to-predict-success-failure-of-dc-restaurants/>
10. Dec 16, 2014 *Washington Business Journal* <http://www.bizjournals.com/washington/blog/top-shelf/2014/12/umd-researchers-use-yelp-reviews-to-predict.html?page=all>
11. Dec 16, 2014 *InTheCapital* <http://inthecapital.streetwise.co/2014/12/16/dc-restaurant-closings-predicted-by-yelp-reviews/>
12. Dec 16, 2014, *Eater.com* - <http://www.eater.com/2014/12/16/7405117/can-yelp-reviews-predict-restaurant-shutters>
13. Dec 16, 2014, *Fast Casual* - <http://www.fastcasual.com/news/researchers-use-text-mining-software-to-predict-success-failure-of-dc-restaurants/>
14. Dec 16, 2014, *Positions and Promotions* <http://www.poandpo.com/in-the-meantime/researchers-use-software-to-predict-success-of-dc-restaurants-16-12-2014/>
15. Dec 17 2014, "Bad Yelp reviews signal when a restaurant will close", *The Oregonian*
16. Dec 17 2014, *Entrepreneur* <http://www.entrepreneur.com/article/241051>

17. Dec 17, 2014, *UMD Right Now* <http://www.umdrightnow.umd.edu/news/new-research-method-predicts-success-failure-dc-restaurants>
18. Dec 18 2014, *BizReport* - <http://www.bizreport.com/2014/12/researchers-use-yelp-to-predict-a-restaurants-chances-of-sur.html>
19. Dec 18, 2014, *Street Fight Magazine* <http://streetfightmag.com/2014/12/18/street-fight-daily-angies-lists-shuffles-brass-amazons-one-hour-delivery/>
20. Dec 23 2014, "Online reviews help predict restaurant success", *Baltimore Daily Record*
21. Dec 2014, *Thrillist* <http://www.thrillist.com/eat/nation/university-of-maryland-study-uses-yelp-data-to-predict-restaurant-success>
22. Dec 2014, *OnlySoftwareBlog* <http://onlysoftwareblog.com/2014/12/researchers-use-text-mining-software-to-predict-success-failure-of-dc-restaurants/>
23. Dec 2014, *Phys.org* <http://phys.org/news/2014-12-method-success-failure-dc-restaurants.html>
24. Jan 4, 2014, *ReviewTrackers* - <http://www.reviewtrackers.com/analysis-yelp-reviews-show-and-when-restaurant-shut/>
25. Feb 26 2015, "Yelp as Prophet", *Biz Ed*
26. Mar 2015, "MSN Money Show" profiles brand-enthusiasm index, referenced here: <http://www.czarmetrics.com/blog/2015/1/26/second-annual-emerging-brands-study-the-best-of-the-best-1>
27. Nov 8, 2015, "Yelp Gets A 4.5 Star Rating", *Seeking Alpha*
28. Feb 11 2016, "What Guests Really Think of Your Hotel: Text Analytics of Online Customer Reviews", *Hotel News Resource*
29. Feb 12, 2016, "Text Analytics Reveal the Impact of Guest Sentiment on Hotel Review Scores", *HospitalityNet*
30. Mar 8, 2016, "Online hotel reviews only partially tell what customers really think", *Cornell Chronicle* <http://www.news.cornell.edu/stories/2016/03/online-reviews-only-partially-reveal-what-hotel-customers-think>
31. Mar 11, 2016, "Cornell study analyzes TripAdvisor reviews to help hotel managers", *Tnooz* <http://www.tnooz.com/article/cornell-study-analyzes-tripadvisor-reviews-to-help-hotel-managers/>

## Teaching

32. Jan 19 2016, "Cornell To Launch Big Data-Focused MBA Program Featuring Twitter, Yahoo, Amazon", *Business Because*
33. Feb 17, 2016, "Business Analytics Master's Growth Gathers Pace As Big Data Demand Outstrips Supply", *Business Because*

## SERVICE AND OUTREACH

### Editorships, Editorial Boards and Reviewing Activities

#### Reviewing Activities for Journals and Presses

- Management Information System Quarterly (Ad-hoc)
- Manufacturing and Service Operations Management (Ad-hoc)

- Journal of the American Statistical Association (Ad-hoc)
- Expert Systems with Applications (Ad-hoc)
- The Electronic Journal of Statistics (Ad-hoc)
- Journal of Computational and Graphical Statistics (Ad-hoc)
- Applied Stochastic Models in Business and Industry (Ad-hoc)
- Journal of Statistical Software (Ad-hoc)
- International Journal of Modern Physics B (Ad-hoc)

#### **Reviewing Activities for Conferences**

- Associate Editor for the Foundations of IS Research track at International Conference on Information Systems 2017
- Associate Editor for the Data Science track at International Conference on Information Systems 2016
- IIE ISERC 2015
- Winter Simulation Conference
- SIGMOD Data Science for Macro-Modeling Workshop
- IEEE Workshop on Computational Advances in Multi-Sensor Adaptive Processing

#### **Committees, Professional & Campus Service**

##### **Leadership Roles in Meetings and Conferences**

- Publicity Co-Chair for the 2017 INFORMS Conference on Data Science
- Associate Editor for the Data Science and Business Analytics track at ICIS 2016
- Organizer and Session Chair, Invited Data-Mining Session Organizer at the 2016 INFORMS annual meeting
- Member of the Program Committee, for the SIGMOD 2016 Workshop – Data Science for Macro-Modeling
- Member of the Program Committee, Interface 2015 (Statistics Symposium)
- Member of the Program Committee, for the SIGMOD 2014 Workshop – Data Science for Macro-Modeling
- Organizer and Session Chair, Invited Data-Mining Session Organizer at the 2014 INFORMS annual meeting
- Chair, 2014 Joint Statistical Meetings Session

##### **Other Non-University Committees, Memberships, Panels, etc.**

- Secretary, Treasurer of the Data Mining Section of INFORMS, 2013 – 2015
- Member, Institute for Operations Research and the Management Sciences
- Member, American Statistical Association

##### **Campus Service - Department**

- University of Maryland Research Computing Infrastructure Survey Team, April 2014



### **Campus Service - College**

- University of Maryland Member of Research Computing Committee, 2014 – 2015
- University of Maryland Panelist for Data Science and Financial BIGDATA at the 2014 Smith School Business Summit