

# 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
- 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 ACTIVITIES

### Articles in Refereed Journals

#### Management Sciences

1. “Service Quality Using Text Mining: Measurement and Consequences”, with Jorge Mejia and Anandasivam Gopal, Accepted at *Manufacturing & Service Operations Management*, 2020.
2. “A for Effort? Using the Crowd to Identify Moral Hazard in NYC Restaurant Hygiene Inspections”, with Jorge Mejia and Anandasivam Gopal, Accepted at *Information Systems Research*, 2019. <https://doi.org/10.1287/isre.2019.0866>
3. “Interconnectedness in the Interbank Market”, with Celso Brunetti, Jeffrey H. Harris, and George Michailidis, *Journal of Financial Economics*, 133(2), 520-538, 2019.
4. “On the Formation of Dodd-Frank Act Derivatives Regulations”, with George Michailidis and Andrei Kirilenko. *PLoS One*, 14(3), p.e0213730, 2019.
5. “Understanding Online Hotel Reviews through Automated Text Analysis”, with Hyun Jeong Han, Joel Goh, and Srinagesh Gavirneni, *Service Science* 8.2, 124-138, 2016.

## **Statistics and Data Science**

6. “Single Stage Prediction with Online Reviews for Mobile App Development and Management”, with Shengli Hu and Anandasivam Gopal, *The Annals of Applied Statistics*, Vol. 12(4), 2279-2311, 2018.
7. “Measuring Influence in Twitter Ecosystems using a Counting Process Modeling Framework”, with Donggeng Xia and George Michailidis, *Technometrics*, Vol. 58(3), 360-370, 2016.
8. “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* Vol. 9(4), 1950-1972, 2015.
9. “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.
10. “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.
11. "Biclustering Three-Dimensional Data Arrays with Plaid Models", with George Michailidis, *Journal of Computational and Graphical Statistics*, Vol. 23, Iss. 4, 2014.
12. "Structural and functional discovery in dynamic networks with non-negative matrix factorization", with George Michailidis, *Physical Review E*, 88(4), 042812, 2013.
13. "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.

## **Computational Biology and Medicine**

14. “A Feedback and Evaluation System that Provokes Minimal Retaliation by Trainees”, with Keith Baker and Bishr Haydar, *Anesthesiology*, 126:327-337, 2017.
15. “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.

## **Industry-Oriented Publications**

16. “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.

## **Refereed Conference Proceedings**

17. “An Online Semi-NMF Algorithm for Soft-Clustering of Financial Institutions”, with Yuan Cheng, *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop*, 2019.
18. “Balance Sheet Driven Probability Factorization for Inferring Bank Holdings: Extended Abstract”, with Celso Brunetti and Jeffrey H. Harris, *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop*, 2017.
19. “Visual Analytics for Network- Based Market Surveillance”, with George Michailidis and Celso Brunetti, *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop*, 2014.
20. “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.

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

- NSF BIGDATA: Too Interconnected to Fail? Network Analytics on Complex Economic Data Streams for Monitoring Financial Stability, PI, \$500,000, 2016 – 2021
- Cornell University Half-Century Faculty Research Fellowship, 2016 - 2018
- Wharton Customer Analytics Initiative Data Grant, 2015
- Wharton Customer Analytics Initiative Data Grant, 2014

### **Other Research Recognition**

- “CHR 2017 Industry Relevance Award”, 2017, Cornell University, Given to a single Cornell Hospitality Research paper each year
- 1st Place Award in Student Research Competition, Midwest Statistics Research Colloquium, 2012, Midwest Statistics Research Colloquium

### **Conferences, Workshops and Talks**

#### *Invited and Refereed Presentations*

1. Georgetown University (Operations and Information Management; 2020; Washington D.C.)
2. Drexel University (Decision Sciences; 2020; Philadelphia, PA)
3. University of Delaware (Accounting & MIS; 2020, Newark, DE)
4. Computational and Methodological Statistics (CFE-CM Statistics; 2019, London, UK)
5. INFORMS Workshop on Data Sciences, (2019, Seattle, WA)
6. Joint Statistical Meetings (2019, Denver, CO)
7. International Symposium on Forecasting, (2019, Thessaloniki, Greece)
8. UBC Sauder School of Business, Operations and Logistics Division, (2019, Vancouver, BC)
9. INFORMS Annual Meeting, (2018, Phoenix, AZ)
10. 2018 Symposium on Data Science and Statistics (2018, Reston, VA)
11. INFORMS Workshop on Data Sciences, (2017, Houston, TX)
12. INFORMS Annual Meeting, (2017, Houston, TX)
13. Cornell Hospitality Research Summit, (2017, Ithaca, NY)

14. INFORMS Annual Meeting, (2016, Nashville, TN)
15. Cornell University, Department of Statistical Science, (2016, Ithaca, NY)
16. Joint Statistical Meetings (2016, Chicago, IL)
17. Statistical Learning and Data Science Meeting, (2016, Durham, NC)
18. International Chinese Statistical Association, (2016, Atlanta, GA)
19. Production and Operations Management Society Annual Meeting, (2016, Orlando, FL)
20. INFORMS Annual Meeting, (2015, Philadelphia, PA)
21. 45<sup>th</sup> Symposium of the Interface on Computing Science and Statistics, (2015, Morgantown, WV)
22. Cornell University Johnson Graduate School of Management, (2015, Ithaca, NY)
23. Production and Operations Management Society Annual Meeting, (2015, Washington, D.C.)
24. INFORMS Conference on Business Analytics & Operations Research, (2015, Huntington Beach, CA)
25. Cornell Hospitality Research Summit, (2014, Ithaca, NY)
26. INFORMS Annual Meeting, (2014, San Francisco, CA)
27. Conference of the MIT Center for Finance and Policy, (2014, Boston, MA)
28. Office of Financial Research, U.S. Treasury, (2014, Washington, D.C.)
29. Joint Statistical Meetings, (2014, Boston, MA/2012)
30. SIGMOD Data Science and Macro-Modeling Workshop, (2014, Snowbird, UT)
31. International Society of Non-Parametric Statistics, (2014, Cadiz, Spain)
32. Statistical Learning and Data Mining Meeting on Data Mining in Business and Industry, (2014, Durham, NC)
33. USC Marshall Statistics Group, (2014, Los Angeles, CA)
34. Cornell University Johnson Graduate School of Management, (2014, Ithaca, NY)
35. IEEE Computational Advances in Multi-Sensor Adaptive Processing, (2013, Saint Martin)
36. Research Meeting of the Consortium for Systemic Risk Analysis, MIT Sloan (2013, Boston, MA)
37. The Board of Governors of the Federal Reserve System, (2012, Washington, D.C.)
38. American Finance Association Annual Meeting, (2012, Chicago, IL), acceptance 13.4%
39. University of Maryland Complexity in Business Conference, (2010, College Park, MD)

## **Advising**

### ***Current -- Doctoral***

- Yuan Cheng (Management: Operations, Technology, and Information Management), Cornell University, Expected graduation Spring 2021, Primary Advisor
- Piyush Anand (Management: Marketing), Cornell University, Expected graduation Spring 2021, Thesis Committee Member

### ***Graduated -- Doctoral***

- Saram Han (Hotel Administration), Cornell University, Graduated Fall 2019, Committee Member

- Shengli (Meredith) Hu (Management: Operations, Technology, and Information Management), Cornell University, Graduated Summer 2019, Committee member, Research Scientist at Dataminr
- Samaneh Ebrahimi (Industrial Engineering), Georgia Institute of Technology, Graduated Summer 2018, Thesis Committee Member, Data Scientist at Pandora
- Zhiming Shen (Computer Science), Cornell University, Graduated Fall 2017, Thesis Committee Member, Post-doc at Cornell University
- Hechao Sun (Applied Statistics), University of Maryland, Graduated Summer 2017, Thesis Committee member, Amazon Data Science
- Jorge Mejia (Information Systems), University of Maryland, Graduated Spring 2016, Thesis Committee member, Assistant Professor at Indiana University
- Bin Han, (Applied Mathematics), University of Maryland, Graduated Spring 2015, Thesis Committee member, Blackrock
- Stuart Price, (Decisions, Operations & Information Technologies), University of Maryland, Graduated Winter 2015, Thesis Committee member
- Hisham Talukder, (Applied Mathematics), University of Maryland, Graduated summer 2014, Thesis Committee member, Dow Jones & Company

#### ***Graduated -- Masters***

- Shivank Goel (Management: Operations, Technology, and Information Management), Cornell University, Graduated Fall 2020, Amazon Software Engineer

#### **Undergraduate**

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

### **TEACHING, MENTORING AND ADVISING**

#### **Courses Taught (student course evaluations available upon request)**

At Cornell:

- NBA-6920, Machine Learning Applications in Business
- NBA-6550, Introduction to SQL & Tableau
- NBA-6480, Digital Technology Practicum
- NBA-6550Y, Introduction to Statistical Programming and SQL
- NBA-6920, Advanced Data Analytics Applications and Methods

At University of Maryland:

- BMGT 431, Data Analytics
- BUDT 758B, Google Online Challenge and Analytics
- BMGT 430, Linear Statistical Models in Business

#### **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)

### **Teaching Recognition**

- Microsoft Azure Educator Grant Award, PI, 2016
- “Distinguished Teaching Award”, 2015, University of Maryland awarded to faculty in the top 15% of teaching evaluation scores
- “Graduate Student Instructor Excellence in Teaching Award”, 2011, University of Michigan Statistics Department

## **SERVICE AND OUTREACH**

### **Editorships, Editorial Boards and Reviewing Activities**

#### **Editorial Boards for Journals and Presses**

- Editorial Advisory Board (2018-2019) for Expert Systems with Applications

#### **Reviewing Activities for Journals and Presses**

- Management Science
- Information Systems Research
- Management Information System Quarterly
- European Journal of Information Systems
- Manufacturing and Service Operations Management
- Operations Research
- Mathematics and Financial Economics
- Journal of Multinational Financial Management
- Social Network Analysis and Mining
- Journal of the American Statistical Association
- INFORMS Journal on Computing
- Artificial Intelligence Review
- Expert Systems with Applications
- The Electronic Journal of Statistics
- Journal of Computational and Graphical Statistics
- Applied Stochastic Models in Business and Industry
- Journal of Statistical Software
- International Journal of Modern Physics B

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

- 2019 INFORMS Workshop on Data Science
- 2018 INFORMS Workshop on Data Science
- SIGMOD 2018 Workshop – Data Science for Macro-Modeling
- IIE ISERC 2015
- Winter Simulation Conference 2015
- SIGMOD Data Science for Macro-Modeling Workshop 2014
- IEEE Workshop on Computational Advances in Multi-Sensor Adaptive Processing 2014

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

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

- Member of Program Committee, 2019 INFORMS Workshop on Data Science
- Member of Program Committee, [Federal Reserve Board Conference on The Interconnectedness of Financial Systems](#), 2019
- Member of Program Committee, 2018 INFORMS Workshop on Data Science
- Associate Editor for the Data Science track, International Conference on Information Systems 2018
- Member of the Organizing Committee, 2018 Symposium on Data Science and Statistics
- Panelist for Academic Job Search Panel at INFORMS 2018
- Invited Member of the 3<sup>rd</sup> Workshop on an Open Knowledge Network (organized by the [NITRD Big Data Interagency Working Group](#), National Science Foundation, and the National Institute of Health) 2017
- Publicity Co-Chair for the 2017 INFORMS Workshop on Data Science
- Associate Editor for the Foundations of IS Research track, International Conference on Information Systems 2017
- Associate Editor for the Data Science track, International Conference on Information Systems 2016
- Organizer and Session Chair, Invited Data-Mining Session Organizer, the 2016 INFORMS annual meeting
- Member of the Program Committee, SIGMOD 2016 Workshop – Data Science for Macro-Modeling
- Member of the Program Committee, Interface 2015 (Statistics Symposium)
- Member of the Program Committee, SIGMOD 2014 Workshop – Data Science for Macro-Modeling
- Session Organizer and Chair, Data-Mining section, 2014 INFORMS annual meeting
- Session 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, 2013 - present
- Member, American Statistical Association, 2011 – present
- Member, International Institute of Forecasters, 2019 - present

## Campus Service - College

- Cornell University Reappointment Review Committee for Lecturer (Hotel School), 2017- 2018
- University of Maryland Member of Research Computing Committee, 2014 – 2015

## Campus Service - Department

- University of Maryland Research Computing Infrastructure Survey Team, 2014

## RECOGNITION IN MEDIA

### Research

1. Feb 22, 2019, "[A Breakthrough Is Claimed in Systemic Risk Monitoring](#)", GARP Risk Intelligence
2. Dec 6, 2018, "Restaurant Hygiene, Risky Business Systems", <https://research.cornell.edu/news-features/restaurant-hygiene-risky-business-systems>
3. Nov 11, 2018, "Thanks, statistics! A faster way to improve mobile apps", *Cornell Chronicle*, <http://news.cornell.edu/stories/2018/11/thanks-statistics-faster-way-improve-mobile-apps>
4. Sept 12, 2018, "Fed study proposes method for tracking banks' systemic risks more often", MLex Insight
5. July 11, 2018, "Bank network shifts signaled financial crisis -- and may prevent another", EurekaAlert!, [https://eurekaalert.org/pub\\_releases/2018-07/cu-bns071018.php](https://eurekaalert.org/pub_releases/2018-07/cu-bns071018.php)
6. 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/>
7. 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>
8. Feb 12, 2016, "Text Analytics Reveal the Impact of Guest Sentiment on Hotel Review Scores", *HospitalityNet*
9. Feb 11 2016, "What Guests Really Think of Your Hotel: Text Analytics of Online Customer Reviews", *Hotel News Resource*
10. Nov 8, 2015, "Yelp Gets A 4.5 Star Rating", *Seeking Alpha*
11. 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>
12. Feb 26 2015, "Yelp as Prophet", *Biz Ed*
13. Dec 23 2014, "Online reviews help predict restaurant success", *Baltimore Daily Record*
14. 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>
15. Dec 16, 2014 *InTheCapital* <http://inthecapital.streetwise.co/2014/12/16/dc-restaurant-closings-predicted-by-yelp-reviews/>
16. Dec 16, 2014, *Eater.com* - <http://www.eater.com/2014/12/16/7405117/can-yelp-reviews-predict-restaurant-shutters>



17. Mar 2014, "Do Regulators Listen to Public? Study Says Yes", *The Wall Street Journal, Compliance Building*
18. 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/)
19. Jan 2014, "Academic devise formula to gauge how well U.S. regulators listen", *Reuters, Chicago Tribune*

### **Teaching**

1. Aug 6, 2018, "Data Science in MBA Programs: Rosy Job Prospects", find-mba.com, <https://find-mba.com/articles/data-science-in-mba-programs-rosy-job-prospects>
2. Feb 17, 2016, "Business Analytics Master's Growth Gathers Pace As Big Data Demand Outstrips Supply", Business Because
3. Jan 19 2016, "Cornell To Launch Big Data-Focused MBA Program Featuring Twitter, Yahoo, Amazon", Business Because