SHAWN MANKAD

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PERSONAL INFORMATION

Educational Background

University of Michigan
- Ph.D., Statistics, 2008 - 2013
- M.A., Statistics, 2008 - 2012

Carnegie Mellon University
- B.S., Mathematics, 2004 - 2008

Academic and Professional Appointments

North Carolina State University, Poole College of Management
- Associate Professor of Analytics (with tenure), 2024 – Present
  - Faculty in Operations Research
  - Affiliate Faculty in AI in Society
  - Affiliate Faculty in Wolfwebs (NCSU Network Analysis)
- Assistant Professor of Analytics, 2022 – 2024

Federal Reserve Bank of Philadelphia
- Visiting Scholar, September 2021 – December 2021

Cornell University, Johnson Graduate School of Management
- Assistant Professor of Operations, Technology and Information Management, Samuel Curtis Johnson Graduate School of Management, 2015 – 2023
  - Graduate Field Member in Statistics, Applied Economics and Management
  - Clifford H. Whitcomb Faculty Fellow, 2020-2021

University of Maryland, Robert H. Smith School of Business
- Assistant Professor of Business Analytics, 2013 – 2015
  - Affiliate Faculty of Applied Mathematics and Scientific Computation, University of Maryland, 2014 – 2015

RESEARCH ACTIVITIES

Publications
Note: 8 peer reviewed, FT-50 journal publications are **boldfaced**. Total Google Scholar Citation Count = 921. Each hyperlink (shown in blue) will navigate to the article.

Operations Management and Information Systems

1. Andrew M. Davis, Shawn Mankad, Charles Corbett, and Elena Katok, "OM Forum—The Best of Both Worlds: Machine Learning and Behavioral Science in Operations Management", *Manufacturing & Service Operations Management*, 26(5) (2024).

2. Miloš Fišar, Ben Greiner, Christoph Huber, Elena Katok, Ali Ozkes, and the Management Science Reproducibility Collaboration. "Reproducibility in Management Science", *Management Science, 0(0)* (2023).
   > **Note:** This paper has many coauthors because it was a crowd-sourced research effort. My contribution was participating as a member of the Management Science Reproducibility Collaboration.

3. Qiuping Yu, Shawn Mankad, and Masha Shunko, "Evidence of the Unintended Scheduling Implications of Minimum Wage", *Manufacturing & Service Operations Management* 25(5):1947-1965 (2023).
   - Qiuping Yu, Shawn Mankad, and Masha Shunko, "When a Higher Minimum Wage Leads to Lower Compensation", *Harvard Business Review* (digital article) (2021).
   - Qiuping Yu, Shawn Mankad, and Masha Shunko, "Evidence of the Unintended Labor Scheduling Implications of the Minimum Wage", *Cato Research Briefs in Economic Policy*, no. 296 (2022).

4. Jorge Mejia, Shawn Mankad, and Anandasivam Gopal, "Service Quality Using Text Mining: Measurement and Consequences", *Manufacturing & Service Operations Management* 23, (6): 1354-1372 (2021).

5. Jorge Mejia, Shawn Mankad, and Anandasivam Gopal, "A for Effort? Using the Crowd to Identify Moral Hazard in NYC Restaurant Hygiene Inspections" *Information Systems Research*, 30:4, 1363-1386 (2019)

6. Shawn Mankad, Hyun Jeong Han, Joel Goh, and Srinagesh Gavirneni, "Understanding Online Hotel Reviews through Automated Text Analysis", *Service Science* 8.2, 124-138 (2016).

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

Finance

8. Albert J. Menkveld, Anna Dreber, Felix Holzmeister, Juergen Huber, Magnus Johannesson, Michael Kirchler, Sabastian Neususs, Michael Razen, Utz Weitzel, …, Shawn Mankad, "Non-Standard Errors". *Journal of Finance*, 79(3) (2024).
   > Note: This paper has many coauthors. My contribution was participating as a member of a research team for the large-scale experiments central to the paper.

9. Celso Brunetti, Jeffrey H. Harris, and Shawn Mankad, "Networks, Interconnectedness, and Interbank Information Asymmetry", *Journal of Financial Stability*, Volume 67, 101163 (2023).

10. Celso Brunetti, Jeffrey H. Harris, and Shawn Mankad, "The Urgency to Borrow in the Interbank Market", *Economic Letters*, 221:110900 (2022).

11. Celso Brunetti, Jeffrey H. Harris, and Shawn Mankad, "Sidedness in the Interbank Market", *Journal of Financial Markets*, 100663 (2021).
12. Celso Brunetti, Jeffrey H. Harris, Shawn Mankad, and George Michailidis, "Interconnectedness in the Interbank Market", **Journal of Financial Economics***, 133(2), 520-538 (2019).
13. Shawn Mankad, George Michailidis and Andrei Kirilenko, "On the Formation of Dodd-Frank Act Derivatives Regulations", *PLoS One*, 14(3), p.e0213730 (2019).
14. Shawn Mankad, George Michailidis and Andrei Kirilenko, "Discovering the Ecosystem of an Electronic Financial Market with a Dynamic Machine-Learning Method"*, Algorithmic Finance*, 2:2, 151-165 (2013).

Statistics and Data Science

15. Li Chen and Shawn Mankad, "A Structural Topic and Sentiment-Discourse Model for Text Analysis", **Management Science** (forthcoming).
    > Note: An R package accompanying the paper was published to CRAN, the official R library repository: https://cran.r-project.org/web/packages/sts/index.html.
    > A vignette entitled "Unpacking sts: An R package for structural topic and sentiment-discourse models" is available here: https://cran.r-project.org/web/packages/sts/vignettes/vignette.pdf
16. Cameron Bale, Monika Hu, Shawn Mankad, and Matthew Schneider, "Protecting the Anonymity of Online Users Using Prior Distributions on their Textual Content", *Expert Systems with Applications*, *216:119409,* (2023).
17. Desheng Ma and Shawn Mankad, "CP-Squared: A Method for Change-Point Detection in Core-Periphery Networks", *Expert Systems with Applications*, 196:116660 (2022).
18. Samaneh Ebrahimi, Mostafa Reisi, Shawn Mankad, and Kamran Paynabar, "Monitoring Sparse and Attributed Networks with Online Hurdle Models", *IISE Transactions* (formerly *IIE Transactions*), Vol. 54(1), 91-104 (2021).
19. Matthew Schneider and Shawn Mankad, "A Two-Stage Authorship Attribution Method using Text and Structured Data for De-Anonymizing User Generated Content", *Customer Needs and Solutions*, 1-18 (2021).
20. Yuan Cheng and Shawn Mankad, "An Online Semi-NMF Algorithm for Soft-Clustering of Financial Institutions", *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop* (2019).
21. Shawn Mankad, Shengli Hu, and Anandasivam Gopal, "Single Stage Prediction with Online Reviews for Mobile App Development and Management", *The Annals of Applied Statistics*, Vol. 12(4), 2279-2311, 2018.
22. Shawn Mankad, Celso Brunetti, and Jeffrey H. Harris, "Balance Sheet Driven Probability Factorization for Inferring Bank Holdings: Extended Abstract", *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop* (2017).
23. Donggeng Xia, Shawn Mankad, and George Michailidis, "Measuring Influence in Twitter Ecosystems using a Counting Process Modeling Framework"*, Technometrics*, Vol. 58(3), 360-370 (2016).
24. Shawn Mankad and George Michailidis, "Analysis of Multiview Legislative Networks with Structured Matrix Factorization: Does Twitter Influence Translate to the Real World?", *The Annals of Applied Statistics* Vol. 9(4), 1950-1972 (2015).

25. Runlong Tang, Moulinath Banerjee, George Michailidis, and Shawn Mankad, "Two-Stage Plans for Estimating the Inverse of a Monotone Function", *Technometrics*, Vol. 57, Iss. 3 (2015).

26. Shawn Mankad, George Michailidis, and Moulinath Banerjee, "Threshold Value Estimation Using Adaptive Two-Stage Plans in R", *Journal of Statistical Software*, 67(3), 1 – 19 (2015).

27. Shawn Mankad and George Michailidis, "Biclustering Three-Dimensional Data Arrays with Plaid Models", *Journal of Computational and Graphical Statistics*, Vol. 23, Iss. 4 (2014).

28. Shawn Mankad, George Michailidis, and Celso Brunetti, "Visual Analytics for Network- Based Market Surveillance", *Proceedings of the SIGMOD Data Science for Macro Modeling Workshop* (2014).

29. Shawn Mankad and George Michailidis, "Discovery of Path-Important Nodes using Structured Semi-Nonnegative Matrix Factorization", *IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, 288-291 (2013).

30. Shawn Mankad and George Michailidis, "Structural and functional discovery in dynamic networks with non-negative matrix factorization", *Physical Review E*, 88(4), 042812 (2013).

Computational Biology and Medicine

31. Keith Baker, Bishr Haydar, and Shawn Mankad, "A Feedback and Evaluation System that Provokes Minimal Retaliation by Trainees", *Anesthesiology*, 126:327-337 (2017).

32. Marino, Simeone, Hannah P. Gideon, Chang Gong, Shawn Mankad, John T. McCrone, Philana Ling Lin, Jennifer J. Linderman, JoAnne L. Flynn, and Denise E. Kirschner, "Computational and Empirical Studies Predict Mycobacterium tuberculosis-Specific T Cells as a Biomarker for Infection Outcome", *PLoS Comput Biol* 12(4): e1004804 (2016).

Patents

1. "Identification and personalized protection of text data using Shapley values", U.S. Patent 11,983,497 (2024), Inventors: Matthew Schneider, Shawn Mankad; Applicants: Cornell University and Drexel University

Selected Working Papers

1. Shawn Mankad, Masha Shunko, and Qiuping Yu, "Too Close for Comfort? Understanding Peer Effects in Large Franchised Networks", Revising for invited 2nd round at ***Production and Operations Management***.

2. Babak Ahamadi, Mostafa Reisi Gahrooei, and Shawn Mankad, "Change Detection in Dynamic Multilayer Networks", Under review at *IISE Transactions*

3. Shawn Mankad and William Schmidt, "Research Note: Overcoming Media Reporting Bias in Event Studies with a Modified Heckman Correction", Under review.

4. Shawn Mankad, Celso Brunetti, and Jeffrey H. Harris , "Assessing Undiversified and Contagions Risks in the Banking Sector", Preparing to submit.

5. Desheng Ma and Shawn Mankad, "SMRT: A Structural Model of Latent Ratings and Topics in Text", Preparing for submission.

External Funding and Research Grants

- GRIP-EAO: Social Vulnerability, Capacity, and Economic Outcomes in North Carolina Minority Populations, Co-PI, $99,900, 2024 - 2026
- NSF BIGDATA: Too Interconnected to Fail? Network Analytics on Complex Economic Data Streams for Monitoring Financial Stability, PI, $525,247, 2016 – 2021
- Wharton Customer Analytics Initiative Data Grant, 2015
- Wharton Customer Analytics Initiative Data Grant, 2014

Research Awards

- 2024 Department Research Leadership Award
- Finalist for the Best Paper Award at the 2022 INFORMS Workshop on Data Mining and Decision Analytics
- CDO Magazine's 2021 List of Leading Academic Data Leaders
- Cornell Center for Hospitality Research Industry Relevance Award, 2017
- Cornell University Half-Century Faculty Research Fellowship, 2016 – 2018
- 1st Place Award in Student Research Competition, Midwest Statistics Research Colloquium, 2012

Advising

Graduate -- Doctoral

- Zhen Chen (Statistics; 5th year student), North Carolina State University, Committee Member
- Yuan Cheng (Management: Operations, Technology, and Information Management; Graduated Fall 2024), Cornell University, Committee Chair
- Anugna Reddy (Management: Operations, Technology, and Information Management), Cornell University, Graduated Summer 2024, Committee Member, Assistant Professor at Lewis University
- Piyush Anand (Management: Marketing), Cornell University, Graduated Spring 2021, Committee Member, Assistant Professor at Rice University
- 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

Graduate -- 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 ACTIVITIES

Courses Taught

North Carolina State University
- BUS-351, Introduction to Business Analytics
    - Evaluation Fall 2024: Instructor = 4.9/5; Course = 4.7/5
    - Evaluation Fall 2023: Instructor = 5.0/5; Course = 4.8/5
    - Evaluation Fall 2022: Instructor = 4.8/5; Course = 4.6/5
- MBA-590-627, Machine Learning Methods in Business
    - Evaluation Fall 2023: Instructor = 5.0/5; Course = 4.8/5
    - Evaluation Fall 2022: Instructor = 4.9/5; Course = 4.9/5
- MBA-590-639, Business Analysis with SQL
    - Evaluation Spring 2024: Instructor = 4.8/5; Course = 4.7/5
    - Evaluation Spring 2023: Instructor = 4.8/5; Course = 4.8/5

Cornell University
- NBA-6920, Machine Learning Applications in Business
    - Evaluation Spring 2022: Instructor = 4.48/5; Course = 4.23/5
    - Evaluation Spring 2021: Instructor = 4.64/5; Course = 4.51/5
    - Evaluation Spring 2020: Instructor = 4.69/5; Course = 4.63/5
- NBA-6550, Business Data Analysis with SQL
    - Evaluation Spring 2022: Instructor = 4.69/5; Course = 4.48/5
    - Evaluation Spring 2021: Instructor = 4.65/5; Course = 4.40/5
    - Evaluation Spring 2020: Instructor = 4.61/5; Course = 4.43/5
- NBA-6550Y, Business Data Analysis with SQL (Summer Session)
    - Evaluation Summer 2022:
      Instructor = 4.94/5; Course = 4.88/5
      Instructor = 4.86/5; Course = 4.71/5
      Instructor = 4.50/5; Course = 4.50/5
      Instructor = 5.00/5; Course = 5.00/5

Evaluation Summer 2021: Instructor = 4.85/5; Course = 4.80/5
- o Evaluation Summer 2019: Instructor = 4.82/5; Course = 4.72/5
- NBA-6480, Digital Technology Practicum
  - o Evaluation Spring 2022: Instructor = 4.55/5; Course = 3.92/5
  - o Evaluation Spring 2021: Instructor = 4.72/5, 4.75/5; Course = 4.04/5, 4.38/5
  - o Evaluation Spring 2020: Instructor = 4.46/5; Course = 3.89/5

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

Program Development

North Carolina State University
- Faculty Lead of the Business Analytics Concentration, 2024 – present
- Created new courses for the MBA program:
  - o MBA-590-627 (Machine Learning Methods in Business)
  - o MBA-590-639 (Business Analysis with SQL)

Cornell University
- Faculty Lead of the Digital Technology Immersion, 2015 – 2022
- Faculty advisor for the [Cornell Quant Club](), 2020 - 2022
- Faculty advisor for the Cornell FinTech Club, 2021 - 2022
- Created new courses for the MBA program:
  - o NBA-6920 (Machine Learning Applications in Business)
  - o NBA-6550 (Business Data Analysis with SQL)
  - o NBA-6480 (Digital Technology Practicum)

University of Maryland
- Created new course for the undergraduate program:
  - o BMGT 431 (Data Analytics)

Teaching Awards

- Distinguished Teaching Award, 2015 (awarded to faculty in the top 15% of evaluation scores)
- Graduate Student Instructor Excellence in Teaching Award for an undergraduate Data Mining course, 2011

SERVICE AND OUTREACH

Editorial Boards and Reviewing Activities

Editorial Boards for Journals

- Guest Senior Editor for *Production and Operations Management* (2024)
- Associate Editor for *Data Science in Science* (2022-Present)
- Editorial Advisory Board (2018-2021) for *Expert Systems with Applications*

Ad-hoc Reviewing Activities for Journals

Management Journals:

- Management Science, Manufacturing and Service Operations Management, Operations Research, Production and Operations Management, Information Systems Research, Management Information System Quarterly, European Journal of Information Systems, Journal of Financial Stability, Journal of Money, Credit & Banking, Mathematics and Financial Economics, Journal of Multinational Financial Management

Statistics and Data Science Journals:

- Journal of the American Statistical Association, Journal of Computational and Graphical Statistics, IISE Transactions, The American Statistician, Applied Stochastic Models in Business and Industry, Journal of Statistical Software, Journal of Applied Statistics, The Electronic Journal of Statistics, INFORMS Journal on Computing, Expert Systems with Applications, Social Network Analysis and Mining, Artificial Intelligence Review

Reviewing Activities for Conferences

- INFORMS Workshop on Data Science, 2020, 2019, 2018
- 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

Service Awards

- 2022 M&SOM Meritorious Service Award

Leadership Roles in Meetings and Conferences

- Member of Program Committee, Federal Reserve Board Conference on The Interconnectedness of Financial Systems, 2023, 2021, 2019
- Conference Co-Chair, INFORMS Workshop on Data Science, 2021
- Associate Editor, International Conference on Information Systems 2020, 2018, 2017, 2016
- Member of Program Committee, INFORMS Workshop on Data Science, 2020, 2019, 2018, 2017
- Member of the Organizing Committee, Symposium on Data Science and Statistics, 2018
- Panelist for Academic Job Search Panel at INFORMS 2018

- Invited Member of the 3rd 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
- Member of the Program Committee, SIGMOD Workshop – Data Science for Macro-Modeling, 2016, 2014
- Member of the Program Committee, Interface (Statistics Symposium), 2015
- Session Organizer and Chair, INFORMS annual meeting, 2016, 2014
- Secretary, Treasurer of the Data Mining Section of INFORMS, 2013 – 2015

Campus Service

North Carolina State University
- Faculty Search Committee, Spring 2025
- Faculty Search Committee, Fall 2024
- Departmental Post-Tenure Review Committee, 2024 - Present
- Analytics Curriculum Committee, 2024 - Present
- BSBA Curriculum Committee, 2023 - Present
- Poole College of Management Leadership Survey Committee, 2023-2024
- Conducted information sessions for the Poole Preview Weekend (admissions event), Spring 2023
- Coauthored proposal to create the Business Analytics undergraduate concentration, 2023

Cornell University
- Cornell University Reappointment Review Committee, 2017- 2018

University of Maryland
- University of Maryland Member of Research Computing Committee, 2014 – 2015
- University of Maryland Research Computing Infrastructure Survey Team, 2014

Community Service
- Member of Finance Committee, Follow the Child Montessori School, Raleigh, NC, 2024 - Present

Selected Media Coverage

Research

1. June 23, 2021, "[A Higher Minimum Wage Can Lead Employers to Lower Compensation]()", *Bloomberg*
2. June 22, 2021, "[More Hidden Costs in the Fight for $15]()", *The Wall Street Journal*
3. Feb 22, 2019, "[A Breakthrough Is Claimed in Systemic Risk Monitoring]()", *GARP Risk Intelligence*
4. Dec 6, 2018, "Restaurant Hygiene, Risky Business Systems", https://research.cornell.edu/news-features/restaurant-hygiene-risky-business-systems
5. 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

6. Sept 12, 2018, "Fed study proposes method for tracking banks' systemic risks more often", MLex Insight

7. July 11, 2018, "Bank network shifts signaled financial crisis -- and may prevent another", EurekAlert!, https://eurekalert.org/pub_releases/2018-07/cu-bns071018.php

8. 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/

9. 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

10. Feb 12, 2016, "Text Analytics Reveal the Impact of Guest Sentiment on Hotel Review Scores", *HospitalityNet*

11. Feb 11 2016, "What Guests Really Think of Your Hotel: Text Analytics of Online Customer Reviews", *Hotel News Resource*

12. Nov 8, 2015, "Yelp Gets A 4.5 Star Rating", *Seeking Alpha*

13. 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

14. Feb 26 2015, "Yelp as Prophet", *Biz Ed*

15. Dec 23 2014, "Online reviews help predict restaurant success", *Baltimore Daily Record*

16. 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

17. Dec 16, 2014 *InTheCapital* http://inthecapital.streetwise.co/2014/12/16/dc-restaurant-closings-predicted-by-yelp-reviews/

18. Dec 16, 2014, *Eater.com* - http://www.eater.com/2014/12/16/7405117/can-yelp-reviews-predict-restaurant-shutters

19. Mar 2014, "Do Regulators Listen to Public? Study Says Yes", *The Wall Street Journal, Compliance Building*

20. 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/

21. 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*