

# ALLISON JUNE BARLOW CHANEY

---

ajb.chaney@duke.edu  
(919) 660-7914

**Research Interests** Develop and use statistical machine learning methods to identify influences on consumer behavior, understand the impact of deployed machine learning methods in real-world markets, and leverage these and other insights to improve the machine learning methods used in industry to increase companies' objectives, individual well-being, and societal welfare.

**Keywords:** Machine learning, Bayesian statistics, computational social science, text analysis (topic models), recommendation systems, fairness/accountability/transparency/ethics in machine learning, causality, visualization.

**Education** **Princeton University**, Ph.D. Computer Science 2016  
**Swarthmore College**, B.A. Computer Science and B.S. Engineering 2008

**Experience** **Assistant Professor**, Duke University  
Primary: Marketing Area, Fuqua School of Business 2019 – Present  
Secondary: Computer Science 2021 – Present

**Visiting Scholar**, Fuqua School of Business, Duke University 2018 – 2019

**IC Postdoctoral Research Fellow**, Princeton University 2017 – 2019

**Postdoctoral Research Associate**, Princeton University 2016 – 2017

**Research Assistant & Assistant Instructor**, Princeton University 2010 – 2016  
Taught: Interacting with Data (COS424), Intro. to Computer Science (COS126)  
Research internships at Microsoft Research (2013) and eBay/Hunch (2012)

**Software Engineer**, Yorba Foundation 2009 – 2010

**Technical Director Resident**, Pixar Animation Studios 2008 – 2009

**Publications** *Refereed Journal Articles*

L. Hagen, K. Uetake, N. Yang, B. Bollinger, A. Chaney, D. Dzyabura, J. Etkin, A. Goldfarb, L. Liu, K. Sudhir, Y. Wang, J. Wright, Y. Zhu. **How can machine learning aid behavioral marketing research?** Marketing Letters, 2020.

*Refereed Conference Articles*

A. Chaney, B. Stewart, B. Engelhardt. **How Algorithmic Confounding in Recommendation Systems Increases Homogeneity and Decreases Utility.** RecSys, 2018. (arXiv:1710.11214, 2017.)

A. Chaney, H. Wallach, M. Connelly, and D. Blei. **Detecting and Characterizing Events.** EMNLP, 2016.

A. Chaney, D. Blei, and T. Eliassi-Rad. **A Probabilistic Model for Using Social Networks in Personalized Item Recommendation**. RecSys, 2015.

A. Chaney, M. Gartrell, J. Hofman, J. Guiver, N. Koenigstein, P. Kohli, and U. Paquet. **A Large-scale Exploration of Group Viewing Patterns**. TVX, 2014. (Honorable Mention Award, best paper runner-up)

A. Chaney and D. Blei. **Visualizing topic models**. International AAAI Conference on Social Media and Weblogs, 2012.

#### *Workshop and Other Papers*

A. Chaney, A. Verma, Y. Lee, B. Engelhardt. **Nonparametric Deconvolution Models**. arXiv:2003.07718, 2020.

A. Chaney, Y. Shiraito, and B. Stewart. **The Power of Aggregation for Topic Models Used For Measurement**. Text as Data, 2017.

A. Chaney, H. Wallach, and D. Blei. **Who, What, When, Where, and Why? A Computational Approach to Understanding Historical Events Using State Department Cables**. Text as Data, 2015.

A. Chaney, K. Dinakar, H. Lieberman, and D. Blei. **Real-time Topic Models for Crisis Counseling**. KDD Workshop: Data Science for Social Good, 2014.

A. Chaney, P. Gopalan, and D. Blei. **Poisson Trust Factorization for Incorporating Social Networks into Personalized Item Recommendation**. NIPS Workshop: What Difference Does Personalization Make?, 2013.

A. Chaney, M. Gartrell, J. Hofman, J. Guiver, N. Koenigstein, P. Kohli, and U. Paquet. **Mining Large-scale TV Group Viewing Patterns for Group Recommendation**. Microsoft Tech Report, 2013.

**Honors & Awards**    **IC Postdoctoral Research Fellowship**, 2017–2019.

**Rising Stars in EECS**, invited participant, 2016.

**Invited Talks**    **How Recommendation System Feedback Loops Disproportionately Hurt Users with Minority Preferences**

Netflix, Workshop on Personalization, Recommendation and Search\*, 2021.

University of Chicago, Booth Marketing Workshop\*, 2021.

Facebook, Responsible Recommender Systems Workshop\*, 2021.

New York University, Data Science Lunch Seminar Series\*, 2021.

Duke University, Computer Science Colloquium\*, 2020.

NC State University, Marketing Seminar Series\*, 2020.

Virtual Quant Marketing Seminar (VQMS)\*, 2020.

#### **Nonparametric Deconvolution Models**

StitchFix Algo Hour\*, 2020.

\* Indicates activities performed virtually due to COVID-19.

UNC Biostatistics Seminar\*, 2020.

Neural Information Processing Systems Bayesian Nonparametrics Workshop, 2018.

**Introduction to Machine Learning: What You Need to Know to Conduct and Interpret Research with ML**

American Marketing Association Summer Academic Conference, Master Class Session, 2019.

**How Algorithmic Confounding in Recommendation Systems Increases Homogeneity and Decreases Utility**

Joint Statistical Meetings, Section on Statistics in Marketing (Invited Session), 2019.

11th Triennial Invitational Choice Symposium, 2019.

**The Social Side of Recommendation Systems: How Groups Shape Our Decisions**

Duke University, Fuqua School of Business, Marketing Seminar, 2018.

Washington University in St. Louis, Computer Science Colloquium, 2018.

Tufts University, Computer Science Colloquium, 2018.

Yale University, School of Management, Marketing Seminar, 2018.

Harvey Mudd College, Mathematics Colloquium, 2018.

University of Massachusetts Amherst, Computer Science Colloquium, 2018.

Wesleyan University, Computer Science Colloquium, 2018.

**Detecting and Characterizing Events**

Colby College, Computer Science Colloquium, 2017.

Brown University, Computer Science Colloquium, 2017.

Dartmouth College, Computer Science Colloquium, 2017.

Princeton University, Quantitative Social Science Colloquium, 2016.

Rutgers University, Computer Science Colloquium, 2015.

**Social Poisson Factorization**

Cornell University, Artificial Intelligence Seminar (CS 7790), 2016.

Brigham Young University, Computer Science Colloquium, 2015.

**Contributed Talks**

Marketing Science, 2020.

Princeton CITP Luncheon Speaker Series, 2019.

IC Academic Research Symposium, 2018.

ACM Recommender Systems Conference, 2018.

Text as Data, 2017.

Conference on Empirical Methods in Natural Language Processing, 2016.

ACM Recommender Systems Conference, 2015.

Text as Data, 2015.

**Professional Activities**

**Teaching**

Duke/Fuqua PhD: Quantitative Marketing Seminar\* (with Tong Guo)

Spring 2021

Duke/Fuqua MMS: Fundamentals of Market Research\*

Spring 2021

Duke/Fuqua MQM: Market Intelligence\*

Spring 2021

Duke/Fuqua MMS: Fundamentals of Market Research

Spring 2020

Duke/Fuqua MQM: Market Intelligence

Fall 2019

\* Indicates activities performed virtually due to COVID-19.

## Women in Machine Learning

Advisory Council	April 2019 – Present
Vice President, Research & Policy	April 2016 – March 2019
Board of Directors Member	January 2016 – March 2019
Workshop Organizer / Program Chair	2014

## Duke University Service

Media Briefing Panel on Polarization	March 2020
Ethical Technology video series interview	March 2020
Fuqua LinkedIn Live Discussion: <i>Is Personalization in Our Media Consumption Polarizing Us?</i>	August 2020
Marketing Seminar Co-organizer	2019 – Present

## Workshop Organizer

Workshop on Simulation Methods for Recommender Systems (SimuRec at RecSys)	2021
1st Workshop on Multi-Objective Recommender Systems(MORS at RecSys)	2021
Women In Machine Learning	2014

## Guest Lecturer:

Duke University / Fuqua, MQM Management 545Q: Ethical & Legal Issues of Data Analytics 1/29/2021 Case Study: Algorithmic Confounding in Recommendation Systems*	
Princeton University, COS513: Foundations of Probabilistic Modeling 11/29/2017 Black Box Variational Inference	
10/16/2017 Hidden Markov Models	
Colby College, CS 151: Computational Thinking: Visual Media 11/17/2017 Recursion	
Princeton University, COS424: Fundamentals of Machine Learning 3/30/2017 Gaussian Mixture Models	

**Journal Reviewer:** Management Science (2020–2021); Journal of Machine Learning Research (2020); Proceedings of the National Academy of Sciences (2018); Transactions on Knowledge and Data Engineering (2016–2017); Information Systems (2017-2018); Data Mining and Knowledge Discovery (2017); Marketing Science (2014–2016); Transactions on Knowledge Discovery from Data (2016); Operations Research (2015); Transactions on Interactive Intelligent Systems (2015)

**Conference Reviewer:** ICML (2015–2018, 2020); NeurIPS [formerly NIPS] (2015, 2017–2020); WWW (2018); IC2S2 (2017); ICWSM (2015, 2016, 2018); AISTATS (2016), RecSys (2019–2020)

**Workshop Reviewer:** WiML (2016, 2017, 2019 Area Chair; 2014 Reviewer); NIPS Advances in Approximate Bayesian Inference (2015–2017); NIPS Topic Models (2013); Mid-Atlantic Student Colloquium on Speech, Language and Learning (2011)

## Research Mentor:

Siddharth Prusty, Ph.D. student, Business Admin. (Marketing), Duke / Fuqua	2020–Present
Ji Young Huh, Ph.D. student, Business Admin. (Marketing), Duke / Fuqua	2019–Present
Allen Lin, Master's student, Computer Science, Duke	2020-2021
Ezinne Nwankwo, Ph.D. student, Statistical Science, Duke	2020
Xiaonan Hong, Master's student, Economics & Computation, Duke	2019–2020

\* Indicates activities performed virtually due to COVID-19.

Vanessa Alwan, Master's student, Economics & Computation, Duke	2019–2020
Boya Xu, Ph.D. student, Business Admin. (Marketing), Duke / Fuqua	2019
Seo Young Kyung, Master's student, Computer Science, Princeton	2018–2019
Thomas Schaffner, Master's student, Computer Science, Princeton	2017–2018
Archit Verma, Ph.D. student, Chemical and Biological Engineering, Princeton	2016–2019
Bhavdeep Sethi, Master's student, Computer Science, Columbia	2015

**Technical &  
Other Skills**

**Programming Languages:** Python, R, C/C++, Bash, SQL, CSS/HTML, Java, Javascript

**Misc:** LaTeX, Git, SVN, Inkscape, GIMP

**Languages:** English Fluency, Conversational Spanish