Allison June Barlow Chaney

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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, Fuqua School of Business, Duke University 2019 – 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

In Preparation

A. Chaney, A. Verma, Y. Lee, and B. Engelhardt. **Nonparametric Deconvolution Models**.

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, 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

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.

Nonparametric Deconvolution Models
Neural Information Processing Systems Bayesian Nonparametrics Workshop, 2018.

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

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

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

Guest Lecturer:
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: PNAS (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, 2017–2019); WWW (2018); IC2S2 (2017); ICWSM (2015, 2016, 2018); AISTATS (2016), RecSys (2019)

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:

Ji Young Huh, Ph.D. student, Business Admin. (Marketing), Duke / Fuqua	2019–Present
Vanessa Alwan, Master's student, Economics, Duke	2019–Present
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, Masters 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