

ALLISON KOENECKE

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RESEARCH AREAS

Computational Social Science, Algorithmic Fairness, Causal Inference, Public Health

EMPLOYMENT

Cornell University Assistant Professor, Department of Information Science	<i>Ithaca, NY</i> Jul 2022 - Present
Microsoft Research New England Postdoctoral Researcher, Machine Learning and Statistics Group	<i>Cambridge, MA</i> Jul 2021 - Jun 2022
Google Quantitative Analyst Intern, Economics Team	<i>Mountain View, CA</i> Jun - Sep 2019
Microsoft Data Scientist Intern, Artificial Intelligence & Research Group	<i>Sunnyvale, CA</i> Jun 2018 - Jan 2019
Google Quantitative Analyst Intern, Economics Team	<i>San Francisco, CA</i> Jun - Sep 2017
Facebook Data Science Intern, Events Team	<i>Menlo Park, CA</i> Jun - Aug 2016
NERA Economic Consulting Associate Analyst, Antitrust & Competition Group Research Assistant, Antitrust & Competition Group Intern, Antitrust & Competition Group	<i>New York, NY</i> Jun 2015 - Mar 2016 Jun 2014 - Jun 2015 Jan 2013; Jun - Aug 2013

EDUCATION

Stanford University Ph.D., Institute for Computational & Mathematical Engineering M.S., Institute for Computational & Mathematical Engineering <i>Reading Committee:</i> Susan Athey, Sharad Goel, and Hal Varian <i>Funding:</i> NSF Graduate Research Fellowships Program	<i>Stanford, CA</i> Sep 2016 - Jun 2021 Sep 2020 - Jun 2021
Massachusetts Institute of Technology S.B., Mathematics with Computer Science Minor, Economics	<i>Cambridge, MA</i> Sep 2010 - Jun 2014

PUBLICATIONS

- Zamfirescu-Pereira, JD, Jerry Chen, Emily Wen, **Allison Koenecke**, Nikhil Garg, Emma Pierson. 2022. *“Trucks Don’t Mean Trump: Diagnosing Human Error in Image Analysis.”* FAccT. <https://arxiv.org/pdf/2205.07333.pdf>.
- Koenecke, Allison**, Michael Powell, Ruoxuan Xiong, Zhu Shen, Nicole Fischer, Sakibul Huq, Adham M. Khalafallah, et al. 2021. *“Alpha-1 Adrenergic Receptor Antagonists to Prevent Acute Respiratory Distress Syndrome and Death from Cytokine Storm Syndrome.”* eLife. <https://elifesciences.org/articles/61700>.

→ Media coverage: *New York Times, Forbes, WebMD, Howard Hughes Medical Institute News*

3. Powell, Michael, **Allison Koenecke**, James Brian Byrd, Akihiko Nishimura, Maximilian F. Konig, Ruoxuan Xiong, Sadiqa Mahmood, et al. 2021. “*Ten Rules for Conducting Retrospective Pharmacoepidemiological Analyses: Example COVID-19 Study.*” *Frontiers in Pharmacology*. <https://www.frontiersin.org/articles/10.3389/fphar.2021.700776/full>.
4. Rose, Liam, Laura A. Graham, **Allison Koenecke**, Michael Powell, Ruoxuan Xiong, Zhu Shen, Kenneth W. Kinzler, et al. 2021. “*The Association Between Alpha-1 Adrenergic Receptor Antagonists and In-Hospital Mortality from COVID-19.*” *Frontiers in Medicine* 8: 304. <https://doi.org/10.3389/fmed.2021.637647>.
5. **Koenecke, Allison**, Andrew Nam, Emily Lake, Joe Nudell, Minnie Quartey, Zion Mengesha, Connor Toups, John R. Rickford, Dan Jurafsky, and Sharad Goel. 2020. “*Racial Disparities in Automated Speech Recognition.*” *Proceedings of the National Academy of Sciences* 117 (14): 7684–89. <https://doi.org/10.1073/pnas.1915768117>.
 - *Media coverage: New York Times, Scientific American, Business Insider, The Verge, Ars Technica, Stanford News, VentureBeat, etc.*
 - *Interactive website: fairspeech.stanford.edu*
6. **Koenecke, Allison** and Jordi Feliu-Fabà. 2020. “*Learning Twitter User Sentiments on Climate Change with Limited Labeled Data.*” In *Workshop Proceedings of the 14th International AAI Conference on Web and Social Media. ICWSM SocialSens*. <http://doi.org/10.36190/2020.22>.
7. Konig, Maximilian F., Mike Powell, Verena Staedtke, Ren-Yuan Bai, David L. Thomas, Nicole Fischer, Sakibul Huq, et al. 2020. “*Preventing Cytokine Storm Syndrome in COVID-19 Using $\alpha - 1$ Adrenergic Receptor Antagonists.*” *Journal of Clinical Investigation* 130 (7): 3345–47. <https://doi.org/10.1172/JCI139642>.
8. **Koenecke, Allison** and Amita Gajewar. 2020. “*Curriculum Learning in Deep Neural Networks for Financial Forecasting.*” In *Mining Data for Financial Applications*, edited by Valerio Bitetta, Ilaria Bordino, Andrea Ferretti, Francesco Gullo, Stefano Pascolutti, and Giovanni Ponti, 11985:16–31. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-37720-5_2.
9. **Koenecke, Allison**. 2019. “*A Game Theoretic Setting of Capitation versus Fee-for-Service Payment Systems.*” Edited by Baogui Xin. *PLOS ONE* 14 (10): e0223672. <https://doi.org/10.1371/journal.pone.0223672>.

WORKING PAPERS

1. Xiong, Ruoxuan, **Allison Koenecke**, Michael Powell, Zhu Shen, Joshua T. Vogelstein, Susan Athey. “*Federated Causal Inference in Heterogeneous Observational Data.*” Preprint. arXiv. <https://arxiv.org/pdf/2107.11732.pdf>
2. In Preparation: **Koenecke, Allison**, Eric Giannella, Susan Athey, Robb Willer, and Sharad Goel. “*Equitable Advertising as a Trolley Problem.*”
3. In Preparation: Flores, Alana and **Allison Koenecke**. “*The Effect of Firearm Laws on Gun-Inflicted Suicides.*”

WRITTEN TUTORIALS

1. **Koenecke, Allison** and Hal Varian. *Synthetic Data Generation for Economists*. (AEA, 2020).

2. **Koenecke, Allison.** Deep Learning for Time Series Forecasting. (2020).
3. **Koenecke, Allison.** Sequential Pattern Mining in R for Business Recommendations. (2019).

AWARDS

Grants & Fellowships

- LinkedIn-Bowers Award, 2022
- NSF Graduate Fellowship, 2018 - 2021
- Stanford HAI Seed Research Grant, 2020
- Ben Rolfs Memorial Award, 2020
- National Physical Science Consortium Fellowship, 2016 - 2018
- Gene Golub Fellowship, 2016 - Present
- EDGE Doctoral Fellowship, 2016 - Present
- AAUW Selected Professions Fellowship (Declined), 2016
- Ruhr Fellowship, 2012

Honors

- Stanford School of Engineering Justice, Equity, Diversity, and Inclusion (JEDI) Appreciation Award, 2021
- Harvard Kennedy School Belfer Center Tech Spotlight Runner-Up, 2021
- Berkeley EECS Rising Stars, 2020
- Best Paper Award at ECML PKDD Workshop on Mining Data for Financial Applications ("*Curriculum Learning in Deep Neural Networks for Financial Forecasting*"), 2019
- Jane Street Symposium Selected Attendee, 2019
- Microsoft BUILD Conference Selected Attendee, 2018
- ICME Booster Award, 2018
- Math Prize for Girls Alumna Speaker, 2013
- Intel Science Talent Search Semifinalist, 2010
- Siemens Competition Semifinalist, 2010
- USA Math Olympiad Qualifier, 2009

TALKS & PUBLICITY

Selected Presentations

- Toronto Workshop on Reproducibility (Feb 2022)
- MIT Operations Management Seminar (Feb 2022)
- ISCA Symposium on Security and Privacy in Speech Communication (Keynote, Nov 2021)
- Microsoft Research Summit, Causal ML Track (Oct 2021)
- Williams CS Colloquium (Oct 2021)
- Opportunity Insights Lunch Series (Oct 2021)
- Bay Area NLP (Apr 2021)
- Stanford Engineering for All (Apr 2021)
- University of Rhode Island AI Lab (Mar 2021)
- Brown Data Science Institute (Feb 2021)
- Cornell Info Sci Colloquium (Feb 2021)
- USC Marshall Operations Management (Jan 2021)
- Microsoft Research Fairness, Accountability, Transparency, and Ethics in AI (Jan 2021)

- Rutgers School of Communication and Information (Dec 2020)
- Microsoft Speech Team (Dec 2020)
- Notre Dame IT, Analytics, and Operations (Nov 2020)
- University of Michigan School of Information (Nov 2020)
- CodeX: The Stanford Center for Legal Informatics (Nov 2020)
- Berkeley EECS Rising Stars (Nov 2020)
- Google Tensorflow PM Team (Nov 2020)
- Google Economics Team (Nov 2020)
- Stanford Machine Learning Retreat (Nov 2020)
- MIT Dahleh Group (Nov 2020)
- Code for America Data Team Workshop (Oct 2020)
- University of Michigan Blablablab (Jul 2020)
- IC2S2 (Jul 2020)
- ICME Xpo 2020 (Jun 2020)
- ICWSM SocialSens Workshop (Jun 2020)
- Stanford MS&E 190 Guest Lecture (Apr 2020)
- ECML-PKDD MIDAS Workshop (Sep 2019)

Selected Media Appearances

- Law360 (Apr 2022)
- Women in Data Science Podcast (Aug 2021)
- Reuters (Aug 2021)
- IEEE Spectrum (Apr 2021)
- BBC: Free Thinking Podcast (Mar 2021)
- Hot & Sour Soup for the Soul Podcast (Feb 2021)
- New York Times (Mar 2020, Nov 2020)
- PNAS Q&A (Sep 2020)
- Scientific American (Jul 2020)
- 3CR Community Radio (Jun 2020)
- VentureBeat (Mar 2020)
- Business Insider (Mar 2020)
- The Verge (Mar 2020)
- Ars Technica (Mar 2020)
- Stanford News (Feb 2020, Mar 2020)

TEACHING

Cornell

- INFO 2950 (Introduction to Data Science), Fall 2022
- INFO 6960 (Data Science for Global Development), Spring 2023

Other

- University of Michigan SIADS 681 (Health Analytics), Guest Lecturer (May 2022)
- Stanford HISTORY 344F (Innovations in Inclusive Design), Guest Lecturer (Apr 2022)
- Cornell Tech CS 6382 (Data Science for Social Change), Guest Lecturer (Mar 2022)
- Stanford CME 500 (Computational Math in Industry and Beyond Seminar Series), Guest Lecturer (Jan 2022)

- Stanford PWR 2TB (Hip Hop, Orality, and Language Diversity), Guest Lecturer (May 2021)
- Stanford MS&E 190 (Methods and Models for Policy and Strategy Analysis), Guest Lecturer (Apr 2020)
- NERA Onboarding Training (Excel, SAS, VBA, Stata), Associate Analyst (Jul 2015)
- MIT 14.73x (The Challenges of Global Poverty, Profs. Esther Duflo and Abhijit Bannerjee), Teaching Assistant (Jan - Jun 2014)

SERVICE

Mentorship

- Stanford Women in Mathematics, Statistics, and Computational Engineering (Co-Founder & Co-President, Mar 2018 - Jun 2021)
- Stanford Women in Math Mentoring (Mentor, Sep 2017 - Sep 2020)
- Bay Area Graduate Pathways to STEM (Mentor, Sep 2017 - Sep 2018)
- NERA Researcher Roundtable (Committee Member, Feb 2015 - Mar 2016)
- MIT Undergraduate Society of Women in Mathematics (President, active Sep 2011 - Jun 2014)

Reviewing

- **Conferences/Workshops:** EAAMO (Area Chair '22), FAccT (Area Chair '22), CHI, NeurIPS (Ethics Reviewer '22, WHMD Reviewer '21), CLear, ACL-IJCNLP
- **Journals:** Nature Machine Intelligence, Journal of Artificial Intelligence Research, PLOS One, Operations Research for Health Care