ALLISON KOENECKE

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RESEARCH AREAS

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

EMPLOYMENT

Cornell University — *Ithaca, NY*
Assistant Professor, Department of Information Science — Jul 2022 -

Microsoft Research New England — *Cambridge, MA*
Postdoctoral Researcher, Machine Learning and Statistics Group — Jul 2021 - Jun 2022

Google — *Mountain View, CA*
Quantitative Analyst Intern, Economics Team — Jun - Sep 2017; Jun - Sep 2019

Microsoft — *Sunnyvale, CA*
Data Scientist Intern, Artificial Intelligence & Research Group — Jun 2018 - Jan 2019

Facebook — *Menlo Park, CA*
Data Science Intern, Events Team — Jun - Aug 2016

NERA Economic Consulting — *New York, NY*
Associate Analyst, Antitrust & Competition Group — Jun 2015 - Mar 2016
Research Assistant, Antitrust & Competition Group — Jun 2014 - Jun 2015
Intern, Antitrust & Competition Group — Jan 2013; Jun - Aug 2013

EDUCATION

Stanford University — *Stanford, CA*
Ph.D., Institute for Computational & Mathematical Engineering — Sep 2016 - Jun 2021
M.S., Institute for Computational & Mathematical Engineering — Sep 2020 - Jun 2021
Reading Committee: Susan Athey, Sharad Goel, and Hal Varian
Funding: NSF Graduate Research Fellowships Program

Massachusetts Institute of Technology — *Cambridge, MA*
S.B., Mathematics with Computer Science — Sep 2010 - Jun 2014
Minor, Economics

PUBLICATIONS

1. **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*

2. 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.

3. **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`

4. **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 AAAI Conference on Web and Social Media. ICWSM SocialSens. http://doi.org/10.36190/2020.22.

5. 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.

6. **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.

7. **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. Powell, Michael, **Allison Koenecke**, James Brian Byrd, Akihiko Nishimura, Maximilian F. Konig, Ruoxuan Xiong, Sadiqa Mahmood, et al. 2020. ***"A How-to Guide for Conducting Retrospective Analyses: Example COVID-19 Study."*** Preprint. Open Science Framework. https://doi.org/ 10.31219/osf.io/3drch.

2. In Preparation: Xiong, Ruoxuan, **Allison Koenecke**, Michael Powell, Joshua T. Vogelstein, Susan Athey. ***"Causal Inference in Observational Studies with Distributed Data."***

3. In Preparation: **Koenecke, Allison**, Susan Athey, and Sharad Goel. ***"Equitable Advertising as a Trolley Problem."***

4. In Preparation: **Koenecke, Allison** and Alanna Flores. ***"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

- 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

- 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

- 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

· IEEE Spectrum (Apr 2021)
· BBC: Free Thinking (Mar 2021)
· Hot & Sour Soup for the Soul (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

Previous

· 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

· Program Committee: ACL-IJCNLP Student Research Workshop
· Journal Reviewer: Nature Machine Intelligence, Journal of Artificial Intelligence Research, Operations Research for Health Care