

Emma Pierson

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ACADEMIC POSITIONS

<i>Assistant Professor of Computer Science</i> , Jacobs Technion-Cornell Institute Cornell Tech and Technion – IIT; Field member in Computer Science, Cornell University; Assistant Professor of Population Health Sciences, Weill Cornell Medical College (secondary joint appt)	2021
<i>Senior Researcher</i> , Microsoft Research New England	2020 - 2021
<i>PhD</i> , Computer Science, Stanford University	2015 - 2020
<i>MS by Research</i> , Statistics, Oxford University	2014 - 2015
<i>MS</i> , Computer Science, Stanford University Concentrations in Artificial Intelligence and Biocomputation	Winter 2013 - Spring 2013
<i>BS</i> , Physics (with distinction), Stanford University Concentration in Theoretical Physics	Fall 2009 - Spring 2013

HONORS

MIT Technology Review 35 Innovators Under 35	2021
Best Paper Award in Applied Data Science Track, KDD	2021
Best On Theme paper award, NeurIPS ML4H Workshop	2020
Forbes 30 Under 30 in Science	2019
Most impactful to society poster award, University of Michigan AI Symposium	2019
EECS Rising Star	2018
Best paper award, AISTATS	2018
Top 10 Papers of 2016-2017 in Regulatory and Systems Genomics (RECOMB/ISCB)	2017
Best poster award, ICML Workshop on Computational Biology	2016
Best talk award, ISMB High Throughput Sequencing SIG	2015
Rhodes Scholar	2014
Hertz Fellow	2014
NDSEG Fellow	2014
NSF Graduate Research Fellow (declined)	2014
Gates-Cambridge Scholarship Finalist (withdrew from consideration)	2013
Marshall Scholar (declined)	2013
Deans' Award, Stanford (awarded to 5-10 undergraduates for "outstanding academic contributions")	2013
2nd place, US National Debate Championships	2013
3rd place, Kaggle Job Recommendation Engine Competition (\$2,000)	2012

ACADEMIC PAPERS

Click on paper titles to read drafts

† indicates alphabetical authors, ‡ indicates all authors contributed equally, * indicates co-first/last authorship.

[2021i] **Emma Pierson**, David Cutler[†], Jure Leskovec[†], Sendhil Mullainathan[†], and Ziad Obermeyer[†]. [An algorithmic approach to reducing unexplained pain disparities in underserved populations](#). *Nature Medicine*, 2021; accompanying *Nature Medicine News and Views*, coverage from *MIT Technology Review*, *Wired*, *STAT*, *Science Friday*, *World Bank blog*.

- [2021h] **Emma Pierson**, Tim Althoff, Daniel Thomas, Paula Hillard, and Jure Leskovec. [Daily, weekly, seasonal and menstrual cycles in women’s mood, behaviour and vital signs](#). *Nature Human Behaviour*, 2021; coverage from [Stanford Medicine blog](#).
- [2021g] Serina Y Chang, Mandy L Wilson, Bryan Lewis, Zakaria Mehrab, Komal K Dudakiya, **Emma Pierson**, Pang Wei Koh, Jaline Gerardin, Beth Redbird, David Grusky, et al. [Supporting COVID-19 policy response with large-scale mobility-based modeling](#). *KDD* (Applied Data Science Track), 2021; **Best Paper Award in the Applied Data Science Track**.
- [2021f] Divya Shanmugam and **Emma Pierson**. Quantifying Inequality in Underreported Medical Conditions. Working paper, 2021.
- [2021e] Leah Pierson and **Emma Pierson**. Patients cannot consent to care unless they know how much it costs. Working paper, 2021.
- [2021d] J.D. Zamfirescu-Pereira, Jerry Chen, Emily Wen, Allison Koenecke, Nikhil Garg, and **Emma Pierson**. Trucks Don’t Mean Trump: Diagnosing Human Error in Image Analysis. Working paper; NeurIPS Workshop on Human and Machine Decisions, 2021.
- [2021c] Irene Y. Chen, **Emma Pierson**, Sherri Rose, Shalmali Joshi, Kadija Ferryman, and Marzyeh Ghassemi. [Ethical Machine Learning in Healthcare](#). Annual Reviews in Biomedical Data Science, 2021.
- [2021b] Pang Wei Koh, Shiori Sagawa, Henrik Marklund, Sang Michael Xie, Marvin Zhang, Akshay Balsubramani, Weihua Hu, Michihiro Yasunaga, Richard Lanus Phillips, Sara Beery, Jure Leskovec, Anshul Kundaje, **Emma Pierson**, Sergey Levine, Chelsea Finn, and Percy Liang. [WILDS: A Benchmark of in-the-Wild Distribution Shifts](#). ICML, 2021.
- [2021a] Leah Pierson, Miriam Pierson, Jacob Steinhardt, and **Emma Pierson**. [Incarceration and COVID-19](#). *Health Affairs*, letter to the editor; longer version published on the [Andrew Gelman blog](#), 2021.
- [2020e] Serina Y Chang*, **Emma Pierson***, Pang Wei Koh*, Jaline Gerardin, Beth Redbird, David Grusky, and Jure Leskovec. [Mobility network modeling explains higher SARS-CoV-2 infection rates among disadvantaged groups and informs reopening strategies](#). *Nature*, 2020; accompanying *Nature News and Views*, coverage from *The New York Times*, *The Washington Post*, *MIT Technology Review*, *CNN*, *STAT*, and *Bloomberg*; see [project website](#) for data and more press coverage.
- [2020d] **Emma Pierson**, Camelia Simoiu, Jan Overgoor, Sam Corbett-Davies, Daniel Jenson, Amy Shoemaker, Vignesh Ramachandran, Phoebe Barghouty, Cheryl Phillips, Ravi Shroff, and Sharad Goel[‡]. [A large-scale analysis of racial disparities in police stops across the United States](#). *Nature Human Behaviour*, 2020; coverage from *The New York Times*, *The Economist*, *NBC News*, *The Daily Show*, *CNN*; see [project website](#) for data and more press coverage.
- [2020c] Pang Wei Koh*, Thao Nguyen*, Yew Siang Tang*, Steve Mussmann, **Emma Pierson**, Been Kim, and Percy Liang. [Concept bottleneck models](#). ICML, 2020.
- [2020b] **Emma Pierson**. [Assessing racial inequality in COVID-19 testing with Bayesian threshold tests](#). NeurIPS Machine Learning for Health Workshop (**Best on theme paper award; spotlight presentation**), 2020.
- [2020a] Heidi Chen, **Emma Pierson**, Sonja Schmer-Galunder, Jonathan Altamirano, Dan Jurafsky, Jure Leskovec, Magali Fassiotto, and Nishita Kothary. Gender differences in patient perceptions of physicians’ communal traits and the impact on physician evaluations. *Journal of Women’s Health*, 2020.
- [2019b] Bo Liu*, Shuyang Shi*, Yongshang Wu*, Daniel Thomas, Laura Symul, **Emma Pierson**, and Jure Leskovec. [Predicting pregnancy using large-scale data from a women’s health tracking mobile application](#). The Web Conf, 2019 (Health on the Web Short Paper Track); NeurIPS ML For Health Workshop, 2018.
- [2019a] **Emma Pierson***, Pang Wei Koh*, Tatsunori Hashimoto*, Daphne Koller, Jure Leskovec, Nick Eriksson, and Percy Liang. [Inferring multidimensional rates of aging from cross-sectional data](#). AISTATS 2019; NeurIPS ML For Health Workshop, 2018 (**spotlight talk**); ICML Workshop on Computational Biology (**oral presentation**), 2018.

- [2018e] Bo Wang*, Daniele Ramazzotti*, Luca De Sano, Junjie Zhu, **Emma Pierson**, and Serafim Batzoglou. [SIMLR: A tool for large-scale genomic analyses by multi-kernel learning](#). *Proteomics*, 2018.
- [2018d] **Emma Pierson**. [Demographics and discussion influence views on algorithmic fairness](#). Working paper, 2018.
- [2018c] Anosheh Afghahi, Natasha Purington, Summer S Han, Manisha Desai, **Emma Pierson**, Maya B Mathur, Tina Seto, Caroline A Thompson, Joseph Rigdon, Melinda L Telli, et al. [Higher absolute lymphocyte counts predict lower mortality from early-stage triple-negative breast cancer](#). *Clinical Cancer Research*, 2018.
- [2018b] **Emma Pierson**, Sam Corbett-Davies, and Sharad Goel. [Fast Threshold Tests for Detecting Discrimination](#). AISTATS, 2018 (**best paper award**).
- [2018a] **Emma Pierson**, Tim Althoff, and Jure Leskovec. [Modeling Individual Cyclic Variation in Human Behavior](#). WWW, 2018 (featured in *Nature Medicine*: “Discovery cycle”, Shraddha Chakradhar).
- [2017c] Bo Wang, Junjie Zhu, **Emma Pierson**, Daniele Ramazzotti, and Serafim Batzoglou. [Visualization and analysis of single-cell RNA-seq data by kernel-based similarity learning](#). *Nature Methods*, 2017.
- [2017b] Pang Wei Koh*, **Emma Pierson***, and Anshul Kundaje. [Denoising genome-wide histone ChIP-seq with convolutional neural networks](#). *Bioinformatics/ISMB 2017; ICML Workshop on Computational Biology (spotlight talk; best poster award).*
- [2017a] Sam Corbett-Davies, **Emma Pierson**, Avi Feller, Sharad Goel, and Aziz Huq. [Algorithmic decision making and the cost of fairness](#). KDD, 2017. **Taught at Stanford, Berkeley, and Caltech, among others.**
- [2016a] **Emma Pierson**. [Detecting and predicting beautiful sunsets with social media data](#). Climate Informatics Workshop, 2016 (**spotlight talk**).
- [2015c] **Emma Pierson**. [Outnumbered but well-spoken: female commentators in the *New York Times*](#). CSCW, 2015.
- [2015b] **Emma Pierson**, the GTEx Consortium, Daphne Koller, Alexis Battle*, and Sara Mostafavi*. [Sharing and specificity of co-expression networks across 35 human tissues](#). *PLoS Computational Biology*, 2015.
- [2015a] **Emma Pierson** and Christopher Yau. [ZIFA: Dimensionality reduction for zero-inflated single-cell gene expression analysis](#). *Genome Biology*, 2015; **best talk award** at HitSeq 2015 (SIG of ISMB/ECCB).
- [2014a] **Emma Pierson** and Noah Goodman. [Uncertainty and denial: a resource-rational model of the value of information](#). *PLoS One*, 2014.

SELECTED NON-ACADEMIC PUBLICATIONS

Click on titles to read publications.

- [S2021c] Leah Pierson and **Emma Pierson**. [Genetic Risks for Cancer Should Not Mean Financial Hardship](#). *The New York Times*, 2021.
- [S2021b] **Emma Pierson**, Jaline Gerardin, and Nathaniel Lash. [The lives lost to undervaccination, in charts](#). *The New York Times*, 2021.
- [S2021a] **Emma Pierson**. [Studying the menstrual cycle in a male-dominated field](#). *Nature Research Behavioural & Social Sciences Blog*, 2021.
- [S2020b] **Emma Pierson**, Elissa M Redmiles, Leilani Battle, and Jessica Hullman. [If you want more women in your workforce, here’s how to recruit](#). *Nature*, 2020.
- [S2020a] **Emma Pierson**. [Barr says there’s no systemic racism in policing. Our data says the attorney general is wrong](#). *The Washington Post*, 2020.

- [S2019a] **Emma Pierson**. [PhDs without tears: how academics can help ease students' minds](#). *Times Higher Education*, 2019. **Taught in UW Human Well-Being seminar.**
- [S2017a] **Emma Pierson**. [Hey, computer scientists! Stop hating on the humanities](#). *Wired*, 2017.
- [S2016d] **Emma Pierson**. [Of mansplaining and mastectomies](#). *The New York Times*, 2016.
- [S2016c] **Emma Pierson**. [Is sexist rhetoric a total frat move?](#) *The New York Times*, 2016.
- [S2016b] Sam Corbett-Davies, **Emma Pierson**, Avi Feller, and Sharad Goel. [A computer program used for bail and sentencing decisions was labeled biased against blacks. It's actually not that clear](#). *The Washington Post*, 2016. **Taught at MIT, Stanford, Berkeley, Harvard, UW, Yale, and Cornell, among others.**
- [S2016a] Mary Nugent and **Emma Pierson**. [Here's what people say when they attack Hillary Clinton on Twitter](#). *The Washington Post*, 2016.
- [S2015g] **Emma Pierson**. [Seeking a cancer-free world](#). *The New York Times*, 2015.
- [S2015f] **Emma Pierson**. [How to get more women to join the debate](#). *The New York Times*, 2015.
- [S2015e] Brian Clifton, **Emma Pierson**, and Gilad Lotan. [How to tell if a Twitter user is pro-choice or pro-life – without reading any of their tweets](#). *Quartz*, 2015.
- [S2015d] **Emma Pierson**. [Re: our relationship](#). *The Atlantic*, 2015.
- [S2015c] **Emma Pierson** and Leah Pierson. [What do campus protesters really want?](#) *The New York Times*, 2015.
- [S2015b] **Emma Pierson** and Shengwu Li. [A better way to gauge how common sexual assault is on college campuses](#). *The Washington Post*, 2015.
- [S2015a] **Emma Pierson**. [College students aren't the only ones abusing Adderall](#). *FiveThirtyEight*, 2015.
- [S2014c] **Emma Pierson** and Chuong Do. [What about the women?](#) *Coursera Blog*, 2014.
- [S2014b] **Emma Pierson**. [In science, it matters that women come last](#). *FiveThirtyEight*, 2014.
- [S2014a] **Emma Pierson**. [See how red tweeters and blue tweeters ignore each other on Ferguson](#). *Quartz*, 2014.
- [S2012a] **Emma Pierson**. [Knowing you carry a cancer gene](#). *The New York Times*, 2012. (**Awarded "Best Blog Post of 2012" by Cancer101; taught in MIT bioethics class**).

INVITED TALKS/PANELS/PODCASTS

Memorial Sloan Kettering Cancer Center Machine Learning Seminar	2022 (scheduled)
MIT, Guest Lecture for Ethical ML in Human Deployments	2022 (scheduled)
CVPR, Visual Recognition for Medical Images Workshop	2022 (scheduled)
Mt Sinai, AI in Medicine Course Guest Lecture	2022 (scheduled)
Duke-Margolis Virtual Public Meeting, Understanding Bias and Fairness in AI	2021 (scheduled)
Weill Cornell Health Informatics Research Seminar	2021 (scheduled)
Tufts Medical Center, Center for Quantitative Methods and Data Science	2021 (scheduled)
Workshop on Human and Machine Decisions Keynote, NeurIPS	2021 (scheduled)
NYU, Applied Statistics Seminar Series	2021
Cornell, Guest Lecture for Applied Machine Learning	2021
MIT, Guest Lecture for HST 953: Collaborative Data Science in Medicine	2021
Harvard Medical School, Panel on Fairness, Bias and Race in an Algorithmic World	2021
Boston University, AI in Healthcare: Mitigating Disparities, Biases & Misinformation Symposium	2021
ISMB Machine learning in Computational and Systems Biology COSI Keynote	2021
Arab Health Dubai, Imaging and Diagnostics Keynote	2021
AI for Good Seminar, Microsoft	2021
Diaries of Social Data Research podcast	2021
Carnegie Mellon AI for Social Good Panel	2021
Davis Institute for Artificial Intelligence	2021

Columbia Precision Medicine and Society conference	2021
Health Intelligence Seminar, MSR Cambridge	2021
Opportunity Insights	2021
Penn State AI for Social Impact Seminar	2021
Rochester Institute of Technology Mathematical Modeling Seminar	2021
R-Ladies DC	2021
Harvard, Institute for Applied Computational Science Seminar	2021
Williams, Institute for Computational and Experimental Research in Mathematics	2021
Outlier Detectives Podcast	2021
Yale Journal of Biology and Medicine Podcast	2021
Stanford, Algorithmic Fairness Panel, CS182	2021
MSR Public Panel, Conversations in STEM, Medical, and Health Technology	2021
UCLA, Big Data and ML seminar	2021
U. Mannheim, Policies to Cope with the COVID-19 Crisis	2021
AI Health Podcast	2021
RAND Corporation	2021
NeurIPS Workshop on Machine Learning for Economic Policy, Panel on Methodology and Algorithms	2020
NeurIPS COVID-19 Symposium	2020
MITxHarvard Women in AI	2020
Forum on Ethics and Fairness in AI, Harvard Medical School	2020
Cornell, Digital Life Initiative	2020
University of Chicago, Panel on Conceptualization and Measurement of Discrimination	2020
Stanford, Guest Lecture for CS221: Artificial Intelligence	2020
Berkeley, Guest Lecture for PH196: Artificial Intelligence in Medicine and Health Policy	2020
Cornell, Departments of Computer Science and Information Science	2020
USC, Department of Computer Science	2020
UCLA, Departments of Computer Science and Computational Medicine	2020
Caltech, Computing and Mathematical Sciences	2020
Brown, Department of Computer Science and Data Science Initiative	2020
Yale, Departments of Computer Science and Statistics/Data Science	2020
Johns Hopkins, Department of Computer Science	2020
University of Chicago, Department of Computer Science	2020
University of Chicago, Harris School of Public Policy	2020
Harvard, Department of Biomedical Informatics	2020
Harvard T.H. Chan School of Public Health	2020
Carnegie Mellon, Departments of Machine Learning, Computer Science, and Statistics/Data Science	2020
Columbia, Department of Biomedical Informatics	2020
MIT Sloan School of Management	2020
University of Toronto, Department of Statistical Sciences and Faculty of Information	2020
Harvard Business School	2020
Microsoft Research New England	2020
Johns Hopkins, Department of Biostatistics	2020
University of Washington, Department of Statistics	2020
NeurIPS Social Invited Talk: "Well-being in ML"	2019
USC AI Rising Stars Symposium	2019
Stanford Biostatistics Workshop	2019
National Academy of Sciences Workshop (Social Science Modeling for Big Data)	2019
University of Michigan AI Symposium	2019
Data and Society Meeting on Fair Machine Learning in Health	2019
Stanford Data Science for Social Good Summer Program	2019
Twitter FairML Speaker Series	2019
Evidation Health	2019
Johns Hopkins Data Science Lab	2019
NBER Machine Learning and Healthcare Conference	2019

Salesforce Research	2019
Microsoft Research AI Breakthroughs Workshop	2018
Facebook Computation Social Science Group	2018
Hertz Foundation Summer Workshop	2018
AlterConf San Francisco	2017
JSM, “Essential Skills for Communicating Statistics”	2017

REVIEWING AND SERVICE

Reviewer, International Workshop on Algorithmic Bias in Search and Recommendation	2022
Reviewer, The Web Conference	2022
Co-organizer, Machine Learning from Ground Truth Workshop, NeurIPS	2021
Reviewer, Machine Learning for Public Policy Workshop, NeurIPS	2021
Richard Tapia Celebration of Diversity in Computing Virtual Conference, Virtual Booth	2021
Ethical Reviewer, NeurIPS	2021
Reviewer, PNAS	2021
Reviewer, Science Advances	2021
Reviewer, Health Affairs	2021
Reviewer, Nature Communications	2021
Co-organizer, AI for Public Health Workshop, ICLR	2021
Organizing Committee (program co-chair), Conference on Health, Inference, and Learning	2021
Reviewer, Conference on Fairness, Accountability, and Transparency	2021
Reviewer, The Web Conference	2021
Reviewer, AAAI	2021
Reviewer, Management Science	2020
Mentor, NeurIPS Women in Machine Learning Workshop	2020
Reviewer, International Workshop on Algorithmic Bias in Search and Recommendation	2020
Reviewer, The Web Conference	2020
Reviewer, Nature Medicine	2019
Reviewer, NeurIPS Workshop on Fair ML for Health	2019
Reviewer, ICLR Workshop on Debugging Machine Learning Models	2019
Reviewer, The Web Conference	2019
Reviewer, Conference on Fairness, Accountability, and Transparency (FAT*)	2018
Reviewer, JMLR	2018
Reviewer, CSCW	2018
Reviewer, IJCAI	2018
Reviewer, Biostatistics	2017
Reviewer, ICML	2015
Reviewer, ECCB	2014
Reviewer, Bioinformatics	2013