

# Stanford

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## Susan Athey

Economics of Technology Professor, Senior Fellow at the Stanford Institute for Economic Policy Research and Professor, by courtesy, of Economics

### Bio

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#### ACADEMIC APPOINTMENTS

- Professor, Economics
- Senior Fellow, Stanford Institute for Economic Policy Research (SIEPR)
- Professor (By courtesy), Economics
- Associate Director, Institute for Human-Centered Artificial Intelligence (HAI)
- Member, Institute for Computational and Mathematical Engineering (ICME)
- Member, Wu Tsai Neurosciences Institute

### Teaching

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#### COURSES

##### 2021-22

- Designing Experiments for Impact: ALP 308 (Spr)
- Designing Experiments for Impact: ECON 281 (Spr)
- Machine Learning and Causal Inference: ECON 293 (Spr)
- Machine Learning and Causal Inference: MGTECON 634 (Spr)

##### 2020-21

- Data-Driven Impact: ALP 301 (Spr)
- Machine Learning and Causal Inference: ECON 293 (Spr)
- Machine Learning and Causal Inference: MGTECON 634 (Spr)

##### 2019-20

- Data-Driven Impact: ALP 301 (Spr)
- Machine Learning and Causal Inference: ECON 293 (Spr)
- Machine Learning and Causal Inference: MGTECON 634 (Spr)
- Marketplaces for Goods and Services: STRAMGT 529 (Win)

##### 2018-19

- Cryptocurrency: MGTECON 515 (Spr)
- Machine Learning and Causal Inference: ECON 293 (Spr)
- Machine Learning and Causal Inference: MGTECON 634 (Spr)

- Marketplaces for Goods and Services: STRAMGT 529 (Win)
- Using Technology and Market Interventions to Solve Social Problems: GSBGEN 513 (Spr)

## STANFORD ADVISEES

### Doctoral Dissertation Reader (AC)

Swarnadip Ghosh

### Postdoctoral Faculty Sponsor

Undral Byambadalai, Shanjukta Nath, Emil Palikot, Charles Pebereau, Erik Sverdrup

### Doctoral Dissertation Advisor (AC)

Matias Cersosimo, Sanath Kumar Krishnamurthy

### Doctoral (Program)

Ayush Kanodia

### Postdoctoral Research Mentor

Emil Palikot

## Publications

### PUBLICATIONS

- **Design-based analysis in Difference-In-Differences settings with staggered adoption** *JOURNAL OF ECONOMETRICS*  
Athey, S., Imbens, G. W.  
2022; 226 (1): 62-79
- **Counterfactual inference for consumer choice across many product categories (Jun, 10.1007/s11129-021-09241-2, 2021)** *QME-QUANTITATIVE MARKETING AND ECONOMICS*  
Donnelly, R., Ruiz, F. R., Blei, D., Athey, S.  
2021
- **Synthetic Difference-in-Differences** *AMERICAN ECONOMIC REVIEW*  
Arkhangelsky, D., Athey, S., Hirshberg, D. A., Imbens, G. W., Wager, S.  
2021; 111 (12): 4088-4118
- **Counterfactual inference for consumer choice across many product categories** *QME-QUANTITATIVE MARKETING AND ECONOMICS*  
Donnelly, R., Ruiz, F. R., Blei, D., Athey, S.  
2021
- **Estimating experienced racial segregation in US cities using large-scale GPS data.** *Proceedings of the National Academy of Sciences of the United States of America*  
Athey, S., Ferguson, B., Gentzkow, M., Schmidt, T.  
2021; 118 (46)
- **Integrating explanation and prediction in computational social science.** *Nature*  
Hofman, J. M., Watts, D. J., Athey, S., Garip, F., Griffiths, T. L., Kleinberg, J., Margetts, H., Mullainathan, S., Salganik, M. J., Vazire, S., Vespignani, A., Yarkoni, T.  
2021
- **Alpha-1 adrenergic receptor antagonists to prevent hyperinflammation and death from lower respiratory tract infection.** *eLife*  
Koenecke, A., Powell, M., Xiong, R., Shen, Z., Fischer, N., Huq, S., Khalafallah, A. M., Trevisan, M., Sparen, P., Carrero, J. J., Nishimura, A., Caffo, B., Stuart, et al  
2021; 10
- **PRIVATE AND SOCIAL RETURNS TO R&D AND VACCINE DEVELOPMENT Preparing for a Pandemic: Accelerating Vaccine Availability**  
Ahuja, A., Athey, S., Baker, A., Budish, E., Castillo, J., Glennerster, R., Kominers, S., Kremer, M., Lee, J., Prendergast, C., Snyder, C. M., Tabarrok, A., Tan, et al

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AMER ECONOMIC ASSOC.2021: 331-335

- **Matrix Completion Methods for Causal Panel Data Models** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Athey, S., Bayati, M., Doudchenko, N., Imbens, G., Khosravi, K.  
2021
- **Confidence intervals for policy evaluation in adaptive experiments.** *Proceedings of the National Academy of Sciences of the United States of America*  
Hadad, V., Hirshberg, D. A., Zhan, R., Wager, S., Athey, S.  
2021; 118 (15)
- **Market design to accelerate COVID-19 vaccine supply.** *Science (New York, N.Y.)*  
Castillo, J. C., Ahuja, A., Athey, S., Baker, A., Budish, E., Chipty, T., Glennerster, R., Kominers, S. D., Kremer, M., Larson, G., Lee, J., Prendergast, C., Snyder, et al  
2021
- **Association of alpha1-Blocker Receipt With 30-Day Mortality and Risk of Intensive Care Unit Admission Among Adults Hospitalized With Influenza or Pneumonia in Denmark.** *JAMA network open*  
Thomsen, R. W., Christiansen, C. F., Heide-Jorgensen, U., Vogelstein, J. T., Vogelstein, B., Bettegowda, C., Tamang, S., Athey, S., Sorensen, H. T.  
2021; 4 (2): e2037053
- **Falling living standards during the COVID-19 crisis: Quantitative evidence from nine developing countries.** *Science advances*  
Egger, D., Miguel, E., Warren, S. S., Shenoy, A., Collins, E., Karlan, D., Parkerson, D., Mobarak, A. M., Fink, G., Udry, C., Walker, M., Haushofer, J., Larreboure, et al  
2021; 7 (6)
- **POLICY LEARNING WITH OBSERVATIONAL DATA** *ECONOMETRICA*  
Athey, S., Wager, S.  
2021; 89 (1): 133–61
- **Ten Rules for Conducting Retrospective Pharmacoepidemiological Analyses: Example COVID-19 Study.** *Frontiers in pharmacology*  
Powell, M., Koenecke, A., Byrd, J. B., Nishimura, A., Konig, M. F., Xiong, R., Mahmood, S., Mucaj, V., Bettegowda, C., Rose, L., Tamang, S., Sacarny, A., Caffo, et al  
2021; 12: 700776
- **Adapting to Misspecification in Contextual Bandits with Offline Regression Oracles**  
Krishnamurthy, S., Hadad, V., Athey, S., Meila, M., Zhang, T.  
JMLR-JOURNAL MACHINE LEARNING RESEARCH.2021
- **Tractable contextual bandits beyond realizability**  
Krishnamurthy, S., Hadad, V., Athey, S., Banerjee, A., Fukumizu, K.  
MICROTOME PUBLISHING.2021
- **The Association Between Alpha-1 Adrenergic Receptor Antagonists and In-Hospital Mortality From COVID-19.** *Frontiers in medicine*  
Rose, L., Graham, L., Koenecke, A., Powell, M., Xiong, R., Shen, Z., Mench, B., Kinzler, K. W., Bettegowda, C., Vogelstein, B., Athey, S., Vogelstein, J. T., Konig, et al  
2021; 8: 637647
- **Local Linear Forests** *JOURNAL OF COMPUTATIONAL AND GRAPHICAL STATISTICS*  
Friedberg, R., Tibshirani, J., Athey, S., Wager, S.  
2020
- **Peaches, lemons, and cookies: Designing auction markets with dispersed information** *GAMES AND ECONOMIC BEHAVIOR*  
Abraham, I., Athey, S., Babaioff, M., Grubb, M. D.  
2020; 124: 454–77
- **The Allocation of Decision Authority to Human and Artificial Intelligence**  
Athey, S. C., Bryan, K. A., Gans, J. S.  
AMER ECONOMIC ASSOC.2020: 80–84
- **SHOPPER: A PROBABILISTIC MODEL OF CONSUMER CHOICE WITH SUBSTITUTES AND COMPLEMENTS** *ANNALS OF APPLIED STATISTICS*

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- Ruiz, F. R., Athey, S., Blei, D. M.  
2020; 14 (1): 1–27
- **SAMPLING-BASED VERSUS DESIGN-BASED UNCERTAINTY IN REGRESSION ANALYSIS** *ECONOMETRICA*  
Abadie, A., Athey, S., Imbens, G. W., Wooldridge, J. M.  
2020; 88 (1): 265–96
  - **Stable Prediction with Model Misspecification and Agnostic Distribution Shift**  
Kuang, K., Xiong, R., Cui, P., Athey, S., Li, B., Assoc Advancement Artificial Intelligence  
ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2020: 4485-4492
  - **The Association Between Alpha-1 Adrenergic Receptor Antagonists and In-Hospital Mortality from COVID-19.** *medRxiv : the preprint server for health sciences*  
Rose, L. n., Graham, L. n., Koenecke, A. n., Powell, M. n., Xiong, R. n., Shen, Z. n., Kinzler, K. W., Bettgowda, C. n., Vogelstein, B. n., Athey, S. n., Vogelstein, J. T., Konig, M. F., Wagner, et al  
2020
  - **Preventing cytokine storm syndrome in COVID-19 using #-1 adrenergic receptor antagonists.** *The Journal of clinical investigation*  
Konig, M. F., Powell, M. A., Staedtke, V. n., Bai, R. Y., Thomas, D. L., Fischer, N. M., Huq, S. n., Khalafallah, A. M., Koenecke, A. n., Xiong, R. n., Mensh, B. n., Papadopoulos, N. n., Kinzler, et al  
2020
  - **Computational social science: Obstacles and opportunities.** *Science (New York, N.Y.)*  
Lazer, D. M., Pentland, A. n., Watts, D. J., Aral, S. n., Athey, S. n., Contractor, N. n., Freelon, D. n., Gonzalez-Bailon, S. n., King, G. n., Margetts, H. n., Nelson, A. n., Salganik, M. J., Strohmaier, et al  
2020; 369 (6507): 1060–62
  - **Economists (and Economics) in Tech Companies** *JOURNAL OF ECONOMIC PERSPECTIVES*  
Athey, S., Luca, M.  
2019; 33 (1): 209–30
  - **Comment on: "The Blessings of Multiple Causes" by Yixin Wang and David M. Blei** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Athey, S., Imbens, G. W., Pollmann, M.  
2019; 114 (528): 1602–4
  - **GENERALIZED RANDOM FORESTS** *ANNALS OF STATISTICS*  
Athey, S., Tibshirani, J., Wager, S.  
2019; 47 (2): 1148–78
  - **Balanced Linear Contextual Bandits**  
Dimakopoulou, M., Zhou, Z., Athey, S., Imbens, G., AAAI  
ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2019: 3445–53
  - **Machine Learning Methods That Economists Should Know About** *ANNUAL REVIEW OF ECONOMICS, VOL 11, 2019*  
Athey, S., Imbens, G. W., Aghion, P., Rey, H.  
2019; 11: 685–725
  - **Approximate residual balancing: debiased inference of average treatment effects in high dimensions** *JOURNAL OF THE ROYAL STATISTICAL SOCIETY SERIES B-STATISTICAL METHODOLOGY*  
Athey, S., Imbens, G. W., Wager, S.  
2018; 80 (4): 597–623
  - **Estimating Heterogeneous Consumer Preferences for Restaurants and Travel Time Using Mobile Location Data**  
Athey, S., Blei, D., Donnelly, R., Ruiz, F., Schmidt, T.  
AMER ECONOMIC ASSOC.2018: 64–67
  - **The Impact of Consumer Multi-homing on Advertising Markets and Media Competition** *MANAGEMENT SCIENCE*  
Athey, S., Calvano, E., Gans, J. S.  
2018; 64 (4): 1574–90
  - **The value of information in monotone decision problems** *RESEARCH IN ECONOMICS*
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- Athey, S., Levin, J.  
2018; 72 (1): 101–16
- **Exact p-Values for Network Interference** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Athey, S., Eckles, D., Imbens, G. W.  
2018; 113 (521): 230–40
  - **Stable Prediction across Unknown Environments**  
Kuang, K., Cui, P., Athey, S., Xiong, R., Li, B., ACM  
ASSOC COMPUTING MACHINERY.2018: 1617–26
  - **Learning in Games with Lossy Feedback**  
Zhou, Z., Mertikopoulos, P., Athey, S., Bambos, N., Glynn, P., Ye, Y., Bengio, S., Wallach, H., Larochelle, H., Grauman, K., CesaBianchi, N., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2018
  - **Estimation and Inference of Heterogeneous Treatment Effects using Random Forests** *JOURNAL OF THE AMERICAN STATISTICAL ASSOCIATION*  
Wager, S., Athey, S.  
2018; 113 (523): 1228–42
  - **Estimating Average Treatment Effects: Supplementary Analyses and Remaining Challenges** *AMERICAN ECONOMIC REVIEW*  
Athey, S., Imbens, G., Pham, T., Wager, S.  
2017; 107 (5): 278-281
  - **Yuliy Sannikov: Winner of the 2016 Clark Medal** *JOURNAL OF ECONOMIC PERSPECTIVES*  
Athey, S., Skrzypacz, A.  
2017; 31 (2): 237-255
  - **The State of Applied Econometrics: Causality and Policy Evaluation** *JOURNAL OF ECONOMIC PERSPECTIVES*  
Athey, S., Imbens, G. W.  
2017; 31 (2): 3-32
  - **Beyond prediction: Using big data for policy problems.** *Science (New York, N.Y.)*  
Athey, S. n.  
2017; 355 (6324): 483–85
  - **Context Selection for Embedding Models**  
Liu, L., Ruiz, F. R., Athey, S., Blei, D. M., Guyon, Luxburg, U. V., Bengio, S., Wallach, H., Fergus, R., Vishwanathan, S., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2017
  - **Structured Embedding Models for Grouped Data**  
Rudolph, M., Ruiz, F., Athey, S., Blei, D., Guyon, Luxburg, U. V., Bengio, S., Wallach, H., Fergus, R., Vishwanathan, S., Garnett, R.  
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2017
  - **Recursive partitioning for heterogeneous causal effects** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Athey, S., Imbens, G.  
2016; 113 (27): 7353-7360
  - **A Measure of Robustness to Misspecification** *AMERICAN ECONOMIC REVIEW*  
Athey, S., Imbens, G.  
2015; 105 (5): 476-480
  - **Machine Learning and Causal Inference for Policy Evaluation**  
Athey, S., Assoc Comp Machinery  
ASSOC COMPUTING MACHINERY.2015: 5-6
  - **Dynamics of Open Source Movements** *JOURNAL OF ECONOMICS & MANAGEMENT STRATEGY*  
Athey, S., Ellison, G.  
2014; 23 (2): 294-316

- **AN EFFICIENT DYNAMIC MECHANISM** *ECONOMETRICA*  
Athey, S., Segal, I.  
2013; 81 (6): 2463-2485
- **Set-Asides and Subsidies in Auctions** *AMERICAN ECONOMIC JOURNAL-MICROECONOMICS*  
Athey, S., Coey, D., Levin, J.  
2013; 5 (1): 1-27
- **Designing efficient mechanisms for dynamic bilateral trading games** *119th Annual Meeting of the American-Economic-Association*  
Athey, S., Segal, I.  
AMER ECONOMIC ASSOC.2007: 131–36
- **Identification and inference in nonlinear difference-in-differences models** *ECONOMETRICA*  
Athey, S., Imbens, G. W.  
2006; 74 (2): 431-497
- **The optimal degree of discretion in monetary policy** *ECONOMETRICA*  
Athey, S., Atkeson, A., Kehoe, P. J.  
2005; 73 (5): 1431-1475
- **Collusion and price rigidity** *REVIEW OF ECONOMIC STUDIES*  
Athey, S., Bagwell, K., Sanchirico, C.  
2004; 71 (2): 317-349
- **Identification of standard auction models** *ECONOMETRICA*  
Athey, S., Haile, P. A.  
2002; 70 (6): 2107-2140
- **The impact of information technology on emergency health care outcomes** *Conference on the Industrial-Organization-of-Medical-Care*  
Athey, S., Stern, S.  
BLACKWELL PUBLISHING.2002: 399–432
- **Monotone comparative statics under uncertainty** *QUARTERLY JOURNAL OF ECONOMICS*  
Athey, S.  
2002; 117 (1): 187-223
- **Optimal collusion with private information** *RAND JOURNAL OF ECONOMICS*  
Athey, S., Bagwell, K.  
2001; 32 (3): 428-465
- **Organizational design: Decision rights and incentive contracts** *113th Annual Meeting of the American-Economics-Association*  
Athey, S., Roberts, J.  
AMER ECONOMIC ASSOC.2001: 200–205
- **Information and competition in US forest service timber auctions** *JOURNAL OF POLITICAL ECONOMY*  
Athey, S., Levin, J.  
2001; 109 (2): 375-417