

Annie Liang

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EMPLOYMENT **Northwestern University**
Associate Professor of Economics (with tenure): 2024 – present
Associate Professor of Computer Science (by courtesy): 2024 – present

PAST POSITIONS **Northwestern University**
Assistant Professor of Economics: 2021 – 2024
Assistant Professor of Computer Science: 2021 – 2022

University of Pennsylvania
Assistant Professor of Economics: 2017 – 2020

Microsoft Research New England
Postdoctoral Researcher: 2016 – 2017

EDUCATION **Harvard University**
Ph.D. in Economics (June 2016)

Massachusetts Institute of Technology
S.B. in Mathematics and S.B. in Economics (June 2011)

PEER-REVIEWED ARTICLES **Algorithm Design: A Fairness-Accuracy Frontier** (with Jay Lu, Xiaosheng Mu, and Kyohei Okumura), accepted at *Journal of Political Economy*, 2024

How Flexible is That Functional Form? Quantifying the Restrictiveness of Theories (with Drew Fudenberg and Wayne Gao), accepted at *Review of Economics and Statistics*, 2023

Data and Incentives (with Erik Madsen), *Theoretical Economics*, Vol. 19 (1), Pages 407-448, 2024

Measuring the Completeness of Economic Models (with Drew Fudenberg, Jon Kleinberg, and Sendhil Mullainathan), *Journal of Political Economy*, Vol. 130(4), Pages 956-990, 2022

Dynamically Aggregating Diverse Information (with Xiaosheng Mu and Vasilis Syrgkanis), *Econometrica*, Vol. 90 (1), Pages 47-80, 2022

Complementary Information and Learning Traps (with Xiaosheng Mu), *Quarterly Journal of Economics*, Vol. 135 (1), Pages 389-448, 2020

Predicting and Understanding Initial Play (with Drew Fudenberg), *American Economic Review*, Vol. 109 (12), Pages 4112-4141, 2019

- invited for the plenary session “Highlights Beyond EC” at EC 2019

Inference of Preference Heterogeneity from Choice Data, *Journal of Economic Theory*, Vol. 179, Pages 275-311, 2019

PEER-REVIEWED
CONFERENCE
PROCEEDINGS

Algorithmic Design: Fairness Versus Accuracy (with Jay Lu and Xiaosheng Mu), *Proceedings of the 23rd ACM Conference on Economics and Computation*, Pages 58-59, July 2022 (extended abstract)

How Flexible is That Functional Form? Quantifying the Restrictiveness of Theories (with Drew Fudenberg and Wayne Gao), *Proceedings of the 22nd ACM Conference on Economics and Computation*, Pages 497-498, July 2021 (extended abstract)

- selected as the “Exemplary AI and Computation Track Paper” at EC ‘21

Dynamically Aggregating Diverse Information (with Xiaosheng Mu and Vasilis Syrgkanis), *Proceedings of the 22nd ACM Conference on Economics and Computation*, Pages 687-688, July 2021 (extended abstract)

Data and Incentives (with Erik Madsen), *Proceedings of the 21st ACM Conference on Economics and Computation*, Pages 41-42, July 2020 (extended abstract)

Overabundant Information and Learning Traps (with Xiaosheng Mu), *Proceedings of the 2018 ACM Conference on Economics and Computation*, Pages 71-72, June 2018 (extended abstract)

Optimal and Myopic Information Acquisition (with Xiaosheng Mu and Vasilis Syrgkanis), *Proceedings of the 2018 ACM Conference on Economics and Computation*, Pages 45-46, June 2018 (extended abstract)

The Theory is Predictive, but is it Complete?: An Application to Human Perception of Randomness (with Jon Kleinberg, and Sendhil Mullainathan), *Proceedings of the 2017 ACM Conference on Economics and Computation*, Pages 125-126, June 2017 (extended abstract)

INVITED
PUBLICATIONS

Machine Learning for Evaluating and Improving Theories (with Drew Fudenberg), *SIGEcom Exchanges*, Vol. 18 (1), Pages 4-11, 2020

WORKING PAPERS

Testing the Fairness-Accuracy Improvability of Algorithms, with Eric Auerbach, Max Tabord-Meehan, and Kyohei Okumura

The Transfer Performance of Economic Models, with Isaiah Andrews, Drew Fudenberg, Lihua Lei, and Chaofeng Wu

The Value of Context: Human versus Black Box Evaluators, with Andrei Iakovlev

Games of Incomplete Information Played by Statisticians

FELLOWSHIPS,
GRANTS, AND
AWARDS

Member of the Council of the Game Theory Society (elected 2023)

Economic Theory Fellow, Society for the Advancement of Economic Theory, 2022

NSF CAREER Grant SES-2145352, “Information, Algorithms, and Learning,” 2022-2027

NSF Grant SES-1851629 (with Aislinn Bohren), “Learning from Diverse Sources and Models,” 2019-2022

Kravis Award for Outstanding Undergraduate Teaching in Economics, University of Pennsylvania, 2018-2019

INVITED TALKS

AY 2023-2024

Seminars: Washington University in St. Louis, Virtual Seminar on Normative Economics and Economic Policy, Brown University, Chicago Booth Applied Economics Seminar, Stanford Faculty Applied Micro Seminar, Stanford Theory, Stanford Algorithmic Fairness Seminar, Stanford Econometrics, Princeton, Stanford Behavioral & Experimental, NYU, Berkeley Psychology & Economics

Conferences: Columbia Theory Conference, CIREQ Montreal Microeconomic Theory Conference, Rice Economic Theory Conference, Y-Rise: Evidence Aggregation and External Validity, AEA 2023, Gerzensee

AY 2022-2023

Plenary and Semi-Plenary: North American Summer Meeting of the Econometric Society (semi-plenary), Stony Brook International Conference on Game Theory (plenary), Workshop on Computational and Experimental Economics at the BSE Summer Forum (keynote)

Seminars: Econometrics and Statistics Colloquium (Booth), Toulouse School of Economics, Purdue University, UCSB, University of Alicante, Yale, CalTech, L.E.G. (Learning, Evolution, and Games) Seminar, UIC Information and Decision Sciences Seminar, UIUC-USTC, NYU Experimental Seminar, University of Washington, Seoul National University, University of Zurich

Conferences: BFI Theory Conference (Chicago), Quantifying Uncertainty: Stochastic, Adversarial, and Beyond (Simons Institute), Workshop on the Economics of Algorithms (Brown), INFORMS session on “Data, Society, and Algorithms,” AEA session on “Algorithmic Design for Social Decision-Making,” Schwartz Conference in Honor of Dilip Abreu (Northwestern), Cowles Conference on Econometrics, Warwick Theory Workshop, Machine Learning: Applications and Theory (UChicago), AIxEconomics, Machine Learning Summer Institute (UChicago)

AY2021-2022

Plenary: WINE 2021

Seminars: Princeton Behavioral & Experimental, Berkeley-UChicago Behavioral, Western Ontario, Northwestern Econometrics, Stanford Behavioral & Experimental, University of Wisconsin-Milwaukee, UMichigan Statistics, Israel Algorithmic Game Theory, Berkeley Haas, Harvard Kennedy School, Berkeley Economics, Tepper CMU, Harvard Behavioral/Experimental, London Business School, Paris School of Economics, Harvard-MIT, UBC, UChicago Econometrics

Conferences: INFORMS Session on “Platforms, Data, and Algorithms,” International Workshop on Economic Theory, SIGecom Winter Meeting, Learning in the Presence of Strategic Behavior (Simons Institute), Behavioral Incentives/Mechanisms Mini-Conference (LSE), AI & Social Sciences (Paris), Machine Learning Jamboree (Oxford), Machine Learning Summer Institute (Chicago)

AY2020-2021

Seminars: University of Aalto, Emory University, Microsoft Research, MIT Sloan, University of Arizona, LUISS, Duke-UNC, Harvard CS-Econ Seminar, Research on Algorithms and Incentives in Networks (Stanford), Peking University (CS), Virtual Seminar in Economic Theory, University of Michigan, Joint Asian Theory (co-organized by Kyoto U, Osaka U, NTU, Academia Sinica, HKBU), Virginia Tech, University of Pisa, NYU Quantitative Methods Seminar, Coller School of Management (Tel Aviv University), Virtual Market Design (co-organized by Bonn, Manheim,

Paris, and Karlsruhe), Peking University (Economics), CUHK-HKU-HKUST Joint Theory, LMU Munich, Seminars in Economic Theory (Warwick)

Conferences: AEA 2020, 32nd Stony Brook Conference on Game Theory, Workshop on Strategic Communication and Learning (Stonybrook), Workshop on Applications of Revealed Preference, EC '21, RINSE, SITE Psychology and Economics (Stanford), Machine Learning Summer Institute (Chicago)

AY2019-2020

Seminars: University of Maryland, Georgetown University, UCLA, University of Edinburgh, Northwestern CS, BU, University of Oxford, UCL, University of Warwick, Northwestern Economics

Conferences: NYU Stern IO Day, Simons Workshop (Berkeley), Workshop in Experiments, Revealed Preferences, and Decisions, SITE Dynamic Games (Stanford)

AY2018-2019

Plenary: “Highlights Beyond EC” session at EC '19

Seminars: Brown, University of Chicago, EUI, Harvard/MIT, NYU, New Economic School, Higher School of Economics, UT Austin, Berkeley, University of Michigan SBEE, University of Pittsburgh/CMU, Cornell Johnson SBE, Kellogg Strategy, UCSD, Central European University, CERGE-EI, University of Bonn, University of Cologne

Conferences: The “FATE” of Technology: Fairness, Accountability, Transparency, and Ethics (Warren Center, UPenn), Arizona State University Economic Theory Conference, East Coast Behavioral/Experimental Conference, Nemmers Conference in Honor of David Kreps (Northwestern), Barcelona GSE Summer Forum: Workshop on Stochastic Choice, 30th Stony Brook Conference on Game Theory, Workshop on Information Economics (Queen Mary University at London), Summer Institute in Computational Social Science (Princeton), RINSE

AY2017-2018

Seminars: Princeton (Behavioral/Experimental), UCLA, LSE, Cambridge University, Stanford (Behavioral/Experimental), Stanford (Theory)

Conferences: Cambridge Area Economics and Computation Day (Microsoft Research), AEA, Influence and the Media Workshop (John Hopkins), Predictive Game Theory Workshop (Northwestern CS), Cowles Conference in Economic Theory, EC '18, European Summer Symposium in Economic Theory (Gerzensee), Workshop on Learning and Strategic Behavior (Toyota Technological Institute in Chicago), European Summer Meeting of the Econometric Society

AY2016-2017

Seminars: University of Toronto, University of Rochester, Columbia University, IIES (Stockholm University), Tel Aviv University

Conferences: YoungEC Workshop (Tel Aviv University), Pennsylvania Theory Conference, EC '17, Big Data Conference (Harvard CMSA), SITE Experimental Economics (Stanford)

AY2015-2016

Seminars: University of Pennsylvania, Harvard Kennedy School, Boston University, Microsoft Research New England, University of Southern California, Cornell University, Kellogg School of Management (MEDS), Hebrew University, Center for Mathematical Social Sciences (Harvard), Affective Brain Lab (UCL)

Conferences: Conference in Market Design and Microeconomic Theory (Seoul), Frontiers of Economic Theory and Computer Science (UChicago), SITE Psychology and Economics (Stanford)

PROFESSIONAL
ACTIVITIES

Referee for *AEJ: Micro*, *American Economic Review* (Excellence in Refereeing Award, 2019 and 2021), *AER: Insights* (Excellence in Refereeing Award, 2024), *Econometrica*, *Economic Journal*, *International Economic Review*, *Journal of Economic Theory*, *Journal of Political Economy*, *JPE: Microeconomics*, *Management Science*, *Theoretical Economics*, *Review of Economics and Statistics*, and *Quarterly Journal of Economics*.

Reviewer for *STOC*, *Artificial Intelligence*.

ACM Conference on Economics and Computation (EC)

- Program Committee: EC '17 - EC '20
- Workshop Chair: EC '20-EC '22
- Area Chair/Senior Program Committee: EC '21, EC '22, EC '23, EC '24

Program Committee for IC²S², 2022

Conference/Workshop Organization:

- *Machine Learning in Economics Summer Conference* (co-organized with Sanjog Misra, Sendhil Mullainathan, Jann Spiess, and Ashesh Rambachan), 2024
- *Challenges in Data Economics* (co-organized with Nicolas Lambert and Haifeng Xu), part of the Northwestern Special Quarter on Data Economics, 2022
- *NeurIPS Workshop: Human and Machine Decisions* (co-organized with Daniel Reichman, Joshua Peterson, Kiran Tomlinson, and Tom Griffiths), 2021
- *NeurIPS Workshop: Learning in the Presence of Strategic Behavior* (co-organized with Nika Haghtalab, Yishay Mansour, Omer Ben-Porat, David Parkes), 2021
- *Algorithms and their Social Impact* (co-organized with Avrim Blum, Ben Golub, Samir Khuller, Jason Hartline, and Aravindan Vijayaraghavan), part of the Northwestern CS Quarterly Theory Workshop, 2021
- *Machine Learning and Strategic Behavior* (co-organized with Ben Golub, Jason Hartline, Marciano Siniscalchi, and Alireza Tahbaz-Salehi), part of the Northwestern Quarterly CS+Econ Workshop, 2021
- *NeurIPS Workshop: Machine Learning for Economic Policy* (co-organized with Nika Haghtalab, Jamie Morgenstern, Alex Trott, David Parkes, and Stephan Zhang), 2020
- *Economics of Data Conference* (co-organized with Michael Kearns and Rakesh Vohra), hosted by the University of Pennsylvania Warren Center, 2018
- *Predictive Game Theory* (co-organized with Jason Hartline), part of the Special Quarter on Data Science and Online Markets hosted by the Northwestern CS Department, 2018

TEACHING

Northwestern

- ECON 313: Economics of Data (undergraduate), Spring 2023
- ECON 414-1: Economics of Information (graduate), Fall 2022
- COMPSI 396, Theory of Data and Decisions (undergraduate): Spring 2022
- ECON 412-1, Learning, Information, and Data (graduate): Fall 2021
- COMPSI 496, Learning, Information, and Data (graduate): Spring 2021

Harvard

- ECON 2052, Advanced Game Theory (graduate): Fall 2020

University of Pennsylvania

- ECON 212, Game Theory (undergraduate): Fall 2017, Fall 2018, Fall 2019.
- ECON 782, Topics in Economic Theory: Beliefs, Learning, and Information (graduate): Spring 2018, Spring 2019, Fall 2019 (half-term)

PERSONAL

Citizenship: US; Place of Birth: Urbana, IL