Rachel Childers

Senior Research Associate

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Citizenship: United States

Positions Held:

2016-2024	Assistant Professor of Economics, Tepper School of Business, Carnegie Mellon
2023-2024	Senior Data Scientist, Abridge
2024-2025	Visiting Assistant Professor of Economics, Bowdoin College
2025-	Senior Research Associate, Department of Finance, Universität Zürich

Education:

2016	PhD, Economics, Yale University, New Haven, CT "Computational Methods for Economic Models with Function-Valued States" (Peter C.B. Phillips, Co-chair, Anthony A. Smith Jr. Co-chair, Costas Arkolakis)
2013	M.Phil., Economics, Yale University, New Haven, CT
2011	M.A., Economics, Yale University, New Haven, CT
2009	B.S.F.S., International Economics, Georgetown University, Washington, DC

Fields of Concentration

Econometrics (Time Series, Causal Inference, Machine Learning)
Macroeconomics
Computational Economics

Teaching:

Economic Policy (Bowdoin ECON 2100) (Fall 2024)
Economic Forecasting (Bowdoin ECON 3360) (Fall 2024)
Economic Statistics (Bowdoin ECON 2557) (Spring 2025)
Econometrics II (CMU 73-374) (Fall 2016-2022)
Econometrics I (PhD) (CMU 47-811) (Fall 2017-2022)
Computational Methods for Economics (CMU 47-805) (Spring 2018-2020, 2023)
Forecasting for Economics and Business (CMU 73-423) (Spring 2019-2023)
Causal Econometrics (CMU 47-873) (Fall 2021)

PhD Students Advised:

Eungsik Kim (committee member) (PhD 2019)
Wenting Yu (committee member) (PhD 2020)
Jiayi Li (committee member) (PhD 2020)
Bill Bednar (committee member) (PhD 2021)

Xuege Zhang (committee member) (PhD 2022)
Cameron Fen (University of Michigan, committee member) (PhD 2025)
Jaepil Lee (committee member) (PhD 2025)
Shantanu Gupta (Computer Science, co-chair)

Publications:

"Timing as an Action: Learning When to Observe and Act" with Helen Zhou, Audrey Huang, Kamyar Azizzadenesheli, and Zachary Lipton *AISTATS 2024*

"Local Causal Discovery for Estimating Causal Effects" with Shantanu Gupta and Zachary Lipton *Conference on Learning and Reasoning 2023*

"Estimating Treatment Effects with Observed Confounders and Mediators" with Shantanu Gupta and Zachary Lipton *UAI 2021*

"Efficient Online Estimation of Causal Effects by Deciding What to Observe" with Shantanu Gupta and Zachary Lipton, *NeuRIPS 2021*

Working Papers:

"Online Data Collection for Efficient Semiparametric Inference" with Shantanu Gupta and Zachary Lipton (Submitted, *Journal of the American Statistical Association*)

"Differentiable State Space Models and Hamiltonian Monte Carlo Estimation" with Jesús Fernández-Villaverde, Jesse Perla, Chris Rackauckas, and Peifan Wu (Revise and Resubmit, *Journal of Econometrics*)

"Solution of Rational Expectations Models with Function Valued States" (Revise and Resubmit, *Econometrica*)

"Statistical Inference with Imperfect Synthetic Data" with Yewon Byun, Shantanu Gupta, Zachary Lipton, and Bryan Wilder (Submitted, *NeuRIPS*)

"Automated Solution of Heterogeneous Agent Models"

"Perturbation Methods for Incomplete Markets Economies" with Keshav Dogra

In Progress:

"How Inductive Bias in Machine Learning Aligns with Optimality in Economic Dynamics" with Mahdi Kahou, James Yu, Jesse Perla, and Geoff Pleiss

"Valid Inference with Imperfect Synthetic Data via Generalized Method of Moments" with Yewon Byun, Shantanu Gupta, Zachary Lipton, and Bryan Wilder

Referee Service:

Journal of Econometrics, Journal of Applied Econometrics, Bulletin of Economic Research, Macroeconomic Dynamics, Operations Research, Econometrica, Management Science, Review of Economics and Statistics, Econometric Theory, Journal of the American Statistical Association, Conference Learning and Reasoning, Economics Letters, Journal of the Royal Statistical Society: B

Grants:

“DTIC: Robust and Fair AI Systems in Dynamic Environments” **PwC** April 2022 - June 2023 ($367,524) (Principal Investigator, with Zachary Lipton, Andrej Risteski, and Hoda Heidari, SCS, Carnegie Mellon)

“How Local Policies drive National Charger Inequality: The Impact of Driver Behavior on Charging Infrastructure” **Sloan Fellowship** (Principal Investigator, with Venkat Viswanathan, Engineering, Carnegie Mellon)

Presentations:

2016: University of Illinois Urbana-Champaign, Carnegie Mellon University, UC San Diego, Chicago Fed Computational Conference, Society for Economic Dynamics, Stanford Institute for Theoretical Economics ‘Computational Methods for Dynamic Economies and Games’, University of Pennsylvania
2017: Indiana University, Federal Reserve Bank of New York
2018: Midwest Macro
2019: Society for Economic Dynamics, New York University, Boston University, Barcelona GSE Summer Forum Workshop in `Machine Learning for Economics’
2020: American Economic Association, University of British Columbia
2021: China International Conference on Macroeconomics, Society for Economic Dynamics, Georgetown University, NeuRIPS
2022: University of Colorado Boulder, Penn State, University of Michigan, NeuRIPS
2023: Brown University, FRB Philadelphia
2024: AISTATS, ACM Economics and Computation, Indiana University

Service – Conference Organizer:

2017: Midwest Macro
2018-2022: Society for Economic Dynamics

Programing Languages:

Julia, R, Python, Matlab, Stata, C++

Languages:

English (native), Spanish, Mandarin (basic)