

Harsh Parikh

Assistant Professor · Department of Biostatistics · Yale University

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SUMMARY

I develop machine learning–aided causal inference approaches to solve high–stakes problems that are: (i) **Accurate**, enabling estimation of heterogeneous treatment effects in complex scenarios with limited data; (ii) **Trustworthy**, allowing domain experts to understand the machinery, validate underlying assumptions, and identify where predictions may be unreliable; and (iii) **Domain–conscious**, leveraging domain context and knowledge to come up with applicable solutions, reducing the research–to–practice gap.

CURRENT AFFILIATIONS

2025–Present	Tenure–Track Assistant Professor Department of Biostatistics, Yale University
2025–Present	Guest Researcher Danish Centre for Health Economics, Syddansk Universitet
2025–Present	Affiliate Researcher Johns Hopkins Bloomberg School of Public Health
2025–Present	Applied Scientist III Amazon.com · Supply Chain Optimization Technologies

ACADEMIC TRAINING

2023–2025	Postdoctoral Fellow Johns Hopkins Bloomberg School of Public Health, Department of Biostatistics <i>Trustworthy Causal Inference for Transportability and Generalizability</i> Advisors: Elizabeth Stuart, Kara Rudolph
2018–2023	Ph.D. in Computer Science Duke University, Department of Computer Science <i>Causal Inference for High–Stakes Decisions</i> Advisors: Cynthia Rudin, Alexander Volfovsky, Sudeepa Roy ★ Outstanding PhD Dissertation Award 2023 · Certificate in College Teaching
2016–2018	M.S. Economics & Computation Duke University, Department of Economics Advisors: Vincent Conitzer, Charles Becker

PUBLICATIONS

23. **Harsh Parikh**, Rachael K Ross, Elizabeth Stuart, and Kara E Rudolph. Who are we missing?: A principled approach to characterizing the underrepresented population. *Journal of the American Statistical Association*, 2025
22. David Arbour*, **Harsh Parikh***, Bijan Niknam, Elizabeth Stuart, Kara Rudolph, and Avi Feller. Regularizing extrapolation in causal inference. *arXiv:2509.17180*, 2025 Accepted AISTATS
21. **Harsh Parikh**, Trang Quynh Nguyen, Elizabeth A Stuart, Kara E Rudolph, and Caleb H Miles. A cautionary tale on integrating studies with disparate outcome measures for causal inference. *arXiv:2505.11014*, 2025 Accepted NeurIPS
20. Quinn Lanners, Cynthia Rudin, Alexander Volfovsky, and **Harsh Parikh**. Data fusion for partial identification of causal effects. *arXiv:2505.24296*, 2025 Accepted NeurIPS
19. **Harsh Parikh***, Marco Morucci*, Vittorio Orlandi*, Sudeepa Roy, Cynthia Rudin, and Alexander Volfovsky. A double machine learning approach to combining experimental and observational data. *Observational Studies*, 2025
18. Emily K Johnson, **Harsh Parikh**, Kim Rose Olsen, Angela Y Chang, and Liza Sopina. Breast cancer and income loss in Denmark: heterogeneous outcomes and longitudinal effects. *Nature Communications*, 2025
17. Carly L Brantner, Trang Quynh Nguyen, **Harsh Parikh**, Congwen Zhao, Hwanhee Hong, and Elizabeth A Stuart. Precision mental health: predicting heterogeneous treatment effects for depression through data integration. *Journal of the Royal Statistical Society Series C*, 2025
16. Seyedeh Baharan Khatami, **Harsh Parikh**, Haowei Chen, Sudeepa Roy, and Babak Salimi. Graph machine learning based doubly robust estimator for network causal effects. *AISTATS*, 258:4366–4374, 2025
15. **Harsh Parikh***, Quinn Lanners*, Zade Akas, Sahar F Zafar, M Brandon Westover, Cynthia Rudin, and Alexander Volfovsky. Estimating trustworthy and safe optimal treatment regimes. *AISTATS*, 2024
14. Srikar Katta, **Harsh Parikh**, Cynthia Rudin, and Alexander Volfovsky. Interpretable causal inference for analyzing wearable, sensor, and distributional data. *AISTATS*, 2024 Early Career Paper Award, Biometrics JSM
13. **Harsh Parikh**, Carlos Varjao, Louise Xu, and Eric Tchetgen Tchetgen. Validating causal inference methods. *ICML*, pages 17346–17358, 2022
12. Babak Salimi, **Harsh Parikh**, Moe Kayali, Lise Getoor, Sudeepa Roy, and Dan Suciu. Causal relational learning. *ACM SIGMOD*, pages 241–256, 2020
11. Quinn Lanners, **Harsh Parikh**, Alexander Volfovsky, Cynthia Rudin, and David Page. Variable importance matching for causal inference. *UAI*, pages 1174–1184, 2023
10. Melody Y Huang and **Harsh Parikh**. Towards generalizing inferences from trials to target populations. *Harvard Data Science Review*, 6(4), 2024
9. **Harsh Parikh**, Alexander Volfovsky, and Cynthia Rudin. MALTS: Matching After Learning to Stretch. *Journal of Machine Learning Research*, 23(240), 2022
8. **Harsh Parikh***, Kentaro Hoffman*, Haoqi Sun*, Sahar F Zafar, Wendong Ge, Jin Jing, Lin Liu, Jimeng Sun, Aaron Struck, Alexander Volfovsky, Cynthia Rudin, and M Brandon Westover. Effects of epileptiform activity on discharge outcome in critically ill patients in the USA. *The Lancet Digital Health*, 2023
7. **Harsh Parikh**, Haoqi Sun, Rajesh Amerineni, Eric Rosenthal, Alexander Volfovsky, Cynthia Rudin, M Brandon Westover, and Sahar F Zafar. How many patients do you need? Investigating trial designs for anti-seizure treatment. *Annals of Clinical and Translational Neurology*, 2024
6. **Harsh Parikh**, Cynthia Rudin, and Alexander Volfovsky. An application of Matching After Learning To Stretch (MALTS). *Observational Studies*, 5:118–130, 2019
5. Sarul Malik, **Harsh Parikh**, Neil Shah, Sneha Anand, and Shalini Gupta. Non-invasive platform to estimate fasting blood glucose levels from salivary electrochemical parameters. *Healthcare Technology Letters*, 6(4):87–91, 2019

4. Shayoni Dutta, Spandan Madan, **Harsh Parikh**, and Durai Sundar. An ensemble micro neural network approach for elucidating interactions between zinc finger proteins and their target DNA. *BMC Genomics*, 17(13):97–107, 2016
3. **Harsh Parikh**, Apoorvi Singh, Annangarachari Krishnamachari, and Kushal Shah. Computational prediction of origin of replication in bacterial genomes using correlated entropy measure (CEM). *Biosystems*, 128:19–25, 2015
2. **Harsh Parikh**. Synthetic controls as balancing scores. *ICLR 2023, Tiny Papers*, 2023
1. Sarul Malik, Shalini Gupta, **Harsh Parikh**, and Sneh Anand. Gargling affect on salivary electrochemical parameters to predict blood glucose. *ICCTICT*, pages 603–606, IEEE, 2016

HONORS & AWARDS

2024	Future Leader in Data Science and AI, Michigan Institute for Data & AI in Society
2024	Selected for Building Future Faculty Program, North Carolina State University
2023	Outstanding PhD Dissertation Award, Dept. of Computer Science, Duke University
2023	Uncertainty in Artificial Intelligence Conference Travel Award
2022	Finalist, Two Sigma PhD Fellowship
2022	International Conference on Machine Learning Conference Travel Award
2022	Certificate in College Teaching, Duke University
2020–22	Amazon Graduate Research Fellowship
2020	Invited Talk, IIT Gandhinagar "Sabarmati Young Researcher's Seminar Series"
2016–18	Duke Economics Master's Scholar Award, Duke University
2016	Runner's Up, Global Healthcare Summit (Non-invasive blood glucose sensor)
2013–14	Charpak (Student Exchange) French Government Scholarship, University of Lorraine
2013	Summer Undergraduate Research Award (UROP), IIT Delhi
2011–12	IIT Delhi Semester Merit Award
2012	Runner's Up, CanSat USA by AAS, AIAA, JPL, NASA, NRL
2009–11	Manish Bhatt Scholarship, Excellence in Computer Science

ADDITIONAL PROFESSIONAL EXPERIENCE

May–Aug 2022	<p>Research Intern</p> <p>Meta (Facebook) · Core Data Science · New York</p> <p>Inferring Network Interference in Randomized Controlled Trials</p>
2020 & 2021	<p>Applied Scientist Intern</p> <p>Amazon.com · Seller Fees and Profitability · Seattle</p> <p>Evaluating Causal Inference Methods</p>
Jun–Jul 2017	<p>Research Intern</p> <p>The Urban Institute · International Development and Governance · Washington DC</p> <p>Public Transport and Rental Markets; Women Empowerment and Labor Force Participation</p>
Mar–Jul 2016	<p>Research Fellow</p> <p>Vision India Foundation · Evidence-based Public Policy Analysis · New Delhi</p> <p>Impact Analysis of National Rural Employment Guarantee Act</p>

Jul 2015–May 2016

Research Engineer

IBM India Research Laboratory · Data Fusion & Graph Analytics · New Delhi
Social Network Data Analysis for Law Enforcement

May–Jul 2014

Software Engineering Intern

Arista Networks · Emerging Technologies · Bangalore
Protocol for Audio–Video Bridging (AVB) Switches

INVITED & CONFERENCE TALKS

Characterizing Underrepresented Populations when Generalizing Experimental Evidence

Joint Statistical Meeting (Aug 2025) · Johns Hopkins University (Feb 2025) · Yale School of Public Health (Jan 2025) · Harvard University (Jan 2025) · Columbia University (Jan 2025) · ICHPS (Jan 2025) · University of Michigan (Nov 2024) · Boston University (Nov 2024) · UT Austin (Nov 2024) · IIT Gandhinagar (Nov 2024) · ACIC (May 2024) · NC State University (Mar 2024) · ENAR (Feb 2024) · ICERM (Nov 2023)

A Double Machine Learning Approach to Combining Experimental and Observational Studies

INFORMS Annual Meeting (Oct 2023) · IISA Annual Meeting (Dec 2022)

Causal Inference for High Stakes Decision Making

Wake Forest University School of Medicine (Mar 2023) · NC State University (Jan 2023) · MIDAS, Johns Hopkins (Sep 2022) · Jacobs Technion–Cornell Institute (Oct 2022) · Microsoft Research (Nov 2022)

Validating Causal Inference Methods

ICML (Jul 2022) · Clinical Data Animation Center, MGH (Aug 2022) · SER Conference (Jun 2023)

Matching After Learning to Stretch

ICML (Aug 2023) · Duke Microeconometrics (Sep 2019) · IIT Gandhinagar (Dec 2019)

Effect of Epileptiform Activity in Critically Ill Patients

Clinical Data Animation Center, MGH (Sep 2021)

TEACHING

Fall 2025

Instructor — Introduction to Data Science

Yale University

2024

Instructor — Interpretable Machine Learning Tutorial

International Conference on Computational Social Science (IC2S2)

Fall 2019

Instructor — Introduction to Causal Inference (Advanced)

Duke Datathon

Spring 2019

Teaching Assistant — COMPSCI 671 Machine Learning

Duke University

Fall 2018	Instructor — Introduction to Data Science Duke MEMPDC (Consulting Club)
Fall 2018	Teaching Assistant — COMPSCI 590.02 Computational Microeconomics Duke University
Spring 2018	Teaching Assistant — COMPSCI 223 Computational Microeconomics Duke University
2016–2017	Teaching Assistant — COMPSCI 230 Discrete Mathematics Duke University (Fall 2017, Spring 2017)
Fall 2016	Teaching Assistant — COMPSCI 201 Data Structures & Algorithms Duke University

POPULAR MEDIA

Harsh Parikh, Ankita Gupta, Subham. Covid-19: Mitigating the risk from reverse migration. *Ideas for India*, 2020

Harsh Parikh, Kumar Subham. Efficacy of India's Covid-19 response. *Center for Soft Power*, 2020

Ammar Malik, Harsh Parikh. Rents are driven by the quality of public services, not proximity to transit. *Urban Wire: International Development*, 2017

Fenohasina Rakotondrazaka Maret, Harsh Parikh, Rachel Wilder. Empowering women through international tourism. *Urban Wire: International Development*, 2017

Harsh Parikh. Book Review: The Indian Economy—A Macroeconomic Perspective. *ARTNeT UNESCAP*, 2017

SERVICE

Reviewer

JRSS (2021, 2025) · JASA (2025) · JMLR (2024) · Nature Human Behaviour (2022) · AISTATS (2021, 2023–25) · NeurIPS (2021, 2025) · Management Science (2021–22)

Leadership

Project Manager, NC Voucher Program Evaluation (2017) · Project Manager, Slum Development, AINA IIT Delhi (2011–15) · Committee Chair, CS Dept. Socials, Duke (2019–20) · President, Duke Indian Students Association (2019–21) · Treasurer, Duke Cricket Team (2017–20)

SKILLS & COURSEWORK

Coursework	Causal Inference, Machine Learning, Bayesian Statistics, Reinforcement Learning, Algorithms, Probability & Stochastic Processes, Linear Algebra, Real Analysis, Econometrics, Micro/Macroeconomics
Programming	Python, Java, C/C++, STATA, R, MATLAB, SQL, HTML, PHP, Perl, ArcGIS

REFERENCES

Cynthia Rudin

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Elizabeth Stuart

Biostatistics, Johns Hopkins
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Alexander Volfovsky

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Epidemiology, Columbia University
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