

Apoorva Lal

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Education

2018-2023	Ph.D. Political Science, Stanford University, Stanford, CA Primary field: <i>Statistical Methodology</i> Committee: Jens Hainmueller , Avi Acharya, Justin Grimmer, Stefan Wager
2017-2018	M.A. Economics, Vancouver School of Economics, University of British Columbia, Vancouver, BC
2011-2015	B.A. Economics, Political Science, Williams College, Williamstown, MA

Employment

08/2023 -	Data Scientist, Netflix, Los Gatos, CA Data scientist on cross-functional core experimentation and Machine Learning and Inference Research teams performing software-development for and research on causal inference, adaptive experimentation, and machine learning.
06/2022- 09/2022	Causal Inference and Experimentation Intern, Netflix, Los Gatos, CA Developed econometric methodology and an open source R package to generalize or transport experimental or observational causal estimates from non-representative samples to a target population using double machine learning methods. Collaborated with various business verticals to speed up learning from experiments.
06/2021 - 09/2021	Consulting Data Scientist World Bank Development and Impact Evaluation (DIME), DE JURE Group Applied econometrics, machine learning, and NLP tools to projects in political economy and law and economics. Tasks included the analysis of an experiment in judicial education in Peru, design and implementation of survey experiments comparing quadratic voting with conjoint analysis, and design and implementation of heterogeneous effects estimators on the universe of US district and circuit-court cases since the mid-20th century.
09/2018 - 06/2021	Research Assistant, Jonathan Rodden, Justin Grimmer, Avi Acharya, Stanford Data collection, web-scraping, statistical modelling, geospatial analysis, and data-visualization tasks on research projects on network effects in firearm ownership (using massive administrative datasets), preregistration and p-hacking (using manually collected data from a decade worth of published work), and political accountability (observational data) and game theoretic models of political institutions, respectively.
06/2019 - 09/2019	Graduate Research Fellow, Immigration Policy Lab, Stanford, CA Led study design and data analysis on a project examining the downstream consequences of labour migration in South Asia, and assisted with data analysis in a project relating to healthcare consequences of policy announcements by US federal agencies on vulnerable populations.
06/2019 - 08/2019	Data Science Intern, Atlas AI, Palo Alto, CA Produced high-resolution poverty maps of Sub-Saharan Africa using CNNs to predict household wealth measures from census data using satellite imagery from LANDSAT; used this data to analyse spatial patterns in economic growth and development-aid allocation using spatial econometrics tools.
09/2017 - 08/2018	Research Consultant, Seto Lab, Yale School of Forestry & Environmental Studies Applied change-point detection methods to LANDSAT remote-sensing data to analyse patterns of urbanization in the greater Himalayan region and produced a granular vulnerability index; validated this vulnerability index using post-disaster census data from the 2015 earthquake in Nepal.
10/2017- 03/2019	Research Assistant, Joshua Gottlieb, UBC, Vancouver, BC Performed model simulation, data analysis and visualization tasks on projects relating labour policies and entrepreneurship, as well as spillover effects in top income inequality in the medical profession using administrative medical claims level data.
07/2015 - 07/2017	Statistical Programmer, Acumen, LLC / The Sphere Institute, Burlingame, CA

Performed statistical programming, data analysis, and visualization on massive claim-level administrative datasets, econometric modelling for various risk-adjustment models for Medicare and Medicaid beneficiaries, and healthcare policy research work for several projects commissioned by the Centre for Medicare and Medicaid Services, Centre for Medicare and Medicaid Innovation, and the Department of Health and Human services.

Research

Research Interests

Causal Inference • Applied Econometrics • Machine Learning • Political Economy • Economic Development

Papers

13. Lal, Apoorva and Daniel M Thompson, *How much did Private Election Administration Funding advantage Democrats in 2020?*, Accepted, **Proceedings of the National Academy of Sciences (PNAS)**, 2024
Stanford Causal Science Center Award, Stanford Data Science Conference 2023
Conferences: Stanford Causal Science Center Conference, POLMETH 2023
12. Lal, Apoorva. *Augmented Balancing Estimators of the Average Treatment Effect on the Treated in cross-sectional and panel designs*
Conferences: ACIC 2023, Interactive Causal Learning Conference 2023
11. Samir Khan, Apoorva Lal, and Johan Ugander. *Why Stop at an ATE? Partial identification of dose-response functions in algorithmic interventions*
Conferences: MIT CODE 2023
10. Bibaut, Aurelien, Nathan Kallus, Apoorva Lal, Simon Ejdeymyr, and Michael Zhao. *Long-Term Causal Inference with Imperfect Surrogates using Many Weak Experiments, Proxies, and Cross-Fold Moments*
Conferences: MIT CODE 2023
9. Lal, Apoorva, **Yiqing Xu**, **Mac Lockhart**, and **Ziwen Zu**. *How Much Should We Trust Instrumental Variable Estimates in Political Science? Practical Advice based on Over 60 Replicated Studies*, Forthcoming, **Political Analysis**, 2023
Conferences: APSA, MPSA, POLMETH
8. Lal, Apoorva. *Tobler meets Robinson: Semiparametric methods for Covariate Adjustment using Spatial Data*, 2022+
Conferences: POLMETH, ACIC, TWEEDS, Stanford Causal Science Center Conference, UCLA Methods Seminar
7. Lal, Apoorva, Wenjing Zheng, and Simon Ejdeymyr. *A Framework for Generalization and Transportation of Causal Estimates under Covariate Shift*, 2022+
Conferences: CODE, ACIC, AEA Annual Meeting, NABE
6. Lal, Apoorva. *Bandit Algorithms for Budget-Constrained Data Collection*
Conferences: CODE, MPSA, MAPLEMETH
5. Lal, Apoorva, **Derek Willis**, **Gaurav Sood** **Avidit Acharya**. *Asymmetries in Cricket*, Forthcoming, **Journal of Sports Analytics**, 2023+
4. Ge, Shuning, **Guy Grossman**, **Katrina Kosec**, Apoorva Lal, and **Benjamin Laughlin**. *The Electoral Consequences of Cell-phone Coverage Expansion*, Revise and Resubmit, **Political Science Research and Methods**, 2022+
Conferences: APSA, MPSA
3. Lal, Apoorva, **Saad Gulzar** and **Ben Pasquale**. *Local Representation And Forest Conservation: Evidence From India's Scheduled Areas*, **American Political Science Review**, 2023
Paul A. Sabatier Best Conference Paper Award from the Science, Technology, and Environmental Policy section of APSA, 2020
Conferences: APSA 2020, PACDEV Berkeley, MPSA
2. Lal, Apoorva. *Land Tenure and Missing Women: Evidence from North India*, Revise and Resubmit, **Journal of Historical Political Economy**, 2019+
Conferences: IUSSP, UCLA Compass
1. Lal, Apoorva. *Political Consequences of Youth Franchise Extension: Evidence from India's 61st Amendment*, 2021+

Work in Progress

3. Lal, Apoorva, Ziyi Liu, and Yiqing Xu. *Augmented Balancing for Panel Data: A Synthesis*
2. Lal, Apoorva. *Moment Selection for Empirical Likelihood Treatment Effect Estimators*
1. Lal, Apoorva, **Vinish Shrestha**, **Rashesh Shrestha**, and **Avidit Acharya**. *Mass Education and Political Mobilization: Evidence from Nepal*

Skills

Programming	Python, R, Julia (Advanced), Matlab, Stata, Stan, C++ (Intermediate), JavaScript, SAS (Reluctant)
Markup / Visualization	LaTeX, Markdown, Pandoc, D3, Shiny
Geo-spatial	(Arc/Q)GIS, GDAL, Python spatial stack (geopandas, pysal), Google Earth Engine

Software

Software Projects and open-source contributions listed at [my website](#) and [my github](#)

Awards, Honors, and Grants

Stanford Impact Labs Fellowship (2021)
Stanford Data Science Scholars Programme, Finalist (2020)
Kleinheinz Family Graduate Fellowship (2018-2023), Stanford University
Highest Honors, Williams College (2015)

Talks

2023	NABE Tech Economics Conference , Stanford Data Science Conference, American Causal Inference Conference (ACIC) × 2, POLMETH, MIT CODE , Interactive Causal Learning Conference
2022	MIT CODE , TWEEDS , MPSA, UCLA Department Methods Seminar, American Causal Inference Conference , MapleMETH, POLMETH
2021	Stanford Causal Science Center Conference, MIT CODE , APSA, POLMETH, POLMETH Asia
2020	APSA, Pacific Conference for Development Economics (PACDEV)
2019	Stanford GSB Political Economy Brown Bag, Stanford Text as Data Conference, APSA, IUSSP Population Poverty and Inequality Research Conference, UCLA Compass Conference

Teaching

Spring 2021, 2022	POLISCI 450C: PhD Machine Learning , TA for Prof Justin Grimmer
Winter 2021, 2022	POLISCI 450B: PhD Causal Inference , TA for Prof Jens Hainmueller
Summer 2020	POLISCI 153Z: Game Theory (<i>Cancelled due to COVID19</i>), TA for Prof Avi Acharya
Fall 2019	POLISCI 150A/355A (Data Science for Politics) , Stanford , TA for Prof Yiqing Xu
Spring 2018	ECON 102 (Introductory Macroeconomics) , UBC , TA for Prof Cheryl Fu
Fall 2017	ECON 101 (Introductory Microeconomics) , UBC , TA for Prof Nisha Malhotra
Spring 2015	ECON 516 (International Trade) , Williams College , TA for Prof Will Olney

Service

Reviewer: Science Advances (x2), Research and Politics, Journal of Politics, American Causal Inference Conference (ACIC), Journal of the Royal Statistical Society : Series B (Methodology), Japanese Journal of Political Science, Journal of Business and Economic Statistics, Biometrics