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## Professional Experience

2023- RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY  
*Assistant Professor*, Department of Statistics.

## Education

2017-2023 CARNEGIE MELLON UNIVERSITY  
Ph.D. in Statistics. Advisor: Edward H. Kennedy.  
Dissertation: “Topics in nonparametric causal inference.” ([download link](#))

2017-2019 CARNEGIE MELLON UNIVERSITY  
M.S. in Statistics.

2012-2016 HARVARD UNIVERSITY  
B.A. *cum laude and high honors* in Statistics.  
Thesis: “A study on tests of MCAR.” Advisor: Victoria Liublinska

## Other Work Experience & Training

2016-2017 CORNERSTONE RESEARCH  
Analyst

2014-2015 HARVARD BUSINESS SCHOOL  
Research Assistant for Professors Josh Lerner, Erin Scott and Pian Shu

## Grants

2024-2027 NSF DMS Grant 2413891 (Principal Investigator)  
“Nonparametric estimation in causal inference: optimality in traditional models and newer ones”

## Awards & Honors

2023 Umesh K. Gavasakar Best Dissertation Award, Dept. of Statistics & DS, Carnegie Mellon  
2023 “Student of the Year” Award, the American Statistical Association, Pittsburgh Chapter  
2022 Graduate Student Assembly/Provost Conference Funds  
2020 Winner of 2020 JSM Student Paper Award– Statistics in Epidemiology Section  
2020 Graduate Student Assembly/Provost Conference Funds  
2019 Graduate Student Assembly/Provost Conference Funds  
2019 “Best TA of the Year” Award, Carnegie Mellon University, Statistics & Data Science Department  
2018 Graduate Student Assembly/Provost Conference Funds  
2014 Harvard Business School PRIMO Fellowship  
2013-2014 Harvard College Scholar

## Publications & Manuscripts

(Note: \* indicates equal contribution)

20. [Bonvini M](#) and Vansteelandt S. Efficient influence functions. *Wiley StatsRef-Statistics Reference Online*.
19. [Bonvini M](#), Wu J, Kennedy EH, Brand J, Xie Y. On Regression with Estimated Covariates.
18. [Bonvini M](#), Kennedy EH, and Keele L. Higher-order estimators of time-varying effects in anisotropic smoothness models.
17. Keele L, [Bonvini M](#), Storås A, Shirvaikar V, Li H, Jørgensen N, Salsali A, Medici M, Mertens A, and Kvist K. Exploring heterogeneous treatment effects for GLP-1 receptor agonists in patients with type 2 diabetes.
16. Zheng M, [Bonvini M](#), and Guo Z. Perturbed Double Machine Learning: Nonstandard Inference Beyond the Parametric Length. [arXiv:2511.01222](#)
15. [Bonvini M](#), Kennedy EH, Duke O, and Balakrishnan S. Doubly-robust inference and optimality in structure-agnostic models with smoothness. [arXiv:2405.08525](#)
14. [Bonvini M](#), Zeng Z, Yu M, Kennedy EH, and Keele LJ. Flexibly estimating and interpreting heterogeneous treatment effects of laparoscopic surgery for cholecystitis patients. [arXiv:2311.04359](#)
13. [Bonvini M](#), Kennedy EH, and Keele LJ. Minimax optimal subgroup identification. [arXiv:2306.17464](#)
12. Levis A, [Bonvini M\\*](#), Zeng Z\*, Kennedy EH, and Keele LJ. Covariate-assisted bounds on causal effects with instrumental variables. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, qkaf028, 2025. [doi.org/10.1093/jrssb/qkaf028](https://doi.org/10.1093/jrssb/qkaf028).
11. [Bonvini M](#), Kennedy EH, Ventura V, and Wasserman L. Sensitivity analysis for marginal structural models. [arXiv:2210.04681](#).
10. [Bonvini M](#) and Kennedy EH. Fast convergence rates for dose-response estimation. [arXiv:2207.11825](#).
9. [Bonvini M](#), Kennedy EH, Ventura V, and Wasserman L. Causal inference for the effect of mobility on COVID-19 deaths. *Annals of Applied Statistics*. 16 (4), 2458-2480, 2022. [doi:10.1214/22-AOAS1599](https://doi.org/10.1214/22-AOAS1599).
8. [Bonvini M\\*](#), McClean A\*, Branson Z, and Kennedy EH. Incremental causal effects: An introduction and review. In *Handbook of Matching and Weighting Adjustments for Causal Inference* (pp. 349-372). Chapman and Hall/CRC. [doi:10.1201/9781003102670](https://doi.org/10.1201/9781003102670).
7. Kennedy EH, [Bonvini M\\*](#), and Mishler A\*. Comment on “Statistical Modeling: The Two Cultures” by Leo Breiman. *Observational Studies*, 7 (1), 145-156, 2021. [doi:10.1353/obs.2021.0001](https://doi.org/10.1353/obs.2021.0001).
6. Scharfstein DO, Nabi R, Kennedy EH, Huang MY, [Bonvini M](#), and Smid M. Semiparametric sensitivity analysis: unmeasured confounding in observational studies. [arXiv:2104.08300](#).
5. [Bonvini M](#) and Kennedy EH. Sensitivity analysis via the proportion of unmeasured confounding. *Journal of the American Statistical Association*, 1-31, 2021. [doi.org/10.1080/01621459.2020.1864382](https://doi.org/10.1080/01621459.2020.1864382).  
- Winner of 2020 JSM Student Paper Award (Statistics in Epidemiology Section)
4. Dauvin A, Donado C, Bachtiger P, Huang K, Sauer CM, Ramazzotti D, [Bonvini M](#), and Celi LA. Machine learning can accurately predict pre-admission baseline hemoglobin and creatinine in intensive care patients. *npj Digital Medicine*, 2 (1), 1-10, 2019. [doi.org/10.1038/s41746-019-0192-z](https://doi.org/10.1038/s41746-019-0192-z).
3. Pricolo VE, Viani K, [Bonvini M](#), Abelli C, and McDuffie T. Challenges in management of squamous cell carcinoma of the anus in New England and across the United States - a review of the National Cancer Data Base. *American Journal of Clinical Oncology*, 41 (7), 662-666, 2018. [doi:10.1097/COC.0000000000000369](https://doi.org/10.1097/COC.0000000000000369).
2. Pricolo VE, [Bonvini M](#), and Abelli C. Patterns of care for anal cancer in the United States: a comparison between academic and community cancer centers. *BMC Cancer*, 18 (1), 567, 2018. [doi:10.1186/s12885-018-4488-1](https://doi.org/10.1186/s12885-018-4488-1).
1. Pricolo VE, Fei P, Crowley S, Camisa V, and [Bonvini M](#). A novel enhanced recovery protocol for colectomy, combining multimodal analgesia with pharmacologic intervention, reduces postoperative opioids use and hospital length of stay. *International Journal of Surgery Open*, 13, 24-28, 2018. [doi.org/10.1016/j.ijso.2018.07.007](https://doi.org/10.1016/j.ijso.2018.07.007).

## Invited Talks & Conference Presentations

31. \*2026 Data Science, Statistics and Visualization Conference (DSSV), Trento, Italy. (06/2026)
30. IMS International Conference on Statistics and Data Science, Seville, Spain. (12/2025)
29. EcoSta Conference, Tokyo, Japan. (08/2025)
28. Joint Statistical Meetings, Nashville, TN. (8/2025)
27. International Indian Statistical Association Conference, Lincoln, NE. (6/2025)
26. American Causal Inference Conference, Detroit, MI. (5/2025)
25. Biostatistics Department Causal Research Group Seminar at Columbia University, New York, NY. (4/2025)
24. Biostatistics Department Seminar at the University of Florida, Gainesville, FL. (1/2025)
23. IMS International Conference on Statistics and Data Science, Nice, France. (12/2024)
22. Biostatistics Department Seminar at New York University Langone, New York, NY. (12/2024)
21. New York University Langone Biostatistics Symposium, New York, NY. (10/2024)
20. Joint Statistical Meetings, Portland, OR. (8/2024)
19. 2nd Joint Conference on Statistical and Data Science, Kunming, China. (7/2024)
18. 2024 Hangzhou International Conference on Frontiers of Data Science, Hangzhou, China. (7/2024)
17. 2024 Pacific Causal Inference Conference, Shanghai, China. (7/2024)
16. Seminar at Zhejiang University, Hangzhou, China. (7/2024).
15. 52nd Scientific Meeting of the Italian Statistical Society, Bari, Italy. (6/2024)
14. American Causal Inference Conference, Seattle, WA. (5/2024)
13. European Causal Inference Meeting (EuroCIM). (4/2024)
12. IMS International Conference on Statistics and Data Science, Lisbon, Portugal. (12/2023)
11. International Conference on Computational & Methodological Statistics, London, UK. (12/2022)
10. QTM Seminar at Emory University, Atlanta, GA. (10/2022)
9. International Chinese Statistical Association— Applied Statistics Symposium, Gainesville, FL. (6/2022)
8. American Causal Inference Conference, Berkeley, CA. (5/2022)
7. International Conference on Computational & Methodological Statistics, Online. (12/2021)
6. Joint Statistical Meetings, Online. (8/2020)
5. International Conference on Computational & Methodological Statistics, London, UK. (12/2019)
4. Joint Statistical Meetings, Denver, CO. (7/2019)
3. Atlantic Causal Inference Conference, Montreal, Canada. (5/2019)
2. Joint Statistical Meetings, Vancouver, Canada. (8/2018)
1. Atlantic Causal Inference Conference, Pittsburgh, PA. (5/2018)

## Advising & Mentorship

### *Ph.D. students*

2025 - present    Mengchu Zheng  
 2025 - present    Liuyang Xu  
 2024 - present    Jiaqi Wu

### *Master students*

2025- present    Anurag Mallick

## Referee Service

### *Statistical & Methodological Journals*

Annals of Applied Statistics, Annals of Statistics, Bernoulli, Biometrics, Biometrika, Biostatistics, Electronic Journal of Statistics, Epidemiology, International Journal of Biostatistics, Journal of Causal Inference, Journal of Machine Learning Research, Journal of the American Statistical Association, Journal of the Royal Statistical Society: Series B, Observational Studies, Quantitative Economics, Statistics in Medicine

#### *Other Scientific Journals*

Circulation

#### *Grant Review*

U.S. National Science Foundation

#### **Software**

*sensitivitypuc*: R package for performing sensitivity analysis via the proportion of unmeasured confounding. ([github.com/matteobonvini/sensitivitypuc](https://github.com/matteobonvini/sensitivitypuc))

*drl.cate*: R package for estimating heterogeneous treatment effects. ([github.com/matteobonvini/drl.cate](https://github.com/matteobonvini/drl.cate))

#### **Teaching Experience**

##### *As Primary Instructor at Rutgers*

Regression Analysis (16:598-960:563), Fall 2025  
Statistical Modeling and Computing (16:954:567), Spring 2025  
Regression and Time Series (16:954:596), Fall 2024  
Regression Analysis in Finance (16:598:563), Fall 2023

##### *As Primary Instructor at Carnegie Mellon*

Introduction to Statistical Inference (36-226 U), Summers 2019, 2020

##### *Guest Lectures at Carnegie Mellon*

Modern Regression (36-401), Fall 2021  
Modern Causal Inference (36-732), Spring 2020  
Undergraduate Advanced Data Analysis (36-402), Spring 2019

##### *As Teaching Assistant at Carnegie Mellon*

Modern Regression, Head TA (36-401), Fall 2020  
Undergraduate Advanced Data Analysis, Head TA (36-402), Spring 2019  
Statistical Graphics and Visualization (36-315), Fall 2017, Spring 2018

#### **Academic Service**

*Professional Memberships*

American Statistical Association  
Society for Causal Inference  
Institute of Mathematical Statistics