Ajinkya Kokandakar

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I am a final-year Ph.D. candidate in the Statistics at the University of Wisconsin–Madison pursuing research in causal inference and Bayesian methods. Currently, my work focuses on heterogeneous treatment effect estimation, and causal inference when the exposure is not very well-defined. In addition to my research, I work as a statistical consultant on campus and therefore have experience working with clients. I also have experience writing software for statistical models in `R/C++`, and I have contributed to multiple open source projects in the `Julia` programming language ecosystem.

Education

- **University of Wisconsin–Madison** — Madison, WI
  Ph.D. Statistics; GPA: 3.95 — *2020 – Present*
- **Duke University** — Durham, NC
  M.S. Economics and Computation; GPA: 3.88 — *2018 – 2020*
- **Birla Institute of Technology and Science, Pilani** — Pilani, India
  B.E. Computer Science and M.Sc. Economics; GPA: 3.64 (9.11/10) — *2012 – 2017*

Publications

- **Kokandakar, A.H.**, Lin, Y., Jin, S., Weiss, J., Rabinowitz, A.R., May, R.A.B., Small, D., and Deshpande, S.K. (2024), "Adolescent sports participation and health in early adulthood: An observational study". Adolescent Sports Participation and Health in Early Adulthood: An Observational Study. Youth & Society. DOI: 10.1177/0044118X241310245. [arXiv:2405.03538]
- Kim, E. J., Holloway T., **Kokandakar, A.H.**, Harkey, M., Elkins, S., Goldberg, D. L., Heck, C. (2024), "Quantifying Near-Surface NO2 with Satellite Data Using Regression Methods". Journal of Geophysical Research: Atmospheres, 129, e2024JD040906, DOI:10.1029/2024JD040906
- **Kokandakar, A.H.**, Lin, Y., Jin, S., Weiss, J., Rabinowitz, A.R., May, R.A.B., Small, D., and Deshpande, S.K. (2024), "Pre-analysis protocol for an observational study on the effects of adolescent sports participation on health in early adulthood". *Obesrvational Studies*, 10(1), 11-35. DOI:10.1353/obs.2024.a929115. [arXiv:2211.02104] (*Presented as a poster at the 2023 American Causal Inference Conference, Austin TX*)
- **Kokandakar, A.H.**, Kang, H., and Deshpande, S.K. (2023). "Bayesian Causal Forests & the 2022 ACIC Data Challenge: Scalability and Sensitivity." *Observational Studies*, 9(3), 29-41, DOI:10.1353/obs.2023.0024. [arXiv:2211.02020]
- Challa, J.S., Goyal, P., **Kokandakar, A.**, Mantri, D., Verma, P., Balasubramaniam, S., and Goyal, N. (2022). "Anytime clustering of data streams while handling noise and concept drift." *Journal of Experimental & Theoretical Artificial Intelligence*, 34(3), 399-429, DOI:10.1080/0952813X.2021.1882001.

Work Experience

- **Mathematica Inc.** — Remote
  Data Science Intern — *June 2024 - Dec 2024*
  - Developed a scalable implementation of aggregate Bayesian Causal Forests (aBCF) in R/C++ for estimating the impact of CMS payment models using large datasets. The scalable implementation reduced the modeling runtime by a factor of 2 over the previous implementation.
  - Updated and maintained a database made available to all researchers in the organization consisting of multiple datasets containing hospital information related to hospital characteristics, price utilization, and quality measures.
- **Statistical Consulting Group** — Madison, WI
  Project Assistant (Statistical Consultant) — *Aug 2023 - May 2024, Aug 2024 - Present*
  - Advised more than 15 clients including graduate students, faculty members, and research scientists in the College of Agriculture and Life Sciences on experimental design, statistical analysis and visualization.
- **Infosys Ltd.** — Bangalore, India
  Specialist Programmer — *July 2017 – May 2018*
  - Developed the telemetry and data analytics module for the company's internal learning platform.
- **Reserve Bank of India** — Jaipur, India
  Summer Intern, Department of Statistics and Information Management — *Summer 2016*
  - Analyzed the distribution of food consumption expenditure in India and calculated the first order approximation of compensating variation associated with food price inflation for the deciles of the population based on income.

Academic Research Experience

University of Wisconsin–Madison Madison, WI

- *Research Assistant, Advisor: Dr. Sameer K. Deshpande* *May 2022 – Present*
  - Developing causal inference methods for settings where the exposure is ill-defined or hard to capture.
  - Developed an ordered testing procedure to adaptively detect effects of multiple versions of the treatment condition.
- *Research Assistant, Advisor: Dr. Menggang Yu and Dr. Guanhua Chen* *June 2020 – Dec 2021*
  - Worked on a method for the estimation of heterogeneous treatment effects that is robust to errors drawn from heavy-tailed distributions.

Duke University Durham, NC

- *Research Assistant, Dr. Matthew Masten* *May 2019 — Feb 2020*
  - Conducted a literature survey of methods to assess the sensitivity of the average treatment effect estimators to violations of the conditional ignorability assumption in linear models.
- *Research Assistant, Advisor: Dr. Giuseppe Lopomo* *June 2019 — Dec 2019*
  - Characterized the optimal mechanism for procurement in the presence of bidders with financial externalities.
  - Assisted with research including proofreading drafts of papers, verifying algebraic proofs using Maple, and solving mechanism design problems using CPLEX, AMPL and MATLAB.
- *Research Assistant, Advisor: Dr. Arjada Bardhi* *Jan 2019 — May 2019*
  - Simulated Gaussian processes using the GPML toolkit for MATLAB.
  - Simulated Poisson Bandit Problems to calculate discounted occupancy measures for each arm.

Teaching Experience

- **University of Wisconsin–Madison** Madison, WI
  Teaching Assistant, Department of Statistics
  - STAT 451: Introduction to Machine Learning and Statistical Pattern Classification (Fall 2023)
  - STAT 240: Data Science Modeling 1 (Fall 2022)
  - STAT 371: Introductory Applied Statistics for the Life Sciences (Spring 2022)
- **Duke University** Durham, NC
  Teaching Assistant, Department of Computer Science
  - COMPSCI 370: Introduction to AI (Spring 2020)
  - COMPSCI 201: Algorithms and Data Structures (Spring 2019)
- **Birla Institute of Technology and Science, Pilani** Pilani, India
  Undergraduate Teaching Assistant
  - CS F211: Data Structures and Algorithms
  - ECON F412: Securities Analysis and Portfolio Management
  - ECON F212: Fundamentals of Finance and Accounting
  - ECON F211: Principles of Economics

Awards

- 2023 Student Research Grants Competition Travel Award, University of Wisconsin–Madison
- 2018 Duke Economics Master's Scholar Award
- National Talent Search (NTS) Scholarship, India (2008)

Extracurricular and Leadership Activities

- Vice-President and Student Seminar Organizer, Statistics Graduate Student Association, UW–Madison (2023-2024)
- Co-chair, Social Committee, Department of Computer Science, Duke University (Fall 2019)

Technical Skills

R, C/C++, Python, Julia, MATLAB, SQL, Excel, LaTeX, Git, Rust(beginner)