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Academic Appointments

Aug 2019 – Assistant Professor, Department of Statistics, **University of Florida**.

Education

2019 Ph.D. in Statistics, **The Wharton School, University of Pennsylvania**.

2019 M.A. in Statistics, **The Wharton School, University of Pennsylvania**.

2013 Master of Statistics, *with distinction*, **Indian Statistical Institute**, Kolkata, India.

2011 Bachelor in Statistics (Honors), *with distinction*, **Indian Statistical Institute**.

Pre-print articles¹

27. A. Ghosh, N. Deb, B. Karmakar, and B. Sen. “Efficiency of Regression (Un)-Adjusted Rosenbaum’s Rank-based Estimator in Randomized Experiments.”
26. Z. Qin and B. Karmakar. “Inference using the asymptotic distribution of partial rank statistics under general alternatives.”
25. B. Karmakar and B. Pareek. “Leaf nodes of decision trees as balancing score in observational studies with multiple treatments.”
24. B. Karmakar, O. Kwon, G. Mukherjee, S. Siddarth and J. M. Silva-Risso. “Analyzing consumer choices for hybrid cars using a probit model with multiple spatial weights.”
23. B. Karmakar. “Regression to the mean in regression discontinuity design: Bias and sensitivity analysis.”
22. B. Karmakar. “Improved power of multiple sensitivity analyses in observational studies using smoothed truncated product method.”
21. B. Karmakar, B. Pareek, D. S. Small and P. Ghosh. “Differential effect of demonetization on digital payments in India: Causal inference in the absence of controls.” Reject and Resubmit.
20. B. Karmakar. “A superior design and analysis of an observational study that exactly balances many job categories within several strata to study the effect of job displacement on pension benefits.” Major revision.
19. B. Karmakar, O. Kwon, G. Mukherjee, S. Siddarth and J. M. Silva-Risso. “A Bayesian structural uncertainty model to target loyalty and conquering rebates to consumers with correlated preferences.”

¹preprints available upon request.

18. **Biostatistics & Epidemiology** (2021+) B. Karmakar and D. S. Small. “Constructing independent evidence from regression and instrumental variables with an application to the effect of violent conflict on altruism and risk preference.” *Minor revision*.

Publications²

17. **Journal of the Royal Statistical Society - Series B** (2022) B. Karmakar. “An approximation algorithm for blocking of an experimental design.” *To appear*.
16. **The Annals of Statistics** (2022) A. Zhao*, Y. Lee*, D. S. Small and B. Karmakar. “Evidence factors from multiple, possibly invalid, instrumental variables.” 50(3), 1266–1296.
15. **Journal of the Royal Statistical Society - Series A** (2022) B. Karmakar, P. Liu, G. Mukherjee, H. Che and S. Dutta. “Improved retention analysis in freemium role-playing games by jointly modeling players’ motivation, progression and churn.” 185, 102–133. DOI: 10.1111/rssa.12730.
14. **Journal of the American Statistical Association**. (2021) B. Karmakar, D. S. Small, and P. R. Rosenbaum. “Reinforced designs: Multiple instruments plus control groups as evidence factors in an observational study of the effectiveness of Catholic schools.” 116(533), 82–92.
13. **The Annals of Applied Statistics** (2020) B. Karmakar, C. A. Doubeni, and D. S. Small. “Evidence factors in a case-control study with application to the effect of flexible sigmoidoscopy screening on colorectal cancer.” 14, 829–849.
12. **The Annals of Statistics**. (2020) B. Karmakar and D. S. Small. “Assessment of the extent of corroboration of an elaborate theory of a causal hypothesis using partial conjunctions of evidence factors.” 48(6), 3283–3311.
11. **American Journal of Epidemiology**. (2020) B. Karmakar, D. S. Small, and P. R. Rosenbaum. “Using evidence factors to clarify exposure biomarkers.” 189(3), 243–249.
10. **Biometrika**. (2019) B. Karmakar, B. French, and D. S. Small. “Integrating the evidence from evidence factors in observational studies.” 1066, 353–367.
9. **Journal of Computational and Graphical Statistics**. (2019) B. Karmakar, D. S. Small, and P. R. Rosenbaum. “Using approximation algorithms to build evidence factors and related designs for observational studies.” 28(3), 698–709.
8. **Nature, Scientific Reports**. (2019) B. Karmakar, S. Das, S. Bhattacharya, R. Sarkar, and I. Mukhopadhyay. “Tight clustering for large data sets with an application to gene expression data.” vol. 9, no. 1, 3053.
7. **Electronic Journal of Statistics**. (2018) B. Karmakar, R. Heller, and D. S. Small. “False discovery rate control for effect modification in observational studies.” 12(2), 3232–3253.
6. **Information Sciences**. (2018) B. Karmakar and N. R. Pal. “How to make a neural network say “Don’t know”?” vol. 430-431, 444–466.
5. **Sequential Analysis**. (2018) B. Karmakar and I. Mukhopadhyay. “Risk efficient sequential estimation of multivariate random coefficient autoregressive process.” 38(1), 26–45.
4. **Communications in Statistics - Theory and Methods**. (2018) B. Karmakar and I. Mukhopadhyay. “Risk efficient estimation of fully dependent random coefficient autoregressive models of general order.” 47(17), 4242–4253.

²available from the Webpage. * indicates equal contributions.

Software

GitHub: <https://github.com/bikram12345k>

struncatedP	R package for implementing the smoothed truncated product method. [github.com/bikram12345k]
BlockingAlgo	Implementation of approximation algorithms for blocking of an experimental design. [github.com/bikram12345k]
blockingChallenge	R package for creating blocks or strata of units with similar covariates in each stratum. [CRAN, github.com/bikram12345k]
approxmatch	R package for creating approximately optimal fine balance matching with multiple groups. [CRAN]
evidenceFactors	R package for reporting tools for sensitivity analysis of evidence factors in observational studies. [CRAN]

Teaching Experience

Instructor

STA6208	Basic Design and Analysis of Experiments, Spring 2022.
STA6166	Statistical Methods in Research I, Fall 2021, Fall 2022.
STA4322	Introduction to Statistical Theory, Spring 2021, Fall 2022.
STA6126	Statistical Methods in Social Research I, Fall 2020, Fall 2021.
STA4321/5325	Fundamentals of Probability, Fall 2019, Spring 2020.
STAT111	Introduction to Statistics, Summer 2017 (at UPenn).

Teaching Assistant

STAT475/920	Sample Survey Design, Spring 2018 and Fall 2018.
STAT521	Applied Econometrics II, Spring 2015 and Spring 2016.
STAT613 (MBA)	Regression Analysis for Business, Fall 2015.
STAT111	Introductory Statistics (recitation), Fall 2016 and Spring 2017.

Professional Experience

2014–2019	Teaching Assistant, Department of Statistics, <i>The Wharton School</i> .
Summer 2017	Academic appointment in the <i>College of Liberal and Professional Studies</i> , University of Pennsylvania.
2013–2014	Analyst in Algo Analytics group at <i>Morgan Stanley Advantages Services</i> .
2012	Trainee Quantitative Analyst at <i>LetsE e-Business Solutions</i> .

Awards and Fellowships

- New Researcher Travel Award, *Institute of Mathematical Statistics*, 2020.
- Student Paper Award, Social Statistics, Government Statistics, and Survey Research Methods Sections (SRMS/GSS/SSS), *American Statistical Association*, 2019.
- Donald S. Murray Award for excellence in teaching, *The Wharton School*, 2018.
- Deming Student Scholar Award, Deming Conference on Applied Statistics, *American Statistical Association*, 2018.
- Student Paper Award, Social Statistics, Government Statistics, and Survey Research Methods Sections (SRMS/GSS/SSS), *American Statistical Association*, 2018.

Student travel award, Wharton Doctoral Programs, *George James Term Fund*, 2016, 2017.
Research and teaching fellowship, *The Wharton School, University of Pennsylvania*, 2015–2019.

Invited Talks

- International Indian Statistical Association (IISA) 2022 Conference, Bangalore, India, Dec 26 – 30, 2022.
- INFORMS Annual Meeting, Indianapolis, IN, Oct 16 – 19, 2022.
- Joint Statistical Meetings, Washington, DC, Aug 6 - 11, 2022.
- Department of Biostatistics, University of Florida, Gainesville, FL, April 15, 2022.
- Biostatistics Seminar Series, Ohio State University, Columbus, OH, March 11, 2022.
- CMStatistics 2021, King’s College London, UK, 18-20 December 2021.
- Statistics Department, Bowling Green State University, Sep 10, 2021.
- ISI World Statistics Conference (ISI WSC) 2021 Conference, July 16, 2021.
- International Indian Statistical Association (IISA) 2021 Conference, May 20, 2021.
- As Discussant in International Seminar on Selective Inference, organized by Rina Barber, Will Fithian, Daniel Yekutieli, and Lihua Lei, 4 March 2021.
- Causal Inference Working Group, Johns Hopkins University, 25 February 2021.
- IEU Seminar, MRC Integrative Epidemiology Unit, University of Bristol, UK, 27 October 2020.
- CMStatistics 2020, King’s College London, UK, 19-21 December 2020.
- EcoSta 2020 Yonsei University, Seoul, South Korea, 20-22 July 2020. (Canceled due to covid)
- Annual Meeting of the Statistical Society of Canada. Ottawa, May 31–June 3, 2020. (Canceled due to covid)
- International Indian Statistical Association (IISA) Conference, Dec. 2019, Mumbai, India.
- INFORMS Annual Meeting, Oct. 2019, Seattle, WA.
- Department of Biostatistics, Penn State University, Hershey, PA, 15 Mar 2019.
- Statistics Group, Data Sciences and Operations, USC Marshall, LA, Jan 2019.
- Statistics Department, University of North Carolina, Chapel-Hill, Jan 2019.
- Department of Biostatistics, Yale University, Jan 2018, New Haven, CT.
- Department of Statistics, University of Florida, Dec 2018, Gainesville, FL.

Professional Services

Reviewer: Journals: *American Journal of Agricultural Economics, Annals of Applied Statistics, Biometrical Journal, Electronic Journal of Statistics, IEEE Journal of Cybernetics, Journal of the American Statistical Association, Journal of the Royal Statistical Society–Series B, Journal of Computational and Graphical Statistics, Journal of Machine Learning Research, Operations Research, PLOS Genetics, Sankhyā A, Statistica Sinica. **Book:** *Chapman & Hall/CRC Press.**

Undergraduate students:

- Hannah J Fechtel (Senior thesis advisor, UF).
- Samuel Michael Thomas (Research mentor, UF).

Graduate students:

- Mirajul Islam (Research, Statistics Department, UF) .
- Zikun Qin (Research, Statistics Department, UF).
- Jaewoong Joo (Co PhD adviser, with Prof. Doss).

Thesis committee:

- Wei Hsieh (Masters, Statistics Department, UF).
- Manan Singh (Doctoral, College of Design Construction and Planning, UF).
- Jaeyoung Park (Doctoral, Industrial and Systems Engineering , UF).

Services:

- Organizer, UF statistics department seminar series (Fall 2021, Spring 2022).
- Lecturer search committee, UF statistics department (2021); led to two hires.
- Faculty adviser, Indian Graduate Student Association, UF (2020 –).