Sameer K. Deshpande

September 2025

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Academic Positions

University of Wisconsin–Madison, Dept. of Statistics — August 2021–present

    Assistant Professor (August 2021–present)

Massachusetts Institute of Technology, CSAIL — September 2018–August 2021

    Postdoctoral Associate (Supervisor: Tamara Broderick)

Education

Ph.D. Statistics, University of Pennsylvania, The Wharton School — May 2018

    Dissertation Title: "Bayesian model selection and estimation without MCMC"
    Dissertation Supervisors: Ed George and Veronika Ročková

S.B. Mathematics, Massachusetts Institute of Technology — June 2013

Research interests

Bayesian hierarchical modeling. Bayesian treed regression. Model selection. Causal inference. Applications in public health and sports.

Preprints & Working Papers

2025

[4] Ghosh, S. and **Deshpande, S. K.** 2025. *High-dimensional regression with outcomes of mixed-type using the multivariate spike-and-slab LASSO.* arXiv: 2506.13007.

2024

[3] Fisher, J. D., Puelz, D. W., and **Deshpande, S. K.** 2024. *A Bayesian classification tree approach to treatment effect variation with noncompliance.* arXiv: 2408.07765.

[2] Brill, R. S., Yee, R., **Deshpande, S. K.**, and Wyner, A. J. 2024. *Moving from machine learning to Statistics: The case of expected points in American football.* arXiv: 2409.04889.

[1] Yee, R., Ghosh, S., and **Deshpande, S. K.** 2024. *Scalable piecewise smoothing with BART.* arXiv: 2411.07984.

Papers

2025

[28] Kokandakar, A. H., Lin, Y., Jin, S., Weiss, J., Rabinowitz, A. R., Buford May, R. A., Small, D., and **Deshpande, S. K.** 2025. "Adolescent sports participation and health in early adulthood: An observational study". In: *Youth & Society*. DOI: 10.1177/0044118X241310245. arXiv: 2405.035838.

[27] **Deshpande, S. K.** 2025. "flexBART: Flexible Bayesian regression trees with categorical predictors". In: *Journal of Computational and Graphical Statistics*. DOI: 10.1080/10618600.2024.2431072. arXiv: 2211.04459.

[26] Shen, Y. and **Deshpande, S. K.** 2025. "Posterior contraction and uncertainty quantification for the multivariate spike-and-slab LASSO". In: *Journal of Multivariate Analysis* 210, p. 105493. DOI: https://doi.org/10.1016/j.jmva.2025.105493. arXiv: 2209.04389.

2024 [25] Alexandr, Y., Bakenhus, M., Curiel, M., **Deshpande, S. K.**, Gross, E., Gu, Y., Hill, M., Johnson, J., Kagy, B., Karwa, V., Li, J., Lyu, H., Petrović, S., and Rodriguez, J. I. 2024. "New directions in algebraic statistics: Three challenges from 2023". In: *Algebraic Statistics* 15.2, pp. 357–382. DOI: 10.2140/astat.2024.15.357. arXiv: 2402.13961.

[24] **Deshpande, S. K.**, Bai, R., Balocchi, C., Starling, J. E., and Weiss, J. 2024. "VCBART: Bayesian trees for varying coefficients". In: *Bayesian Analysis*. DOI: 10.1214/24-BA1470. arXiv: 2003.06416.

[23] Trippe, B. L., **Deshpande, S. K.**, and Broderick, T. 2024. "Confidently comparing estimators with the c-value". In: *Journal of the American Statistical Association* 119.546, pp. 983–994. DOI: 10.1080/01621459.2022.2153688. arXiv: 2102.09705.

[22] Shen, Y., Solis-Lemus, C., and **Deshpande, S. K.** 2024. "Estimating sparse direct effects in multivariate regression with the spike-and-slab LASSO". In: *Bayesian Analysis*. DOI: 10.1214/24-BA1430. arXiv: 2207.07020.

[21] Yee, R. and **Deshpande, S. K.** 2024. "Evaluating plate discipline in Major League Baseball with Bayesian Additive Regression Trees". In: *Journal of Quantitative Analysis in Sports* 20.1, pp. 5–20. DOI: 10.1515/jqas-2023-0048. arXiv: 2305.05752.

[20] **Deshpande, S. K.**, Ghosh, S., Nguyen, T. D., and Broderick, T. 2024. "Are you using test log-likelihood correctly?" In: *Transactions of Machine Learning Research*. arXiv: 2212.00219. URL: https://openreview.net/forum?id=n2YifD4Dxo.

[19] Kokandakar, A. H., Lin, Y., Jin, S., Weiss, J., Rabinowitz, A. R., Buford May, R. A., 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". In: *Observational Studies* 10.1, pp. 11–35. DOI: 10.1353/obs.2024.a929115. arXiv: 2211.02104.

[18] Nguyen, P.-H. V., Yee, R., and **Deshpande, S. K.** 2024. "Oblique Bayesian Additive Regression Trees". In: *Transactions of Machine Learning Research*. arXiv: 2411.08849. URL: https://openreview.net/forum?id=l4Qnj4tHBx.

2023 [17] Smoliga, J. M., **Deshpande, S. K.**, and Binney, Z. O. 2023. "Interaction of surface type, temperature, and week of season on diagnosed concussion risk in Americal football: Bayesian analysis of 8 seasons of National Football League data". In: *Epidemiology* 34.6, pp. 807–816. DOI: 10.1097/EDE.0000000000001657. medRxiv: 10.1101/2022.01.29.22270096v3.

[16] Brill, R. S., **Deshpande, S. K.**, and Wyner, A. J. 2023. "A Bayesian analysis of the time through the order penalty in baseball". In: *Journal of Quantitative Analysis in Sports* 19.4, pp. 245–262. DOI: 10.1515/jqas-2022-0116. arXiv: 2210.06724.

[15] Kokandakar, A. H., **Deshpande, S. K.**, and Kang, H. 2023. "Bayesian causal forests and the 2022 ACIC Data Challenge: Scalability and sensitivity". In: *Observational Studies* 9.3, pp. 29–41. arXiv: 2211.02020. URL: https://muse.jhu.edu/pub/56/article/895651.

[14] Balocchi, C., **Deshpande, S. K.**, George, E. I., and Jensen, S. T. 2023. "Crime in Philadelphia: Bayesian clustering with particle optimization". In: *Journal of the American Statistical Association* 118.542, pp. 818–829. DOI: 10.1080/01621459.2022.2156348. arXiv: 1912.00111.

2022 [13] Lin, Y., Heng, S., Anand, S., **Deshpande, S. K.**, and Small, D. S. 2022. "Hemoglobin levels among male agricultural workers: Analyses from the Demographic and Health surveys to investigate a marker for chronic kidney disease of uncertain etiology". In: *Journal of Occupational and Environmental Medicine* 64.12, e805–e810. DOI: 10.1097/JOM.0000000000002703.

[12] Stephenson, W. T., Ghosh, S., Nguyen, T. D., Yurochkin, M., **Deshpande, S. K.**, and Broderick, T. 2022. "Measuring the robustness of Gaussian processes to kernel choice". In: *Proceedings of The 25th International Conference on Artificial Intelligence and Statistics*. arXiv: 2106.06510. URL: https://proceedings.mlr.press/v151/stephenson22a.html.

2021 [11] Jin, S., Rabinowitz, A. R., Weiss, J., **Deshpande, S. K.**, Gupta, N., Buford May, R. A., and Small,

D. S. 2021. "Retrospective survey of youth sports participation: development and assessment of reliability using school records". In: *PLOS ONE* 16.9, e0257487. DOI: 10.1371/journal.pone.0257487.

[10] Weiss, J., Rabinowitz, A. R., **Deshpande, S. K.**, Hasegawa, R. B., and Small, D. S. 2021. "Participation in collision sports and cognitive aging among Swedish twins". In: *American Journal of Epidemiology* 190.12, pp. 2604–2611. DOI: 10.1371/journal.pone.0229978.

2020 [9] Ghosh, S., Stephenson, W. T., Nguyen, T. D., **Deshpande, S. K.**, and Broderick, T. 2020. "Approximate cross-validation for structured models". In: *Advances in Neural Information Processing Systems*. arXiv: 2006.12669. URL: https://proceedings.neurips.cc/paper/2020/hash/636efd4f9aeb5781e9ea815cdd633e52-Abstract.html.

[8] Hasegawa, R. B., **Deshpande, S. K.**, Small, D. S., and Rosenbaum, P. R. 2020. "Causal inference with two versions of treatment". In: *Journal of Educational and Behavioral Statistics* 45.4, pp. 426–445. DOI: 10.3102/1076998620914003. arXiv: 1705.03918.

[7] **Deshpande, S. K.**, Hasegawa, R. B., Weiss, J., and Small, D. S. 2020. "The association between adolescent football participation and early adulthood depression". In: *PLOS ONE* 15.3, pp. 1–14. DOI: 10.1371/journal.pone.0229978.

2019 [6] Gaulton, T. G., **Deshpande, S. K.**, Small, D. S., and Neuman, M. D. 2019. "Observational study of the association between participation in high school football and self-rated health, obesity, and pain in adulthood". In: *American Journal of Epidemiology* 186.6, pp. 592–601. DOI: 10.1093/aje/kwz260.

[5] **Deshpande, S. K.** and Evans, K. E. 2019. "Expected hypothetical completion probability". In: *Journal of Quantitative Analysis in Sports* 16.2, pp. 85–94. DOI: 10.1515/jqas-2019-0050. arXiv: 1910.12337.

[4] **Deshpande, S. K.**, Ročková, V., and George, E. I. 2019. "Simultaneous variable and covariance selection with the multivariate spike-and-slab LASSO". In: *Journal of Computational and Graphical Statistics* 28.4, pp. 921–931. DOI: 10.1080/10618600.2019.1593179. eprint: 1708.08911.

2017 [3] **Deshpande, S. K.** and Wyner, A. J. 2017. "A hierarchical Bayesian model of pitch framing". In: *Journal of Quantitative Analysis in Sports* 13.3, pp. 95–112. DOI: 10.1515/jqas-2017-0027. arXiv: 1704.00823.

[2] **Deshpande, S. K.**, Hasegawa, R. B., Rabinowitz, A. R., Whyte, J., Roan, C. L., Tabatabaei, A., Baiocchi, M., Karlawish, J. H., Master, C. L., and Small, D. S. 2017. "Association of Playing High School Football With Cognition and Mental Health Later in Life". In: *JAMA Neurology* 74.8, pp. 909–918. DOI: 10.1001/jamaneurol.2017.1317.

2016 [1] **Deshpande, S. K.** and Jensen, S. T. 2016. "Estimating an NBA players impact on his team's chances of winning". In: *Journal of Quantitative Analysis in Sports* 12.2, pp. 51–72. DOI: 10.1515/jqas-2015-0027. arXiv: 1604.03186.

Teaching

University of Wisconsin–Madison

STAT 479: Sports Analytics (Fall 2025)

STAT 775: Bayesian Statistics (Spring 2022, Fall 2022, Spring 2024, 2025)

STAT 628: Data Science Practicum (Spring 2024, 2025)

STAT 992: Bayesian Nonparametrics (Fall 2023)

STAT 333: Applied Linear Regression (Spring 2023)

STAT 479: Introduction to Bayesian Data Analysis (Fall 2022)

Honors & Awards

JASA Reproducibility Award   2023
Awarded for our article "Crime in Philadelphia: Bayesian clustering with particle optimization."

Significant Contributor Award, ASA Section on Statistics in Sports	2021
Third Prize, Ruth and William Silen, M.D. Poster Award, New England Science Symposium	2019
Finalist, National Football League Big Data Bowl	2019
Deming Student Scholar Award, Deming Conference on Applied Statistics	2017
J. Parker Bursk Memorial Award for excellence in research, Statistics Department, Wharton	2017
Donald S. Murray Prize for excellence in teaching, Statistics Department, Wharton	2016
Wharton Doctoral Program Fellowship	2013

Department Seminars & Workshops

2025: CANSSI Monte Carlo Workshop

2024: Frontiers of Bayesian Inference and Data Science (BIRS-CMO); National Autonomous University of Mexico; Medical College of Wisconsin (Biostatistics); Brigham Young University; Rice University; University of Edinburgh

2023: Purdue University; Arizona State University; University of South Carolina; University of Wisconsin–Madison (Plant Pathology)

2022: Iowa State University; University of Chicago (Booth School of Business); University of Pennsylvania (Biostatistics)

2021: University of Virginia; Loyola University

2020: Louisiana State University; University of St. Thomas

Recent Conference Presentations

2025: Predicative Analytics in Sports (Iowa State), IISA, BNP

2024: ISBA, JSM, CMStatistics, IISA

2023: BayesComp, IISA, WNAR, ISI World Congress, EcoSta, JSM, AMMCS VI, CMStatistics, ICSDS

2022: ISBA, EURO 2022, BNP, CMStatistics

2021: JSM, SBIES, ESOBE, JSM

Service

Student supervision: Yunyi Shen, Paul Nguyen, Ryan Yee, Soham Ghosh, Saloni Bhogale, Ajinkya Kokandakar.
Ph.D. dissertation committee: Mingya Huang, Matt Bacca, Elaine Chu, Chan Park, Peng Yu, Tun Lee Ng, Yanbo Shen, Kehui Yao, Alex Hayes, Bowen Zhang, Liam Johnston; Ryan Brill (UPenn).
Professional organizations

Chair, ISBA 2026 World Meeting Scientific Committee	January 2025–present.
Member (Chair 2025), ISBA Program Council	January 2024–present.
Associate Editor, *Sankhya A*	August 2025–present

Action Editor, *Transactions of Machine Learning Research*	January 2025–present
Area Chair, ICML	2025.
Area Chair, NeuRIPS	2024.
Associate Editor, *Journal of Quantitative Analysis in Sports*	January 2024–present
Secretary, Wisconsin Chapter of the ASA	September 2023–present.

Workshop organizer

Your model is wrong: robustness & misspecification in probabilistic modeling NeurIPS 2021 Workshop	December 2021
Perspectives in statistical modeling and inference A workshop in honor of Ed George's 70th birthday	December 2021

Journal Reviewer: Journal of the American Statistical Association, Journal of the Royal Statistical Society Series B, Annals of Applied Statistics, Journal of Machine Learning Research, Journal of Computational and Graphical Statistics, Bayesian Analysis, Spatial Statistics, Journal of Multivariate Analysis, Statistics and Computation, Journal of Quantitative Analysis in Sport, Australian & New Zealand Journal of Statistics, PLOS ONE, Harvard Data Science Review, STAT.
Conference Reviewer: BNP@NeurIPS 2018, UAI 2019, AAAI 2020, NeurIPS (2019–2022), AISTATS (2019–2024), ICML (2019, 2022, 2023).