

Subha Maity

ASSISTANT PROFESSOR · DEPARTMENT OF STATISTICS AND ACTUARIAL SCIENCE

Mathematics 3 (M3), University of Waterloo, 200 University Avenue West, Waterloo, ON, Canada, N2L-3G1

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Education

University of Michigan

Ann Arbor, MI, USA

PHD IN STATISTICS

2018 - 2024

- Advisors: Prof. Moulinath Banerjee and Prof. Yuekai Sun

Indian Statistical Institute

Kolkata, India

MASTER OF STATISTICS

2016 - 2018

- Honors thesis advisor: Prof. Anil K. Ghosh

Indian Statistical Institute

Kolkata, India

BACHELOR OF STATISTICS

2013 - 2016

- Major: Statistics

Employment

October 2024 - present	Assistant Professor , Dept. of Statistics & Actuarial Science, University of Waterloo, Waterloo, ON.
July 2024 - September 2024	Research Assistant , The Wharton School of the University of Pennsylvania. Philadelphia, PA.
Summer 2022	Research Intern , IBM Research, Cambridge, MA.
Summer 2016, 2017	Research Assistant , Johns Hopkins School of Public Health, Baltimore, MD.

Publications

(* indicates equal contributions)

JOURNAL PUBLICATIONS

Roy, S.*, **Maity, S.***, Xue, S.*, Yurochkin, M., & Sun, Y. (2025). How does overparametrization affect performance on minority groups?. Transactions in Machine Learning.

Maity, S., Dutta, D., Terhorst, J., Sun, Y., & Banerjee, M. (2024). A linear adjustment based approach to posterior drift in transfer learning. Biometrika, 2024, <https://doi.org/10.1093/biomet/asad029>.

Maity, S., Sun, Y., & Banerjee, M. (2022). Minimax optimal approaches to the label shift problem in non-parametric settings. Journal of Machine Learning Research, 23(346), 1-45, <https://jmlr.org/papers/v23/21-1519.html>.

Maity, S., Sun, Y., & Banerjee, M. (2022). Meta-analysis of heterogeneous data: integrative sparse regression in high dimensions. Journal of Machine Learning Research, 23(198), 1-50, <https://jmlr.org/papers/v23/21-0739.html>.

Bhattacharyya, R., Burman, A., Singh, K., Banerjee, S., **Maity, S.**, Auddy, A., ... & Baladandayuthapani, V. (2022). Role of multiresolution vulnerability indices in COVID-19 spread in India: a Bayesian model-based analysis. BMJ Open, 12(11), e056292, <https://bmjopen.bmj.com/content/12/11/e056292>.

CONFERENCE PUBLICATIONS

Bracale, D.*, **Maity, S.***, Banerjee, M., & Sun, Y. (2025). Learning the Distribution Map in Reverse Causal Performative Prediction. Accepted in AISTATS 2025, <https://arxiv.org/abs/2405.15172>.

Bracale, D.*, Maia Polo, F.*, **Maity, S.***, Somerstep, S., Banerjee, M., & Sun, Y. (2025). Microfoundation inference for strategic prediction. Accepted in AISTATS 2025. <https://arxiv.org/abs/2411.08998>

Maia Polo, F.*, **Maity, S.***, Banerjee, M., Sun, Y., & Yurochkin, M. (2024). Estimating Fréchet bounds for validating programmatic weak supervision. Accepted in NeurIPS 2024. <https://arxiv.org/abs/2312.04601>.

- Ngweta, L.*, **Maity, S.***, Agarwal, M., Gittens, A., Sun, Y., & Yurochkin, M. (2024). Aligners: Decoupling LLMs and Alignment. Accepted in EMNLP 2024. <https://arxiv.org/abs/2403.04224>.
- Maity, S.**, Yurochkin, M., Agarwal, M. & Sun, Y. (2024). An investigation of allocation and representation harms in contrastive learning. In The Twelveth International Conference on Learning Representations, 2024, <https://openreview.net/forum?id=q4SiDyYQbo>.
- Maity, S.**, Yurochkin, M., Banerjee, M., & Sun, Y. (2023). Understanding new tasks through the lens of training data via exponential tilting. In The Eleventh International Conference on Learning Representations, 2023, <https://openreview.net/forum?id=DBMttEEoLbw>.
- Maity, S.***, Mukherjee, D.*, Banerjee, M., & Sun, Y. (2023). Predictor-corrector algorithms for stochastic optimization under gradual distribution shift. In The Eleventh International Conference on Learning Representations, 2023, <https://openreview.net/forum?id=2SV2dlfBuE3>.
- Ngweta, L.*, **Maity, S.***, Gittens, A., Sun, Y., & Yurochkin, M. (2023). Simple disentanglement of style and content in visual representations. Accepted in the Fortieth International Conference on Machine Learning, 2023, <https://proceedings.mlr.press/v202/ngweta23a>.
- Bakshi, S.* & **Maity, S.*** (2023). Bayes classifier cannot be learned from noisy responses with unknown noise rates. Published as a Tiny paper at the Eleventh International Conference on Learning Representations, 2023, <https://openreview.net/forum?id=U4o5iSWSaD>.
- Kwon, B. C., Kartoun, U., Khurshid, S., Yurochkin, M., **Maity, S.**, Brockman, D. G., ... & Ng, K. (2022). RMExplorer: A Visual Analytics Approach to Explore the Performance and the Fairness of Disease Risk Models on Population Subgroups. In 2022 IEEE Visualization and Visual Analytics (VIS) (pp. 50-54). IEEE, <https://doi.ieeecomputersociety.org/10.1109/VIS54862.2022.00019>.
- Maity, S.***, Mukherjee, D.*, Yurochkin, M., & Sun, Y. (2021). Does enforcing fairness mitigate biases caused by subpopulation shift?. Advances in Neural Information Processing Systems, 34, 25773-25784, <https://openreview.net/forum?id=6mUrD5rg-UU>.
- Maity, S.***, Xue, S.*, Yurochkin, M., & Sun, Y. (2021). Statistical inference for individual fairness. In the International Conference on Learning Representations, 2021, https://openreview.net/forum?id=z9k8BWL-_2u.

PREPRINTS AND OTHER PUBLICATIONS

- Somerstep, S.*, Polo, F. M.*, de Oliveira, A. F. M., Mangal, P., Silva, M., Bhardwaj, O., Yurochkin, M., & **Maity, S.** (2025). CARROT: A Cost Aware Rate Optimal Router. Accepted as an workshop paper in ICLR 2025 FM-Wild Workshop and under review in ICLR 2026. <https://arxiv.org/abs/2502.03261>
- Maity, S.** (2025). Estimation with missing not at random binary outcomes via exponential tilts. To be submitted. <https://arxiv.org/abs/2502.06046>

Awards

- 2024 **Outstanding Dissertation Award**, Department of Statistics, University of Michigan, Ann Arbor, MI
- 2023 **Predoctoral Fellowship**, Rackham Graduate School, University of Michigan, Ann Arbor, MI
- 2022 **Future Leader**, Michigan Institute for Data Science, University of Michigan, Ann Arbor, MI
- 2018 **Outstanding 1st year Ph.D. student**, Department of Statistics, University of Michigan, Ann Arbor, MI

Presentations

INVITED TALKS

- INFORMS 2023, Phoenix, AZ. “Understanding new tasks through the lens of training data via exponential tilting.”
- INFORMS 2022, Indianapolis, IN. “Statistical perspectives on federated learning.”

CONTRIBUTED TALKS AND POSTERS

ATD Workshop 2023, Fairfax, VA. “Understanding new tasks through the lens of training data via exponential tilting.”

Michael Woodroffe Memorial Conference 2023, Ann Arbor, MI. “Understanding new tasks through the lens of training data via exponential tilting.”

Purdue Data Science Workshop 2023, West Lafayette, IN. “Understanding new tasks through the lens of training data via exponential tilting.”

INFORMS 2022, Indianapolis, IN. “Does enforcing fairness mitigate biases caused by subpopulation shift?”

Future Leaders Summit 2022, Ann Arbor, MI. “Does enforcing fairness mitigate biases caused by subpopulation shift?”

Michigan Student Symposium for Interdisciplinary Statistical Sciences 2022, Ann Arbor, MI. “Does enforcing fairness mitigate biases caused by subpopulation shift?”

International Conference on Learning Representations 2021, Virtual. “Statistical inference for individual fairness”

Neural Information Processing Systems 2021. Virtual. “Does enforcing fairness mitigate biases caused by subpopulation shift?”

Michigan Student Symposium for Interdisciplinary Statistical Sciences 2021, Ann Arbor, MI. “Minimax optimal approaches to the label shift problem in non-parametric settings”

Joint Statistical Meeting 2020, Virtual. “Minimax optimal approaches to the label shift problem in non-parametric settings.”

Teaching Experience

Fall 2025 **STAT 441-841/CM 763, *Statistical Learning - Classification***, Instructor

Fall 2025 **STAT 845, *Statistical Concepts for Data Science***, Instructor

Spring 2025 **STAT 333, *Stochastic Processes I***, Instructor

Winter 2025 **STAT 440-840/CM 761, *Computational Inference***, Instructor

Service and Outreach

SERVICE

Fall 2023 **Michael Woodroffe Memorial Conference**, Student Volunteer

Winter 2022 **Student Seminar Committee**, Co-Chair

Fall 2021 **Student Seminar Committee**, Co-Chair

PEER REVIEW

Annals of Statistics,
 Journal of the American Statistical Association,
 Journal of Computational and Graphical Statistics,
 Journal of Statistical Planning and Inference,
 Bernoulli,
 Statistical Analysis and Data Mining,
 Statistical Science,
 Neural Information Processing Systems.