

Ranadeep Daw

Curriculum Vitae

Department of Mathematics & Statistics
University of West Florida
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Current Position

Aug 2024– Assistant Professor of Statistics, University of West Florida

Research Interests

Spatiotemporal modeling, low-rank methodologies, data reduction, environmental risk, random neural networks, computational tools, Bayesian analysis

Education

2018–2023 **Ph.D. in Statistics**, *University of Missouri - Columbia*

GPA: 3.878

Advisor: Dr. Christopher K. Wikle

Thesis topic: Methodologies for low-rank analysis and regionalization for multi-scale spatial datasets

2014–2016 **Master of Statistics (M. Stat.)**, *Indian Statistical Institute*, Kolkata

2011–2014 **Bachelor of Statistics (B. Stat.)**, *Indian Statistical Institute*, Kolkata

Work Experience

Jul 2023– Jul 2024 **Postdoctoral fellow**, *National Institute of Environmental Health Sciences*, Durham, NC
Working on spatiotemporal exposure modeling and supervised environmental risk modeling.

Aug 2018– Jul 2019 **Intern**, *Missouri Department of Conservation*, Columbia, MO
Served as part of my research assistantship. Worked on species distribution models, small area estimation, and bootstrapping.

Jun 2016– Dec 2017 **Data Scientist**, *Deloitte US India*, Hyderabad, India
Addressed statistical queries in various business-related sectors and implement them in user-friendly tools for third-party use. Worked on real-world data from the insurance, banking, medical, and retail sectors.

May 2015– Jul 2015 **Intern**, *General Electric*, Bangalore, India
Implemented fast heuristic time series algorithms.

May 2014– Jul 2014 **Intern**, *FinIQ*, Pune, India
Visual Basic-based automation of financial algorithms in Excel.

Research Projects

Accepted Papers

- Schliep, E. M., Wikle, C. K., **Daw, R.** (2023). Correcting for informative sampling in spatial covariance estimation and kriging predictions. *Journal of Geographical Systems*, 1–27.
- Daw, R.**, Wikle, C. K. (2022). Supervised spatial regionalization using the Karhunen-Loève Expansion and minimum spanning tree. *Journal of Data Science* 20 no. 4. 566–584, DOI 10.6339/22-JDS1077.
- Daw, R.**, Wikle, C. K. (2022). REDS: Random Ensemble Deep Spatial prediction. *Environmetrics*, e2780, 1180–4009, DOI 10.1002/env.2780.
- Daw, R.**, Simpson, M., Wikle, C. K., Holan, S. H., Bradley, J. R. (2022). An overview of univariate and multivariate Karhunen Loève expansions in Statistics. *Journal of the Indian Society for Probability and Statistics*, 1–42.

- 5 Chakraborty, S., Menifield, C. E., **Daw, R.** (2022). Impact of Stand Your Ground, Background Checks, and Conceal and Carry Laws on homicide rates in the US. *Journal of Public Management and Social Policy*.
- 6 Yeasmin, F., **Daw, R.**, Chakraborty, B., Gupta, A., Bhattacharya, S., Chakraborty, B. (2021). A new growth rate measure in identifying extended Gompertz growth curve and development of goodness-of-fit test. *Calcutta Statistical Association Bulletin*, Volume 73, 127–145.

Submitted Papers

- 7 **Daw, R.**, Wikle, C.K., Bradley, J. R., Holan S. H. (2023). MVCAGE: A criterion for multivariate regionalization of spatial data.

Ongoing Papers

- 8 **Daw, R.**, Messier P. K. (2024+). SBoost: A spatially-aware boosting model for global high-resolution imputation of NO₂.
- 9 **Daw, R.**, Messier P. K. (2024+). A supervised dimension reduction methodology for geospatial conditional risk modeling.
- 10 **Daw, R.**, Wikle, C. K. (2024+). Application of coresets in optimal spatial data reduction.
- 11 Yoo M., Grieshop N., **Daw, R.**, Wikle, C. K. (2024+). A comprehensive review of uncertainty quantification methodologies for reservoir computing models.

Conferences

Invited Talks

- 2021 **JSM**, (*Joint Statistical Meetings*), Application of coresets in Spatial Modeling.

Contributed Talks

- 2021 **IISA Conference**, (*International Indian Statistical Association*), Application of coresets in Spatial Modeling.
- 2020 **JSM**, (*Joint Statistical Meetings*), Uncertainty Quantification and Inference for Spatiotemporal Forecasting via Echo State Mixture Density Networks with Relevance Propagation.

Poster Presentations

- 2024 **Theory and Foundations**, *Florida State University*, SBoost: A spatially-aware Boosting Model for Large Spatial Prediction.
- 2024 **Science Day**, *NIEHS (National Institute of Environmental Health Sciences)*, SBoost: A spatially-aware Boosting Model for Large Spatial Prediction.
- 2022 **Applied Statistics Symposium**, *ICSA (International Chinese Statistical Association)*, REDS: Random Ensemble Deep Spatial prediction.
- 2019 **Deep Learning Program Opening Workshop**, *SAMSI (Statistical and Applied Mathematical Sciences Institute)*, Deep Neural Network in Cusp Catastrophe Model
- 2018 **Innovations in Design, Analysis, and Dissemination**, *Frontiers in Biostatistical Methods*, Does Changing Handgun Laws Affect Crime Rates?

Teaching Experience

- Spring 2020 **Graduate Instructor**, *Stat 3500*, Probability and Statistics - II
- *Topics*: ANOVA, Linear and Logistic Regression, Nonparametric Statistics, Introduction to R.
 - *Responsibilities*: Instruction and evaluation.
 - *Mode*: Both online and classroom.
 - *Special Mention*: **Data Analysis project** as Final examination.
- Fall 2019 **Graduate Instructor**, *Stat 3500*, Probability and Statistics - II
- *Topics*: ANOVA, Linear and Logistic Regression, Nonparametric Statistics, Introduction to R.
 - *Responsibilities*: Instruction and evaluation.
 - *Mode*: Classroom.
- Spring 2018 **Teaching Assistant**, Evaluation of examination and homework of various graduate and undergraduate Statistics courses.

Service & Membership

Peer Review Reviewer for *Spatial Statistics*, *Signal Processing*.
Professional Member of *American Statistical Association*.
Membership

Technical Expertise

Computing MATLAB, Python, SAS, R.
Programming C, C++, L^AT_EX.
Visualization Tableau, HTML, JavaScript, JavaScript-D3.
Cloud Lewis cluster, Nautilus, Google colab.

Academic Awards

2011–2016 Received the **INSPIRE** scholarship administered by the Department of Science and Technology of the Government of India.
2010 Cleared the **Regional Mathematical Olympiad** and qualified for the national level examination.

Miscellaneous

Leadership Experience

2020 Organized spatiotemporal research meetings at University of Missouri – Columbia.
2019–20 Committee member of the Statistics graduate students association at University of Missouri – Columbia.
2015 General Secretary of the annual techno-cultural and sports festival at the Indian Statistical Institute, Kolkata.
2014–15 Student Representative of the boys' hostel of Indian Statistical Institute, Kolkata.
2014 Treasurer of the annual college techno-cultural and sports festival at the Indian Statistical Institute, Kolkata.
2012–14 Member of food, sports, and cultural committees at the boys' hostel of Indian Statistical Institute, Kolkata.

Mentoring Experience

- 1 Worked as consultant in the Data Fest, a data analysis workshop organized by the Department of Statistics, University of Missouri.
- 2 Responsible for mentoring two newly-hired employees at Deloitte. Worked on a coding project with one mentee.

Extracurricular Activities

Play contract bridge, soccer.

Languages Known

English, Bengali (mother tongue), Hindi.

I hereby do certify that all the above information is true to the best of my knowledge.

Ranadeep Daw
August 19, 2024