

Arkajyoti (AJ) Bhattacharjee

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ArkaB-DS

in arkajyoti-aj

EDUCATION

The Ohio State University, Dept. of Statistics Columbus, OH

Master of Science in Statistics Aug '22 – Dec '24

Doctor of Philosophy (Ph.D.) in Statistics Aug '22 – Aug '27 (expected)

◦ **Graduate Teaching Associate** Aug '22 – present

Lecturing, grading, tutoring, and R lab support for undergraduate STAT courses.

The Ohio State University, Dept. of CSE Columbus, OH

Graduate Minor in Computer Science Aug '24 – Dec '25 (expected)

Indian Inst. of Tech., Kanpur, Dept. of Math & Stat. Kanpur, India

Master of Science in Statistics Sep '20 – Jun '22

Presidency University, Dept. of Statistics Kolkata, India

Bachelor of Science (Honours) in Statistics Aug '16 – Jun '19

EXPERIENCE

The Ohio State University, Dept. of Statistics Columbus, OH

Graduate Research Associate May – Aug '25

◦ Developing a differentially private mode-hunting algorithm in Python with formal (ϵ, δ) -privacy guarantees and establishing convergence and statistical properties.

◦ Validating the algorithm through large-scale multimodal simulations, with plans to extend testing to real-world datasets.

Statistical Consulting Service, The Ohio State University Columbus, OH

Graduate Student Consultant May – Jul '23

◦ Consulted on interdisciplinary projects across CS, Speech & Hearing Science, Geography, Health & Rehabilitation, and Anthropology.

◦ Conducted data cleaning, exploratory analysis, feature engineering, and model selection, delivering actionable statistical insights to clients.

Accenture Solutions Pvt. Ltd.

Data Science Analyst Intern Remote

◦ Built an AutoML prototype in Python/Dash integrating preprocessing, model selection, hyperparameter tuning, and interactive visualizations.

◦ Developed reproducible training and evaluation pipelines with modular visualization components for stakeholder interpretation and deployment.

The R Project for Statistical Computing (Google Summer of Code 2021) Remote

Student Developer Jun – Aug '21

◦ Developed the `nlsCompare` R package for systematic comparison of nonlinear least-squares fits, adding tests and examples to improve interoperability with base R workflows.

◦ Project link: <https://summerofcode.withgoogle.com/projects/5154479671869440>

PUBLICATIONS

Nash J. C. & Bhattacharjee, A. (2023). *A Comparison of R Tools for Nonlinear Least Squares Modeling*, R Journal, 15(4)

PROJECTS

Confidence Intervals in Adaptive MCMC Aug – Nov '21

◦ Investigated kernel estimators for asymptotic variance and confidence interval construction in adaptive MCMC.

◦ Implemented large-scale simulation experiments in R to validate CLT conditions.

RESEARCH INTERESTS

- Differential Privacy
- Nonparametric Statistics
- Stochastic Optimization
- Statistical Machine Learning
- Bayesian and Variational Inference
- Dimensionality Reduction (t-SNE)

SKILLS

Programming & Tools:

Python (NumPy, pandas, scikit-learn, matplotlib, Dash), R, LaTeX.

Data Science & Workflow:

Data cleaning, exploratory data analysis (EDA), feature engineering, model selection, validation, visualization, AutoML.

Statistical & ML Methods:

Regression, multivariate analysis, Bayesian inference, simulation, optimization, differential privacy, MCMC, time series analysis.

Communication & Collaboration:

Technical writing, teaching, interdisciplinary consulting, stakeholder presentations.

RELEVANT COURSES

Statistical Theory & Methods:

Experimental Design; Linear Model Theory; Advanced Statistical Theory I & II; Multivariate Analysis; Time Series Analysis

Machine Learning & AI:

ML & Statistical Pattern Recognition; Statistical & AI Techniques in Data Mining; Ethics & Governance of AI

Computational & Optimization Methods:

Advanced Computational Statistics; Statistical Simulation & Data Analysis; MCMC