

Soumyakanti Pan

PHD CANDIDATE · DEPARTMENT OF BIOSTATISTICS

UCLA FIELDING SCHOOL OF PUBLIC HEALTH

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EDUCATION

University of California Los Angeles

Los Angeles, USA

PH.D., *Biostatistics*

2021 - 2025 (expected)

- *Thesis Title*: “Bayesian Modeling and Inference for Complex Dependent Non-Gaussian Data”
- *Thesis Advisor*: Prof. Sudipto Banerjee

Indian Statistical Institute

Kolkata, India

M.STAT., *Statistics*

2019 - 2021

- First Division with Distinction

Indian Statistical Institute

Kolkata, India

B.STAT. (HONOURS), *Statistics*

2016 - 2019

- First Division

PROFESSIONAL EXPERIENCE

2021-Present **Graduate Student Researcher**, UCLA Biostatistics

2023-2024 **Teaching Assistant**, UCLA Biostatistics

2021-2023 **Special Reader**, UCLA Biostatistics

2019-2021 **Instructor for Competitive Mathematics**, RKMV Narendrapur

2019 **Short-term Trainee**, National Institute of Biomedical Genomics, India

AWARDS & ACHIEVEMENTS

2024 **Dissertation Year Fellowship**, UCLA Division of Graduate Education USD 20,000

2022, 2024 **Summer Mentored Research Fellowship**, UCLA Graduate Division USD 12,000

2021 **University Fellowship**, UCLA Division of Graduate Education USD 14,863

2016-2021 **Stipend and contingency grant**, Indian Statistical Institute

2015 **2nd position**, Advanced Mathematical Ability Test, Calcutta Mathematical Society

SCHOLARLY MANUSCRIPTS

PUBLISHED

1. **Pan, S.**, Das, D., Ramachandran, G., & Banerjee, S. (2024). Bayesian hierarchical modeling and inference for mechanistic systems in industrial hygiene. *Annals of Work Exposures and Health*, 68(8), 834–845. DOI: [10.1093/annweh/wxae061](https://doi.org/10.1093/annweh/wxae061)

PREPRINTS

2. **Pan, S.** & Banerjee, S. (2024). spStack: Practical Bayesian geostatistics using predictive stacking in R. DOI: (in process) [🔗](#)
1. **Pan, S.**, Zhang, L., Bradley, J. R., & Banerjee, S. (2024). Bayesian inference for spatial-temporal non-Gaussian data using predictive stacking. DOI: [10.48550/arXiv.2406.04655](https://doi.org/10.48550/arXiv.2406.04655)

SOFTWARE

1. **spStack: Bayesian Geostatistics Using Predictive Stacking.**   

Fast Bayesian inference for Gaussian and non-Gaussian geospatial data without using MCMC algorithms. This R package is written in C++ with calls to **FORTRAN** routines for optimized linear algebra. Available from **CRAN**.

CONFERENCE PRESENTATIONS

1. **UCLA-UCI-KAUST Meeting.** Los Angeles, USA, March 2023. Talk.
Uncertainty quantification of dynamical systems in industrial hygiene.
2. **Joint Statistical Meetings.** Toronto, Canada, August 2023. Talk.
Topic Contributed Paper session: Recent advances in uncertainty quantification for complex systems.
3. **The Bayesian Young Statisticians Meeting, *j-ISBA*.** Virtual Meeting, November 2023. Short Talk.
Predictive stacking in Bayesian hierarchical models for geospatial data from the natural exponential family.
4. **Theory and Foundations of Statistics in the Era of Big Data.** Tallahassee, USA, April 2024. Poster.
Bayesian inference for spatial-temporal count data using predictive stacking.

OTHER RESEARCH EXPERIENCES

Indian Statistical Institute - Human Genetics Unit

Kolkata, India

ADVISOR: PROF. SAURABH GHOSH

2020-2021

- *Masters Thesis*: “Distribution-free correlation based tests to differentiate between related populations”

Indian Statistical Institute

Kolkata, India

ADVISOR: PROF. DIGANTA MUKHERJEE

2019-2021

- *Title*: “Modeling and analysis of multi-layered network data on inter-state military alliances, conflicts and trade relations”

National Institute of Biomedical Genomics

Kalyani, India

ADVISOR: DR. SAMSIDDHI BHATTACHARJEE

2019

- *Title*: “Nonparametric estimation of alternate density for mixture modeling with applications to large-scale multiple testing in genomics”

Indian Statistical Institute

Kolkata, India

JOINT WORK WITH A. BHATTACHARYYA, S. GHOSH DASTIDAR

2019

- *Bachelors Thesis*: “Estimation of origin-destination matrix from traffic and ticket counts”

COLLABORATIONS AND CONSULTATIONS

- 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (TCDD) exposure from Agent Orange herbicide sprays and other sources in relation to birth outcomes in Vietnam. (in preparation)
Collaboration with Sophie Michel, Department of Epidemiology, Fielding School of Public Health, UCLA.
Co-Author, *Role*: Bayesian modeling and inference of complex spatial survey data.
- Berberian, A. G., Morello-Frosch, R., Karasaki, S., & Cushing, L. J. (2024). Climate justice implications of natech disasters: Excess contaminant releases during hurricanes on the Texas Gulf coast. *Environmental Science & Technology*, 58(32), 14180–14192. doi: [10.1021/acs.est.3c10797](https://doi.org/10.1021/acs.est.3c10797)
Contribution: Assistance with Bayesian modeling and analysis of spatial data.
- Gupta, N., Bhattacharya, S., Dutta, A., Tauchen, J., Landa, P., Urbanová, K., Houdková, M., Fernández-Cusimamani, E., & Leuner, O. (2024). Synthetic polyploidization induces enhanced phytochemical profile and biological activities in *thymus vulgaris* L. essential oil. *Scientific Reports*, 14(5608). doi: [10.1038/s41598-024-56378-7](https://doi.org/10.1038/s41598-024-56378-7)
Contribution: Consultation for statistical analysis.

TEACHING EXPERIENCE

Spring 2024	BIOS 250C: Multivariate Biostatistics , Teaching Assistant	UCLA
Winter 2024	BIOS 250B: Linear Statistical Models , Teaching Assistant	UCLA
Fall 2023	BIOS 241: Spatial Modeling and Data Analysis , Teaching Assistant	UCLA
Fall 2021, 22	BIOS 255A: Measure Theoretic Probability , Special Reader	UCLA
Winter 22,23	BIOS 255B: Advanced Probability and Statistics , Special Reader	UCLA
2019-2021	Topics in Competitive Mathematics , Instructor, RKMV Narendrapur	India

PROFESSIONAL ACTIVITIES

PROFESSIONAL MEMBERSHIPS

- International Society for Bayesian Analysis (ISBA).
- American Statistical Association (ASA).
- International Indian Statistical Association (IISA).

PEER REVIEW

- Annals of Applied Statistics.

TECHNICAL SKILLS

Programming	R, C++, and integration via R's Native Interface, Julia
Software	R, SAS, RStudio, Jupyter
Computing Platforms	Macintosh, Linux, HPC Cluster
Applications	Git, \LaTeX , MS Office
Development Tools	Continuous Integration, UNIX command-line interface

REFERENCES

Dr. Sudipto Banerjee, *Ph.D. advisor*

Senior Associate Dean for Academic Programs
UCLA Fielding School of Public Health
Professor *and* Past-Chair
UCLA Dept. of Biostatistics
Professor of Statistics & Data Science
University of California Los Angeles
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Dr. Donatello Telesca, *Ph.D. committee*

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