

Soumadeb Pain

Curriculum Vitae

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Cabin 7, 304B, New Core Lab, IIT Kanpur
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⑧ uDEl6Q8AAAAJ
Born September 1997

Education

- 2022–Present **PhD in Statistics**, *Department of Statistics and Data Science, IIT Kanpur*, Coursework CPI: 8.85/10.
- 2019–2021 **Master's in Statistics**, *University of Delhi*, CGPA: 8.86/10.
- 2016–2019 **Bachelor's in Statistics**, *Surendranath College, University of Calcutta*, 63.62%.

Test Scores

GATE 2022 **AIR 22** in Statistics.

Research Interest

Optimal Experimental Design, Bayesian Optimal Design, Cluster Randomized Trials, Clinical Trials.

Research Project (Ongoing)

Supervisor Prof. Satya Prakash Singh.

We are trying to find optimal cohort Staircase designs for unequal cluster sizes. This work extends to Bayesian frameworks, utilizing various prior distributions to construct designs that are resilient to correlation misspecification.

Publications & Ongoing Work

- June 2025 **Pain, S.**, Singh S. P., *Advances in Stepped Wedge Design: A Comprehensive Review*, Society of Statistics, Computer and Applications, [Link](#).
- 2023+ **Pain, S.**, Singh S. P. *Optimal Cohort Stepped Wedge Designs with Unequal Cluster Sizes* (under review at *Computational Statistics and Data Analysis*).
- 2025+ **Pain, S.**, Singh S. P., *Optimal Cohort Staircase Design*, arXiv: [Link](#).

Teaching Experience

2022–2026 Teaching Assistant at IIT Kanpur, Department of Mathematics and Statistics. Courses included:

- MTH207: Matrix Algebra and Linear Estimation.
- MTH689: Linear and Non Linear Model.
- MSO210: Statistical Computing.
- MTH443: Statistical & AI Techniques in Data Mining.
- MTH441: Linear Regression and ANOVA.
- MTH442: Time Series Analysis.

Language and Technical Skill

Language R, MATLAB.

Tools $\text{\LaTeX}$.

Curriculum Project

1. Fitting Non-linear Regression models in real-life data using Numerical methods.
2. Jackknife Estimation in Non-linear Regression Model.
3. ESM-IF-driven protein engineering to design subunit-based vaccine candidates against West Nile Virus.

Conferences and Workshops

- Dec 2024 IISA Annual Conference, Cochin University of Science and Technology.
- March 2026 CDSMD-26 Conference, IIT Hyderabad.
- July 2026 BDSA-26 Summer Workshop, Ashoka University.