

Debartha Paul

pauldeep102@gmail.com · debartha@iastate.edu · +1-515-294-4111

EDUCATION

Doctor of Philosophy, Statistics

Aug'24 – Jul'29(expected)

Iowa State University, Ames, IA

Advisor: Dr. Kyle Schindl

Masters in Science, Statistics

Sep'22 – Jul'24

Presidency University, Kolkata, India

Bachelors in Science, Statistics(Hons.)

Aug'19 – Jun'22

Presidency University, Kolkata, India

EXPERIENCE

Student Contractor (Graduate Research Assistant)

Aug'25 –

Corteva Agriscience (Remote)

- **Diagnosed and resolved an optimization bottleneck** in an enterprise adaptive experimentation pipeline where the algorithm consistently converged to a suboptimal constrained maxima.
- **Engineered a mathematical workaround** by projecting the optimization problem into a higher-dimensional space via "**phantom variables**", effectively increasing the degrees of freedom and allowing the algorithm to reach the true global maximum.
- **Architected and developed a comprehensive benchmarking tool** in Python to rigorously evaluate the improved **Sequential Model-Based Optimization (SMBO)** against baseline models across high-dimensional formulation spaces.
- **Validated algorithmic convergence** by executing highly parallelized Python simulations across multiple seeds to generate bootstrap confidence bands, rigorously proving the new architecture's superior performance.

Graduate Teaching Assistant

Aug'24 – May'25

Iowa State University

- Lab instructor and grader for an undergraduate-level statistics course for Fall'24 - STAT 3010
- Grader for a graduate-level statistics course for Spring'25 - STAT 4720/5720

Data Science Intern(Remote)

Apr'24 – Jun'24

MSA Labs

- Prepare materials for pharmacometrics, for the application of models for disease and pharmacological measurement.
- Shared methodologies on statistical computing, with a focus on using the Julia Programming Language to model disease processes

ACADEMIC PROJECTS

Probability-based Response-adaptive Allocation Design in Crossover Trials

Jun'24

*Masters dissertation at Presidency University, Kolkata. Supervised by **Dr. Saurav De***

- Propose to develop an allocation design for crossover clinical trials that are both response-adaptive and probability-based.
- Use a simulation study to verify our allocation and also find equivalence tests for the treatments.

[GitHub](#)

Some Problems on Dice, Their Mathematical Treatments and Simulations

Nov'22

*joint work with **Ahel Kundu***

- Selected a few well-known problems involving the throwing of a die.
- Solved the problems using some different approaches.
- Verified the results using simulation studies

[GitHub](#) · [R-bloggers](#)

RELEVANT COURSEWORK

At Iowa State University -

- **Theory** : Measure Theory, Advanced Probability Theory
- **Methods** : Linear Models and Design of Experiments, Advanced Statistical Modelling
- **Electives** : Time Series Analysis, Advanced Bayesian Methods, Nonparametric Methods, Stochastic Processes in Modern Machine Learning

At Presidency University, Kolkata -

Probability Theory, Advanced Multivariate Analysis, Sample Survey, Advanced Statistical Computing, Bayesian Analysis and Nonparametric Inference, Linear Algebra, Mathematical Analysis, Stochastic Processes

EXTRACURRICULAR ACTIVITIES

R Project Sprint, 2023 · [Link](#)

30th Aug'23 – 1st Sep'23

Open Source Contributor(Remote)

- Selected to contribute to the base R along with other R core members
- Contributed to documentation fixes and translations for the language

GirlScript Summer of Code, 2023

May'23 – Aug'23

Open Source Contributor

Developed and deployed machine learning models for analysis and predictions based on various datasets

SKILLS

Programming: R, Julia, C, C++, Python

Softwares: $\text{\LaTeX}$, Excel, PowerPoint

Languages: English, Bengali, Hindi

ACHIEVEMENTS & CONFERENCES

International Youth Math Challenge

2022 & 2023

Finalist

Appeared for an International Mathematics competition. Secured Silver Honour in both the editions of this competition

R @ IISA2022 Workshop, IISc Bangalore

2022