

RITWIK BHADURI

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Education

PhD in Statistics, Harvard University

Sept 2021 – May 2026 (Expected)

- **Advisor:** Prof. Lucas Janson, Thesis focuses on **Model free inference in high dimensions**

Master of Statistics and Bachelor of Statistics, Indian Statistical Institute

Sept 2016 – May 2021

- **Specialization:** Computational Statistics
- Graduated in **First Class with distinction** with **90.2% aggregate**.

Publications (grouped by topic) [\[Google Scholar link\]](#)

▪ Bayesian modelling of COVID-19 to incorporate Misclassification and Selection bias

- Incorporating false negative tests in epidemiological models for SARS-CoV-2 transmission and reconciling with seroprevalence estimates, **Nature Scientific Reports**, 2021
- SARS-CoV-2 infection fatality rates in India: Systematic review, meta-analysis and model-based estimation, *Studies in Microeconomics*, 2021
- A comparison of five epidemiological models for transmission of SARS-CoV-2 in India, *BMC infectious diseases*, 2021
- Estimating the wave 1 and wave 2 infection fatality rates from SARS-CoV-2 in India, *BMC Research Notes*, 2022
- Extending the susceptible-exposed-infected-removed (SEIR) model to handle the false negative rate and symptom-based administration of COVID-19 diagnostic tests: SEIR-fansy, *Statistics in Medicine*, 2022
- Covid-19 Pandemic in India: Through the Lens of Modeling, *Global Health Science*, 2021

▪ Signal Processing

- Rough-Fuzzy CPD: a gradual change point detection algorithm, *Journal of Data, Information and Management*, 2022
- Onset detection: A new approach to QBH system, *arXiv Preprint*, 2019

▪ Statistical modelling of effects of Convalescent Plasma Therapy in Severe COVID-19

- A phase 2 single center open label randomized control trial for convalescent plasma therapy in patients with severe COVID-19, **Nature Communications**, 2022
- Circulating Interleukin-8 dynamics parallels disease course and is linked to clinical outcomes in severe Covid-19, *Viruses MDPI*, 2023
- Clinical Trial Subgroup Analyses to Investigate Clinical and Immunological Outcomes of Convalescent Plasma Therapy in Severe COVID-19, *Mayo Clinic Proceedings: Innovations, Quality & Outcomes*, 2022

Technical Skills

Languages: R, Python, MATLAB, C, Mathematica

Tools: LaTeX, RStudio, MS Office (Excel, Word, PowerPoint)

Software packages developed

- **Python** package **roufcp**: Gradual Change-Point Detection Library based on Rough Fuzzy Changepoint Detection algorithm.
- **R**-package **SEIR-fansy**: Model transmissible diseases while incorporating selection bias and misclassification.

Experience

University of Michigan, Department of Biostatistics Summer, 2021

- Supervisor - Dr. Bhramar Mukherjee, Chair of Biostatistics
- Topic: Modeling the transmission of SARS-CoV-2

University of Michigan, Department of Biostatistics Summer, 2020

- Supervisor - Dr. Bhramar Mukherjee, Chair of Biostatistics
- Program: Transforming Analytical Learning in the Era of Big Data: Undergrad Summer Institute

Dept. of Electrical Engr. & Information Technology, TU Darmstadt Summer, 2019

- Supervisor - Dr. Heinz Koepl, Bioinspired communications lab
- Topic: Analysis of Continuous-time Markov Networks

Awards and Scholarships

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- **International Rank 29** (National Rank 9) in Simon Marais Mathematical Competition, 2019
 - **International Rank 27** (National Rank 4) in Simon Marais Mathematical Competition, 2018
 - Awarded the prestigious Young Scientist Encouragement Award - **KVPY Scholarship**, instituted by the Department of Science and Technology and Indian Institute of Science, 2018
 - **Award for academic excellence** in B. Stat. and M. Stat, Indian Statistical Institute, Kolkata
 - Awarded **JBNSTS fellowship** by Department of Science and technology, Govt. of India

Teaching Experience

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- **Stat 213: Statistical Inference II** – Spring, 2023
 - **Stat 211: Statistical Inference I** – Fall, 2022

Other Experience

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- **Reviewer** at Frontiers in Public Health 2022 - Present
 - **Reviewer** at Information Sciences 2023 - Present
 - Member of **Graduate Student Council**, Statistics dept, Harvard University 2022 - Present