

Sibsankar Singha

PERSONAL DETAILS

Birth October 20, 1995
Address MPF, 55 Bd Jourdan, 75014 Paris, France
Nationality Indian
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QUALIFICATION

Post Doctorate (ongoing)

2024–present

Télécom Paris

Advisor: [Pavlo Mozharovskyi](#)

Ph.D.

2020–2024

Tata Institute of Fundamental Research Center for Applicable Mathematics (TIFR CAM) & ESSEC CREAR

Advisor: [Marie Kratz](#) (ESSEC), [Sreekar Vadlamani](#) (TIFR CAM)

Master of Philosophy

2019–2020

Tata Institute of Fundamental Research, Center for Applicable Mathematics

Advisor: [Sreekar Vadlamani](#)

Master of Sciences

2017–2019

Tata Institute of Fundamental Research, Center for Applicable Mathematics

Mathematics, 1st class (76%)

Bachelor of Sciences

2013–2016

Vidyasagar University

Mathematics Honours, 1st class (66%)

PROJECTS AND THESES

Ph.D. Thesis

(Finish by April, 2024)

Subject:

Developing approaches to better understand multivariate risk, involving the study of multivariate quantile and depth functions to effectively characterise tail distributions.

M. Phil. Project

2019–2020

Subject:

On convergence diagnostics of certain adaptive MCMC algorithms in general state space.

RESEARCH INTERESTS

- Data depth and multivariate quantiles
- Extremes and multivariate risk

- Stochastic analysis and applied probability

RELEVANT COURSEWORK (M.SC. & PH.D.)

- Probability and Statistics
- Functional Analysis
- Measure Theory
- Measure Theoretic Probability
- Partial Differential equation
- Differential Geometry
- Numerical Analysis
- Computational methods for partial differential equations
- Statistical learning
- Gaussian processes
- Brownian motion and stochastic calculus

PREPRINTS AND PUBLICATIONS

- S. Singha, M. Kratz, S. Vadlamani (2023); From geometric quantiles to halfspace depths: A geometric approach for extremal behaviour, [arXiv:2306.10789](https://arxiv.org/abs/2306.10789)
- [\[Finalizing\]](#) S. Singha (2024); Multivariate Q-Q plot and related test statistics based on optimal transport.
- [\[Ongoing\]](#) M. Dacorogna, M. Kratz, S. Singha; Generating economic stress scenarios through depth functions.

TALKS

- Two depth functions, half-space and spatial, and their relation to tail of distribution, CM Statistics conference at HTW Berlin, December 18, 2023
- Decay rate of two depth functions, half-space depth and spatial depth, according to tail distribution behaviour, iPOD seminar at University of Leiden, December 7, 2023
- Decay rate of half-space depth according to tail distribution behaviour: Population and empirical studies, S2A seminar at Telecom Paris, November 16, 2023
- Risk measures in terms of multivariate quantiles, Short talk at Bangalore Probability Seminar, May 2, 2022

TEACHING

Graduate courses:

- Brownian motion and stochastic process [Teaching Assistant; 2023]
- Advance calculus and differential geometry [Teaching Assistant; 2022]
- Probability theory [Teaching Assistant; 2020, 2021]

Under graduate workshop:

- Summer Workout in Applied Mathematics (SWIM) [TA, July 12 - August 06, 2022]
- Summer Workout in Applied Mathematics (SWAM) [TA, June 01 - June 28, 2021]

SKILLS

<i>Languages</i>	Bengali (mother tongue) English Hindi
<i>Programming languages</i>	PYTHON, R, C, FORTRAN, MATLAB
<i>Documentation</i>	L ^A T _E X, Word

FELLOWSHIPS AND GRANT

- National Board of Higher Mathematics (NBHM) Travel grant, 2023
- Doctoral fellowship at Tata Institute of Fundamental Research (TIFR), 2020-2024
- Masters fellowship at Tata Institute of Fundamental Research (TIFR), 2017-2020
- Chief Minister scholarship, 2014

NAMES AND ADDRESSES OF TWO REFEREES

- Marie Kratz
Professor at ESSEC Business School
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- Sreekar Vadlamani
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