



# JYOTIPRASAD MEDHI MEMORIAL ANNUAL LECTURE



## Prof. Jyotiprasad Medhi (1925–2017)

Widely regarded as the pioneer and finest statistician and mathematician the northeast region of India has ever produced. Internationally revered for his foundational research in stochastic models and queuing systems, this annual lecture series honors his extraordinary intellectual legacy, mentorship, and lifelong contributions to mathematical sciences.

### FEATURED KEYNOTE ADDRESS

## Toward Reliable MCMC Importance Sampling

### Dr. Dootika Vats

Associate Professor, Department of Statistics and Data Science  
Indian Institute of Technology Kanpur

#### DATE

Monday, 12 October 2026

#### TIME

5:00 PM IST

#### VENUE

E1-Block Seminar Room

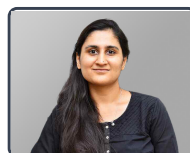
Department of Mathematics, IIT Guwahati

### Abstract

Importance sampling (IS) provides a flexible framework for estimating features of complex probability distributions, but its practical reliability can be difficult to assess when samples are generated by an MCMC algorithm (MCMC-IS).

This talk presents a workflow for reliable MCMC importance sampling: from expectations, quantile estimation, to density estimation. We characterize the variability of MCMC-IS quantile estimators highlighting situations where IS sampling may be preferable to MCMC sampling. Together, these components provide a systematic approach for using MCMC output to obtain and assess reliable importance sampling estimates, as well as equip a practitioner with a more complex toolkit.

### About the Speaker



#### Dr. Dootika Vats

Associate Professor

Dept. of Statistics & Data Science

IIT Kanpur

Dr. Vats was previously an NSF Postdoctoral Fellow at the University of Warwick and completed her Ph.D. at the University of Minnesota. Her research spans Markov chain Monte Carlo (MCMC), importance sampling, Bayesian computation, proximal methods, and Bernoulli factories. She is a recipient of the 2026 COPSS Emerging Leader Award, the 2026 INSA Young Associateship, Associate of the Indian Academy of Sciences (2024-27), 2022 Google India Research Award, and the 2021 Blackwell–Rosenbluth Award from j-ISBA. She serves as an Associate Editor for *Bayesian Analysis*, *Journal of Computational and Graphical Statistics*, *Journal of Statistical Planning and Inference*, and *Sankhya B*.

*The Department of Mathematics cordially invites faculty, researchers, and students across all disciplines to attend.*

**Dr. Palash Ghosh**

Coordinator

**Prof. M. Guru Prem Prasad**

Head, Department of Mathematics

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