

Department of Statistics Seminar Series



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Division of Mathematical Sciences
NSF

Some Aspects of Statistical Deep Learning

Wednesday, April 22nd, 2026

12:10-1:30 PM

Hill Center - 552

Zoom Meeting: Meeting ID: 926 1608 1995

Password: 153525

<https://rutgers.zoom.us/j/92616081995?pwd=TqPVh6Y1O6aLUt8i2uUBCRhrgH6Ayx.1>

Light refreshments will be served in Hill 452 11:40am

Abstract:

Deep learning has had a significant impact on both science and society due to its successful application of data-driven artificial intelligence. One key characteristic of deep learning is that its accuracy improves as model size and training data increase. This feature has notably enhanced state-of-the-art learning architectures across various fields over the past decade. However, the lack of a solid mathematical and statistical foundation has restricted the development of deep learning to specific applications and has hindered its broader, high-confidence implementation. This foundational gap becomes particularly evident when deep learning is applied to statistical estimation and inference, especially with limited training sample sizes. To address this issue, we aim to develop a statistically principled framework and theory that can validate the application of deep learning and support the creation of interpretable models. Our approach is grounded in Bayesian statistical theory and methodology, as well as scalable computation. We will demonstrate our methods across a wide range of applications.

Bio:

Professor Taps Maiti is a Foundation Distinguished Professor in the Department of Statistics and Probability at Michigan State University and currently serves as a Program Director in the Directorate of Mathematical and Physical Sciences at the National Science Foundation (NSF). He is a Fellow of the American Statistical Association (ASA), the Institute of Mathematical Statistics (IMS), and the American Association for the Advancement of Science (AAAS).

Professor Maiti's research spans modern statistical science, with broad contributions reflected in extensive publications and invited lectures worldwide. He has served on the editorial boards of several leading journals and is currently Co-Editor of the Annals of Applied Statistics and the Journal of Statistical Analysis and Data Mining. He also serves as an Associate Editor for the Journal of the American Statistical Association (Theory and Methods), Computational Statistics and Data Analysis, and Sankhya: The Indian Journal of Statistics.

He has mentored over 40 Ph.D. students and previously served as Graduate Director of his department for a decade, as well as Co-Director of the Center for Business and Social Analytics at Michigan State University.