Theoretical Statistics and Mathematics Unit, Kolkata
INDIAN STATISTICAL INSTITUTE

SEMINAR

Date: September 04, 2025
Time: 04:15 PM

VENUE:

L - 1
(3rd Floor, A.N. Kolmogorov Bhavan), ISI Kolkata

TITLE:

Inference on common dependency structure across multiple populations

SPEAKER:

Sayan Ranjan Bhowal
Stat-Math Unit, ISI Kolkata

ABSTRACT:

In this talk, we shall discuss the asymptotic properties of the group graphical lasso estimator (GGL) proposed by Danaher et al. (2014). Under the assumption of similar sparsity structure of the precision matrices of multiple classes, the GGL estimator is widely applied. We will analyze the performance of the estimated precision matrices for each class under some minimal restrictions. We shall propose a method for statistical inference of entries of sparse precision matrices in high dimensions for multiple classes under the sub-Gaussian assumptions. The performance of the method will be examined using both synthetic and real-world datasets. Additionally, under the assumption of a similar sparsity structure, we shall propose another estimation procedure that truly brings out the common sparsity pattern using the representation of the precision matrices as a Schur-Hadamard product of two matrices. The algorithm (Multiclass Graphical Lasso) for solving the optimization problem using ADMM and Gradient descent methods will be discussed. Results of the algorithm after application to a synthetic dataset shall be shown.

ALL ARE CORDIALLY INVITED