ICTS Seminar

Title : Revisiting the Gelman-Rubin Diagnostic in MCMC

Speaker : Dootika Vats (Indian Institute of Technology Kanpur)

Date : Thursday, 24 July 2025

Time : 11:30 AM (IST)

Abstract : Gelman and Rubin's (1992) convergence diagnostic is one of the most popular methods for terminating a Markov chain Monte Carlo (MCMC) sampler. Since the seminal paper, researchers have developed sophisticated methods for estimating variance of Monte Carlo averages. We show that these estimators find immediate use in the Gelman-Rubin statistic, a connection not previously established in the literature. We further identify that variance estimation of Monte Carlo can be vastly improved for parallel chains by using global centering. This leads to more accurate ACF plots and an improved estimator of the Gelman-Rubin statistic. Finally, we establish a one-to-one relationship between the Gelman-Rubin statistic and effective sample size, leveraging which, we develop a principled termination criterion for the Gelman-Rubin statistic.

Venue : Emmy Noether Seminar Room
Zoom Link: https://icts-res-in.zoom.us/j/91520531806?pwd=OXx7ST2Wr4admCT6ckHUqJnIdSZhfE.1
Meeting ID: 915 2053 1806
Passcode: 242425