

Seminar: 3/25/2024

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Title: Bayesian Edge Regression: Characterizing Observation-Specific Heterogeneity in Estimating Undirected Graphical Models

Abstract: In this talk, I will introduce Bayesian Edge Regression, a novel edge regression model for undirected graphs, which estimates conditional dependencies as a function of subject-level covariates. By doing so, this model allows accounting for observation-specific heterogeneity in estimating networks. I will present two cases studies using the proposed model: one is a set of simulation studies focused on comparing tumor and normal networks while adjusting for tumor purity; the other is an application to a dataset of proteomic measurements on plasma samples from patients with hepatocellular carcinoma (HCC), in which we ascertained how blood protein networks vary with disease severity. I will also provide an overview of the future research directions for this topic.