Poster Snapshot

Prediction of subgraph counts using network sampling under a model-assisted framework.

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We consider the prediction of subgraph counts in a large (population) network, under a Stochastic Block Model (SBM) setup with fixed class labels. We use a Bernoulli sampling scheme on the nodes of the population network to observe a sampled subgraph. The limiting distribution of sample-based subgraph counts is derived under the joint randomness of the sampling scheme and the population network model. Simulations suggest that the sample-based subgraph counts can be used to obtain valid prediction intervals for the corresponding unknown subgraph counts in the population network. We also present some approaches and challenges towards variance estimation in this setting.