Covariate-dependent graphs with application in cancer genomics

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Abstract: We consider the problem of modeling conditional independence structures in heterogeneous data in the presence of additional subject-level covariates. We propose a novel specification of a conditional (in)dependence function of covariates – which allows the structure of a directed or undirected graph to vary with the covariates and produces both subject-specific and predictive graphs. Applications in cancer genomics will presented.