

Modeling node heterogeneity in latent space models for multidimensional networks

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Multidimensional network data can have different levels of complexity, as nodes may be characterized by heterogeneous individual-specific features, which may vary across the networks. This article introduces a class of models for multidimensional network data, where different levels of heterogeneity within and between networks can be considered. The proposed framework is developed in the family of latent space models, and it aims to distinguish symmetric relations between the nodes and node-specific features. Model parameters are estimated via a Markov Chain Monte Carlo algorithm. Simulated data and an application to a real example, on fruits import/export data, are used to illustrate and comment on the performance of the proposed models.