Inference for Networks

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Abstract

A great deal of attention has recently been paid to determining sub-communities on the basis of relations, corresponding to edges, between individuals, corresponding to vertices of an unlabelled graph (Newman, SIAM Review 2003; Airoldi et al JMLR 2008; Leskovec & Kleinberg et al SIGKDD 2005). We develop a nonparametric framework for probabilistic ergodic models of infinite unlabelled graphs. We derive consistency properties of the Newman-Girvan index, and develop an index with better consistency properties and better performance on simulated data sets.

(This is joint work with Aiyou Chen.)