Brendan Murphy

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Latent Space Stochastic Block Model for Social Networks

ΠΕΜΠΤΗ 2/11/2017
13:00

**ΑΙΘΟΥΣΑ 607, 6^{ος} ΟΡΟΦΟΣ,
ΚΤΙΡΙΟ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ
(ΕΥΕΛΠΙΔΩΝ & ΛΕΥΚΑΔΟΣ)**

ΠΕΡΙΛΗΨΗ

A large number of statistical models have been proposed for social network analysis in recent years. In this paper, we propose a new model, the latent position stochastic block model, which extends and generalises both latent space model (Hoff et al., 2002) and stochastic block model (Nowicki and Snijders, 2001). The probability of an edge between two actors in a network depends on their respective class labels as well as latent positions in an unobserved latent space. The proposed model is capable of representing transitivity, clustering, as well as disassortative mixing. A Bayesian method with Markov chain Monte Carlo sampling is proposed for estimation of model parameters. Model selection is performed WAIC and models of different number of classes or dimensions of latent space can be compared. We apply the network model to social network interactions of Irish politicians and are able to identify highly interpretable classes which assist in understanding the political position of independent politicians who are not affiliated to any political party.

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ROOM 607, 6th FLOOR, POSTGRADUATE STUDIES BUILDING (EVELPIDON & LEFKADOS)

ABSTRACT

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