



The Hong Kong Polytechnic University Department of Applied Mathematics

Colloquium

Popularity-Adjusted Block Models for Networks with Community Structure

By

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Abstract

The community structure observed in empirical networks has been of particular interest in the statistics literature, with a strong emphasis on the study of block models. We study an important network feature called node popularity, which is closely associated with community structure. Neither the classical stochastic block model nor its degree-corrected extension can satisfactorily capture the dynamics of node popularity as observed in empirical networks. We propose a popularity-adjusted block model for flexible and realistic modeling of node popularity. We establish consistency of likelihood modularity for community detection as well as estimation of node popularities and model parameters, and demonstrate the advantages of the new modularity over the degree-corrected block model modularity in simulations. By analyzing the political blogs network, the British MP network, and the DBLP bibliographical network, we illustrate that improved empirical insights can be gained through this methodology.



Date: 10 March 2022 (Thursday)Click to join (Zoom)Time: 10:30-11:30 (Hong Kong Standard Time GMT +8)Click to join (Zoom)Venue: Online Talk via Zoom (Meeting ID: 915 5411 0290)Speaker: Prof. Yuguo Chen, University of Illinois, Urbana-ChampaignHost: Dr. Binyan Jiang and Dr. Ting Li, The Hong Kong Polytechnic UniversityClick to join:https://polyu.zoom.us/j/91554110290?pwd=YzJKZnJZcmhaQ1BZTEtmWFM1QldWdz09

*** ALL ARE WELCOME ***

For enrolment, please send your name and email to wai-yan.moon@polyu.edu.hk on or before 9 March 2022