

SCMS & SDS Joint Seminar

JOIN STATISTICS SEMINAR OF SCMS AND SDS

ESTIMATING NETWORK EDGE PROBABILITIES BY NEIGHBORHOOD SMOOTHING

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Lecture

Time: 10:30-11:30 am., Thursday, Nov. 16, 2017

Venue: Room 2201, East Main Guanghua Tower, Handan Campus

Abstract: The problem of estimating probabilities of network edges from the observed adjacency matrix has important applications to predicting missing links and network denoising. It has usually been addressed by estimating the graphon, a function that determines the matrix of edge probabilities, but is ill-defined without strong assumptions on the network structure. Here we propose a novel computationally efficient method based on neighborhood smoothing to estimate the expectation of the adjacency matrix directly, without making the strong structural assumptions graphon estimation requires. The neighborhood smoothing method requires little tuning, has a competitive mean-squared error rate, and outperforms many benchmark methods on the task of link prediction in both simulated and real networks. This is joint work with Yuan Zhang and Elizaveta Levina.