Resampling on Various Networks

Kun-Lin Kuo
Institute of Statistical Science, Academia Sinica

Abstract

Resampling is a very important statistical technique for estimating the sampling distribution or the variation of estimated parameters. Given the structural complexity of a network and the inter-dependence between nodes and links, it is not clear how to resample from an observed network even for simple statistics such as density and shortest path length. Moreover, if one views a network as an one-off observation, then this leads to great conceptual difficulties in resampling—i.e. how and what one can resample from an observed network? In this talk, we present a novel and simple method for resampling from a sampled network while preserving the structural relations among nodes. We also demonstrate our approach by applying it to a wide range of network data. (This work is jointly with Hwai-Chung Ho and Wei-Chung Liu.)