News

Paper Presented at Sunbelt Conference in Brighton

17 AUGUST 2015

Dr. Pavel Krivitsky presented a paper titled "Quantifying Uncertainty in Dynamic Network Models fit to Egocentrically Sampled Data" at the International Network for Social Network Analysis (INSNA) 2015 Sunbelt Conference in Brighton, UK on June 23–28. http://insna.org/sunbelt2015/

Modelling of social networks—structured relational data—is used in epidemiology to understand how infectious disease is likely to spread through a heterogeneous population of susceptible individuals, where simpler models represent populations as homogeneous "compartments". It is often the case, however, that the networks over which disease spread, such as those of sexual partnerships, are difficult or impractical to observe directly, or in the case of sexual partnerships in particular, present severe confidentiality issues. This is particularly problematic for modelling dynamic networks—network evolution over time.

Egocentric sampling comprises observation of a network of interest from the point of view of a set of sampled actors (egos), who provide information about themselves and their network relations (alters), but who often cannot disambiguate them, and it is often the only practical way to observe networks of sexual partnerships. Also, a given set of egos is typically only sampled at one point in time, albeit with their sexual history often being available.

One practical approach to fitting dynamic models to these data is to find what the dynamic network model parameters had to have been in order to induce, in the long run (i.e., its equilibrium), the network with properties implied by the egocentric data: a form of generalised method of moments estimation (GMME). The work presented identified the major sources of uncertainty in these estimators: when the sample was taken and who was sampled and described how they can be quantified and incorporated into the errors of the estimate.

Dr. Krivitsky and Statnet Project colleagues also taught several workshops on statistical modelling of social networks using their developments at the conference.

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On the lands that we study, we walk, and we live, we acknowledge and respect the traditional custodians and cultural knowledge holders of these

lands.