



## Investigating the linear network effects model for the designed experiments on networks

Trang Bui<sup>1</sup>; Stefan Steiner<sup>1</sup>; Nathaniel Stevens<sup>1</sup>

<sup>1</sup> University of Waterloo

### Abstract:

Designed experiments on networks are widely conducted by social network companies to make business decisions. In these experiments, treatments are assigned to the nodes (users) of the social network. Due to the interconnectivity of such networks, nodes interact with each other, and so a node's treatment assignment may influence the behaviour of other nodes in the network. This complicates both the design and the analysis of the experiment. We discuss a linear network effects model that has been proposed for such experiments, where the response of a node is modelled not only by its own treatment assignment, but also by its neighbors' treatment assignments. We study parameter estimation and hypothesis tests in the context of this model. Using simulation studies, characteristics of an experiment's design when using this model are also examined.

### Keywords:

Network analysis; experiment design; linear models;

### References:

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