Final Project Proposal Network Science

Ben Murphy 16-714-926

Florian Rüegsegger 14-714-737

Silvan Wehrli 15-703-275

Data

Which dataset do you plan to analyse?

https://www.kaggle.com/crailtap/street-network-of-new-york-in-graphml

Additional Data:

https://data.cityofnewyork.us/Transportation/Traffic-Volume-Counts-2014-2019-/ertz-hr4r

Which is the logical unit (agent, node) of your model?

Node == geospatial location (crossings, corners, squares, other metadata)

Edge == connection (street, bridge, tunnel etc.)

Static network

Research question

What happens with robustness in the presence of interdependent networks?

We assume that new York/Manhattan is an interdependent network. We predict that the street network's traffic throughput will drastically drop when we attack the nodes that we analyse to be highly influential (i.e. nodes that the network depends on). We will use metrics such as centrality betweenness, degree distribution, critical threshold (Erdos Renyi comparison), connectivity, load centrality.

Null model will you use a null model to compare the results to?

We will use the Erdos Renyi as our null model.