CMPM 290A F2017
Visualizing Complex Systems

Project 2 – Dynamic Networks

This multi-stage group project gives you the opportunity to think creatively about how to collect and represent a complex temporal dataset of your choice (given some restrictions). For Part 1 of the project, you will investigate and choose a dataset to work with. For Part 2, you will write a summary of recent research articles relevant to your dataset. For Part 3, you will sketch out visualization and interaction ideas to design your interactive visualization. For Part 4, you will create an interactive visualization of a complex system. Finally, for Part 5, you document your project and make it publicly available.

You will work in teams, and each member of your team must participate in all parts of the project.

Part 1

1. Find a dataset to work with – Present dataset & tasks in class 10/31

- Choose your team members (or I can assign teams). You can have either 2 or 3 people in a team.

- Find an interesting dataset with temporal information. I will provide a list of data repositories that you can select from, or you can come up with your own dataset. You can also utilize multiple datasets.

- Brainstorm a list of 5 "analysis tasks" – questions you would be interested in finding out from looking at this data.

Some ideas:

- Use the Facebook Graph API or netvizz to analyze your online social network
- Investigate the Pathway Commons API to investigate biological pathway networks
- Look at the Human Brain Connectome project to explore the dynamics of brain networks
- Download data from the UCSC Genomics Institute

Some temporal network datasets can be found at these websites:

- https://snap.stanford.edu/data/
- http://www-personal.umich.edu/~mejn/netdata/
- http://networkrepository.com/
- https://networkdata.ics.uci.edu/resources.php
- http://projects.csail.mit.edu/dnd/

2. Research Summaries – Present summaries of articles in class 11/7

- Each person in your group will summarize, contextualize, and comment on at least 1 article that is related to the domain, tasks, and/or visual encodings relevant for your project.

- See additional handout for detailed instructions on how to summarize articles.

- Also read the STAR reports by Vehlow et al. and Beck et al. (I will hand these out in class.)

3. Sketch Design Ideas – Present sketches in class 11/14

- By this date you will have finalized your decision on the dataset you will use for your final project.

- Create three different sketches describing approaches to creating your dynamic network and possible representations for fulfilling the most interesting analysis tasks you've identified.

4. Translate your visual representation to code – Present final project in class during Finals Week

- Choose one of your sketches and port it to an interactive web application using Javascript and the D3.js library.

- I will provide a list of requirements for the visualization in a few weeks

5. Document the project – Final project files and documentation is due on 12/14

- Emulating the style of a submission to IEEE VIS, write up a paper (4 to 8 pages) describing the problem and your contribution.

- Use the IEEE VIS conference template located here, for either LaTeX or for Word: http://junctionpublishing.org/vgtc/Tasks/camera.html.

- Create a GitHub or BitBucket repository (or another public facing git repo) and upload your code, the write-up, and include a README with clear instructions for how to run your project.