Social Network Analysis

Course Objectives

Social Network Analysis (SNA) is about analyzing networks arising in various contexts, especially those arising in social contexts: as a result of people connecting with each other on online social networks such as twitter and facebook, as well as "who-calls-whom" graph arising out of Telecom networks. However, the techniques for analysing social networks can be extended to other non-social networks as well.

In this course, we will learn about techniques for analyzing networks, both social and others, and also learn about how (algorithms) to do this in a *scalable* manner. Also, we will learn how to visualise some of these large networks. And lastly, we will also explore the applications of SNA in various domains such as Telecom, Biology, etc.

Course Outline

- Graph Theory and Social Networks
- Visualizing Social Networks
- Game Theory
- Information Networks and the World Wide Web
- Network Dynamics
- Applications of SNA in various domains

Instructors

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Grading (Tentative)

Assignment 1 (5%) – Tooling assignment

Assignment 2 (5%) – Coding assignment

Assignment 3 (10%) – Open-ended problems

Mid Term (15%)

Project (40%) – 2 or 3 in a group

- Problem Definition and Literature Survey (15%)
- First set of Analysis and Results (10%)
- Final Presentation & Submission of report in LaTeX/Word (15%)

Final Exam (25%)

Readings

- Networks, Crowds, and Markets: Reasoning About a Highly Connected World by David Easley and Jon Kleinberg Cambridge University Press 2010 (online: https://www.cs.cornell.edu/home/kleinber/networks-book/)
- Research papers as discussed in the class

Class Timings: Wed & Fri (10-11:30AM)

WebEx: https://meetingsapac50.webex.com/meet/pr1658637819

Web Resource: Piazza https://piazza.com/class/ks4ofymczx86f0