

Social Network Analysis – Fall 2023

Project

Objective & Overview

- One of the main goals of this course is to prepare you to apply state-of-the-art network analysis tools and algorithms to an application. And of course, to look at new or existing problems from a "network" perspective.
- If you are interested in research, the final project will offer you an opportunity to do exactly this.
- Students can work in teams of up to 3 people.
- There can be the following kinds of course projects:
 - Experimental evaluation of algorithms and models on an interesting dataset.
 - A novel network-oriented approach to an existing problem which hasn't been analysed before from a network perspective.
 - A theoretical project that considers a model, an algorithm or a network property (measure) and derives a rigorous result about it.
 - A scalable implementation of an algorithm for processing massive graphs.
 - Analysis or application of Graph Neural Networks.
- Projects could be a mix of the types of projects outlined above. We expect the project to contain some experimentation on real or synthetic data (even to show validation of a theory).
- Projects will be evaluated based on:
 - The technical quality of the work:
 - Does the technical material make sense? Are the things tried reasonable? Are the proposed algorithms or applications clever and interesting?
 - Significance
 - Did the authors choose an interesting or a "real" problem to work on, or only a small "toy" problem? If it is a "toy" problem, does it show a new way forward? Is this work likely to be useful and/or have impact?
 - The novelty of the work
 - Do the authors convey novel insight about the problem and/or algorithms?
 - The in-class presentations.
 - Degree of difficulty
 - Obviously we will expect more from a 3 member project than a 2 member or a 1 member project.
- Please pick something that you are passionate about! Be brave and propose ambitious things that you're excited about! 😊

Project Milestones

- **Project Proposal (2-3 pages)**
 - What is the problem you are solving?
 - What data will you use (how will you get it)?

- What work do you plan to do the project?
 - Which algorithms/techniques/models you plan to use/develop?
 - Who will you evaluate your method? How will you test it? How will you measure success?
 - What do you expect to submit/accomplish by the end of the semester?
 - Literature Survey – All the relevant prior work that has been done with respect to your chosen problem.
 - **In-class presentation: September 18 & 21**
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- **Final Report Structure (8-10 pages)**
 - Introduction/Motivation/Problem Definition
 - Related Work
 - Model/Algorithm/Method
 - Results and findings
 - Conclusion and Future Work
 - **In-class presentation: November 27 & 30**