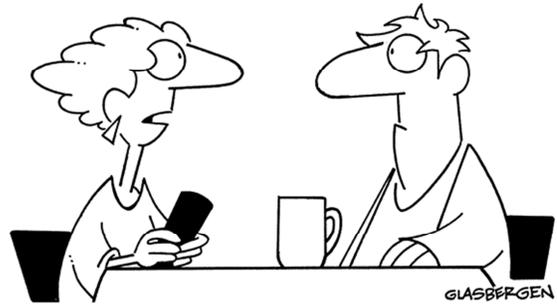


LIS590SF: Social Computing, Fall 2013

Time: Tuesdays 1:00-03:50pm
Location: 341 LISB
Instructor: Jana Diesner
<http://people.lis.illinois.edu/~jdiesner/>
Contact: Email: jdiesner@illinois.edu,
Phone: 412 519 7576,
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Office Hours: LIS 229, TR 3-5pm
Course Units: 4 GR hours. Open to graduate students campus wide

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"You have the right to remain silent. Anything you say may be used against you on Facebook, Twitter and YouTube!"

1. Short Description

Social computing is concerned with collective problem solving and social interactions facilitated by interconnected technologies. With the diffusion of networked communication and computing devices throughout society at large, the demand for solid and rigorous expertise and skills in social computing keeps gaining momentum in academia and business.

Research in social computing is addressing questions such as: How can society restore illegible text from digitized books at minimal costs and high accuracy? How can dispersed individuals be mobilized to quickly assemble trustworthy information, e.g. for disaster response? How can corporations, administrations and the public harness social media and collective action to improve public health, environmental protection, and the safety and security of critical infrastructures, personal data and their reputation? Students in this class learn how to answer these questions.

This interdisciplinary course introduces students to fundamental theories, methods, technologies and applications of social computing. Students learn about this emerging discipline from two perspectives: First, basic principles of collective information production and processing, and methods for studying these principles. Topics include prediction markets, games with a purpose, citizen science, open source software development, social media and information visualization. Second, socio-technical aspects of the design and usage of social computing technologies. Topics include participation, contribution, privacy and security. Students learn how to solve problems in social computing in a systematic and rigorous fashion. At the end of the course, students will be able to design, manage and execute social computing projects for scholarly and commercial use, and to critically assess work in this area.

2. Learning Objectives

Completing this course and its requirements should enable you to:

- Acquire a systematic roadmap and understanding of fundamental concepts and theories relevant for social computing.
- Learn and practice problem-solving and analytical skills that are needed for doing research in social computing.
- Understand fundamental and current challenges in social computing.

- Perform analyses of real world data from this field and interpret the results with respect to quantitative and substantive questions.
- Plan and execute a small-scale research project in social computing in a systematic fashion.
- Become familiar with the concept of computational thinking.

3. Materials

Textbook: David Easley and Jon Kleinberg (2010) Networks, Crowds, and Markets: Reasoning About a Highly Connected World. Cambridge University Press. Available for free at <http://www.cs.cornell.edu/home/kleinber/networks-book/> Other readings (required and optional) will be provided as needed.

Software: We will use several software products for data collection and analysis. These tools are free for use. We will provide training for these tools in class.

4. Prerequisites

This is an interdisciplinary graduate course for students campus wide. The course is designed to benefit from the participation of students from any department or program. There are no formal prerequisites. No specific numerical, technical or programming skills are required. Students are expected to be willing to hone their skills in computational thinking.

5. Course Requirements

- 1. Attendance and Participation:** You are expected to attend and participate in all class sessions. You are invited to initiate or engage in discussions on Moodle (post them to the “Open discussion” section) and to post information on Moodle.
- 2. Reading and Discussions:** Readings are posted on Moodle. You are expected to read the material for each session and be prepared to discuss it in class. This requirement is tested as part of participation, homework assignments, and the test.
- 3. Homework:** There will be 5 problem sets. You are expected to complete them on your own.
- 4. Test:** Open book and notes test on everything covered up to this date. Most likely take home.
- 5. Project:** Every student will conduct a social computing research project. The learning goal with this project is to put the knowledge gained in this class into action and to provide you with practical research experience in this domain. The instructor will provide you with guidance and advice throughout this process. The project can be self-defined – alternatively we have a selection of projects available.

6. Evaluation and grading policy

Deliverable	Grade
Attendance and participation	10%
Homework assignments	50%
Test	15%
Project	25%

7. Course calendar and topics

The most up to date syllabus and set of readings and deliverables is available on Moodle.

Session	Date	Theme	Concepts	Deliverables
1	08/27	Overview of course and field		
2	09/03	Decision Making	Information diffusion	HW 1 out
3	09/10		Information cascades Bayesian Computing Network externalities	
4	09/17	Cooperation	Game Theory Information Markets	HW 1 due, HW 2 out
5	09/24	Social Media		
6	10/01	Lab: Social Media: data collection and data analysis (NodeXL)	Social networks, semantic networks	HW 2 due, HW 3 out
7	10/08	Collaboration	Citizen Science Open source software development	Project proposal due
7	10/15	Problem Solving	Crowdsourcing Prediction Markets Games with a Purpose	HW 3 due, HW 4 out
8	10/22	Designing online communities	Recruiting	HW 4 due, HW 5 out
9	10/29		Contribution Commitment Trouble Shooting	
10	11/05	Privacy and Security		Project update due
11	11/12	All principles learned in action	Play!	HW 5 due
12	11/26	Thanksgiving break. Call it a break of you can		
13	12/03	Review		
14	12/10	Project presentation		Project presentation and report due

8. Course policies and expectations

You can expect me to provide you with feedback on any deliverable, to answer your emails within 24 hours, and to point you to further learning resources if you are interested.

To submit a deliverable, email it to me, put it into my mailbox, or slip it under my door. Petition for late submissions need to occur at a minimum of three days prior to the due date. Lateness for turning in any item will reduce the grade by 33% for each 24 hour period late.

Plagiarism and cheating are not tolerated in this course. Plagiarism means using words, ideas, or arguments from other people or sources without citation. To prevent plagiarism, cite all sources consulted to any extent (including material from the internet). Four or more words used in sequence must be set off in quotation marks, with the source identified. Cheating means copying answers from other people or sources, or providing someone with such information.

You are expected to be familiar with and to follow the UIUC Student Code in all matters related to this course (http://admin.illinois.edu/policy/code/Full_Code_web2012.pdf). Specifically I call your attention to Part 4, "Academic Integrity" (http://admin.illinois.edu/policy/code/article1_part4_1-401.html) and to Section 1-401 (b), which states: "Students have been given notice of this rule by virtue of its publication. Regardless of whether a student has actually read this rule, a student is charged with knowledge of it..."

Appendix

Details on project:

Teams: You are welcome to work in self-defined teams of two to three people. PhD students conducting a project related to their research can work on their own.

Process: You will be introduced to research processes in social computing early in class. The deliverables for the project are aligned with the steps of this process.

Data: You can analyze existing data. Collecting network data as part of this project might be very time consuming - consult with the instructor if you have questions about this point.

Report: Write up your work and findings in the form of a research report. Your report should be between 8 and 20 pages (12 pt font, margin 1 inch on all sides, 1.5 line spacing). You will receive feedback on each deliverable. Structure your report as specified in the Appendix of this document.

Report structure and evaluation

1. Title
2. Name(s) of author(s).
3. Abstract
 - a. 250-350 words.
 - b. Motivate and state your research question.
 - c. Focus on what you have learned (key findings).
4. Introduction
 - a. Why does your research question matter?
5. Background
 - a. Discuss and synthesize prior work such that you identify a gap in prior research, a conflict between prior results or a lack of knowledge with respect to understanding social computing problems. Start by drawing from the course readings and expand with additional readings.
6. Data
 - a. Describe the dataset you use. This description should include:
 - i. How the data was collected (by who, from whom, when, what methods).
 - ii. Size.
 - iii. Reliability.
 - iv. Limitations.
7. Method
 - a. How do you analyze the data (unit of analysis, metrics, etc.).
8. Results
 - a. Describe your findings. Add in figures, tables and visualizations as needed.
9. Conclusions
 - a. Interpret your findings with respect to your research question.
 - b. What new knowledge was gained from this study?
 - c. How can your findings be expected to generalize?
 - d. For whom might your findings be relevant, who can use the knowledge you have gained?
10. Limitations and Future Work

- a. State all limitations that apply to the data, methods and results.
- b. How could your work be extended and why would that be useful?

11. References

Schedule of project deliverables:

Date	Deliverable	What to write up/prepare	Grading criteria
Oct 8	Project proposal: Oct 8 in class, Oct 15 in written form (10 pts)	1-2 pages: - Team (2.) - Project idea/ research question (4.) - Rough draft of background section (5.) - Data section (6.)	Content: - Synthesis of relevant background work (substantive question or quantitative problem) - Identify an interesting network-centric research question - Understand your dataset (how it was collected, properties, limitations) Writing (same criteria apply to all writing deliverables for the report): - Clarity (flow, transitions, consistent use of terminology) - Coherence and logic
Nov 5	Project progress report (30 pts)	Additional 2-4 pages: - Update on previous sections if applicable and based on feedback - Methods section (7.), incl: - Data analysis: strategy and operationalization - Preliminary results (8.)	Content: - Demonstrate ability to select and apply a network analysis method (qualitative, quantitative, metrics, etc.) that is appropriate and feasible given the research question, dataset and scope of the project.
Dec 10	- In-class project presentation (20 points)	- Presentation: poster or slides	In-class project presentation: - Every team member is able to present - Respond to questions from class and instructor
Dec 13	- Final project report (40 points)	- Final report (1. – 11.)	Report: - Update on previous sections if applicable and based on feedback All sections completed (1.-11.)