Computational Social Science

CS + statistics + social sciences

- Goal: develop quantitative methods & computational tools to address social science problems and questions
- Driven by new sources of data from the internet, government databases, voting records, libraries, etc.
- ... as well as advances in statistics, machine learning, social networks, and natural language processing
Course Description

● Goal: an overview of computational social science
  - Emerging discipline; not (yet!) well-defined

● We will explore 2 axes:
  - Real-world problems from the social sciences: political science, sociology, economics, public policy...
  - Quantitative methods and tools: statistics, social network analysis, natural language processing
General Information

• Class: Wed 12-2pm, LGRC A311
• 1-3 papers per week:
  – Some introductory, some cutting-edge research
  – Presented in class by students
  – Discussion-based, interactive, participatory
• Occasional invited guest speakers
• No scheduled office hours; appointments by email
Assessment

- **Paper reviews (40/80):**
  - At most 1 page per review
  - 1-2 paragraph summary, with pros/cons of approach
  - Detailed comments (questions, comments, thoughts)
  - Due (via email; plain text) 11:59pm on Tues

- **In-class participation (10/20):**
  - Paper presentations
  - Participation in class discussions
Semester-long project (50/NA):
- Student-proposed (but must be approved by me): e.g., tackling an existing problem using novel methods, comparing tools/methods for a new problem, ...
- Proposal (1 page) due 11:59pm Feb 08
- Status update (1 paragraph) due 11:59pm Mar 15
- Write-up (max. 10 pages) due 11:59pm Apr 19
- In-class presentations (~10 mins) on Apr 27
Website and Course Materials

- Schedule for the semester is on the class website:
  - http://www.cs.umass.edu/~wallach/courses/cs791ss/
- Papers will be posted online (where possible)
- Links to additional materials (blog posts, workshops, mailing lists, talks, etc.) will also be posted
- Scheduling the presenter for each week will be coordinated via the class mailing list
Background and Introductions...

- Useful background:
  - Probability and statistics, especially Bayesian methods
  - Social network analysis and graph theory
  - Text analysis methods, especially statistical topic models
  - Machine learning, especially graphical models
  - One or more social science ...

- Who are you? What's your background?
http://www.cs.umass.edu/~wallach/courses/cs791ss/
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