Lecture 13:
CS 5306 / INFO 5306:
Crowdsourcing and
Human Computation

Today at 4:15pm in G01:
Nisarg Shah, "Optimal Social Decision Making"

Sample papers:

- "False-Name-Proof Recommendations in Social Networks"
  Markus Brill, Vincent Conitzer, Rupert Freeman, and Nisarg Shah.
  In *Proc. 15th Intl. Joint Conference on Autonomous Agents and Multiagent Systems*, 2016

- "When Do Noisy Votes Reveal the Truth?"
  Ioannis Caragiannis, Ariel D. Procaccia, and Nisarg Shah.
  In *ACM Transactions on Economics and Computation*, Volume 4, Number 3, Article 15, February 2016

- "Betting Strategies, Market Selection, and the Wisdom of Crowds"
  Willemien Kets, David M. Pennock, Rajiv Sethi, and Nisarg Shah.
  In *Proc. 28th AAAI Conference on Artificial Intelligence*, pp. 735-741, 2014.

Course Project

- Milestone 1: Friday, March 18, 12:00 PM

Infotopia, Chapter 6

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- Pulling it all together (to a first approximation) "Under what circumstances should one or another approach be chosen?"

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  - Use prediction markets

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- Pulling it all together (to a first approximation) "Under what circumstances should one or another approach be chosen?"

  – Use prediction markets

  – Use wikis

Prediction Markets ☺

"For the prices of commodities, the answer is absurdly easy: Markets are best."

- "They provide strong incentives for the use and revelation of relevant information"
- "Markets … reflect taste as well"
- "whenever institutions and groups want access to highly dispersed information"
- "The Internet makes this extremely easy."

Prediction Markets ☹

- "prices can reflect errors, fads, and confusion, sometimes for a long time"

- "we do not yet know exactly when prediction markets will work"

- "when people lack information to aggregate, prediction markets are not particularly helpful"

Voting and Averaging ☺

- "when there is reason to trust those who are being surveyed, the group average is likely to be trustworthy as well"

Voting and Averaging ☹

- "Where people's answers are worse than random, and where there is a systematic bias, the average answer it not going to be accurate"

- Examples:
  - "the color of my dog"
  - "number of human deaths that will be attributable, by 2100, to global warming"

Deliberation ☺

- Successful "where the answer, once announced, appears correct to all"

- "eureka-type problems"

Deliberation ☹

- "People may not say what they know"
- "information contained in the group as a whole may be neglected or submerged"
- "no systematic evidence that deliberating groups will arrive at the truth"
- "it is not even clear that deliberating groups will do better than statistical groups"
- "when individuals tend toward a bad answer, the group is likely to do no better than a statistical group" and "might even do worse"

Deliberation ☹

- "When we silence ourselves in deliberating groups, it is partly because of social norms---because of a sense that our reputation will suffer .. for disclosing information that departs from our group's inclination"

- "Hidden profiles remain hidden in large groups remain hidden for this reason; those who disclose unique information face a risk of disapproval"

- "low-status groups ... carry little influence in deliberating groups" (cf prediction markets, wikis)

Deliberation Recommendations

- *"Groups should take firm steps to increase the likelihood that people will disclose what they know"*
- "institutional reforms" make it "possible to reduce the risk of hidden profiles, cascade effects, and group polarization"

Deliberation Recommendations

- "groups … should attempt to create their own incentives for disclosure"
- "the overriding question is how to alter people's incentives in such a way as to increase the likelihood of disclosure"
- "Social norms are what make wikis work .. And they are crucial here"

Deliberation Recommendations

- *"Groups should take firm steps to increase the likelihood that people will disclose what they know"*
- "groups … should attempt to create their own incentives for disclosure"
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Deliberation Recommendations

- Redefine "what it means to be a team player": "those who increase the likelihood that the team will be right---if necessary by disrupting the conventional wisdom"
- Examples:
  - Success of companies with contentious corporate boards
  - Success of democracies in WWII

Deliberation Recommendations

- Make individual success a function of group outcome, not individual contribution
- Example: Whistleblowing
- "Groups produce much better outcomes when it is in individuals' interest to say exactly what they see or know"
- "It might be speculated that [if rewarded for individual rather than group success] hidden profiles, cascades, and group polarization would be reduced dramatically"

Deliberation Recommendations

- Leadership:
  - "the risk that unshared information will have insufficient influence is much reduced when that information is held by a leader within the group"
  - "leaders and high-status members can do groups a great service by indicating their willingness and even desire to hear information that is held by one or a few members"
  - "Leaders can refuse to state a firm view at the outset and in that way allow space for more information to emerge"

Deliberation Recommendations

- "people might be asked to state their opinions anonymously"
- "Many institutions should consider more use of the secret ballot"
- Delphi technique

Deliberation Recommendations

- "ask some group members to act as devil's advocates, urging a position that is contrary to the group's inclination"
- "Those assuming the role ... should not face the social pressure that comes from rejecting the dominant position within the group"

- (but has less impact than authentic dissent)

Deliberation Recommendations

- Assign people specific roles
- "Hidden profiles should be less likely to remain hidden if there is a strict division of labor, in which each person in knowledgeable .. about something in particular"
- "Independent subcommittees might be asked to generate new views, possibly views that compete with one another." (cf competitions)