Crowdsourcing for Addressing Complex Problems

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Prof. Narges Mahyar
nmahyar@cs.umass.edu
"The act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call."

"Rise of Crowdsourcing" in Wired magazine by Jeff Howe
Crowdsourcing

“The process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers."

Merriam Webster
Platforms

- Aim to encourage and/or support crowdsourced work or objectives
- Differ according to their:
  - Level of organization
  - Size of community
  - Incentives
Example: Amazon Mechanical Turk

- Requestors (aka employers) post tasks known as Human-Intelligence Tasks (HITs)
- Workers (aka online users) complete tasks for small financial reward
- Work is often divided up into “micro-tasks”
Amazon mechanical turk
Can we harness crowd to solve complex tasks?

- Example application domains
  - Crowd work
  - Citizen science
  - User-generated content
Crowd work

- Using crowd workers to complete work that would be difficult to complete otherwise
  - Volume of work
  - Tedious tasks
  - Expertise/abilities involved
  - Need for outsider insight
Crow work example

- One of the earliest examples is Luis Von Ahn’s ReCaptcha

https://www.ted.com/talks/luis_von_ahn_massive_scale_online_collaboration?language=en
User-generated content
Voluntary contribution
Citizen science

- Science conducted in whole, or in part, by non-professional scientists
Foldit: solving puzzles for science
Crowd-powered interfaces

Crowdsourcing as a method to improve civics

- E.g. Wikisurvey, Give a minute, CommunityCrit
- Budget Map
- Off-Road traffic Law
Off-Road traffic Law

Tanja Aitamurto and Helene E Landemore. Five design principles for crowdsourced policymaking: Assessing the case of crowdsourced off-road traffic law in Finland. 2015.
Challenges

- Motivating contributions
- Data/work quality
- Workflow
- Performance
Other challenges

- Ethical and legal considerations, e.g.:  
  - Demographics of contributors  
  - Data storage  
  - Imbalance of benefits
More challenges for community sourcing

- Ensuring authentic input
- Using quick and straightforward workflow
- Sustaining engagement
- Broadening participation
- Engaging representative contributors
Project pitches
Events

Data Science career mixer

https://ds.cs.umass.edu/events/career-mixer-2018/student