

06- Introduction to Crowdsourced Studies

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Usable Privacy and Security

Carnegie
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Engineering &
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Today's class

- Why crowdsource?
- Mechanical Turk
- Limitations of crowdsourcing
- A few other considerations
- Let's launch a live study!
- Project topics
- Let's check on our study results...

Why crowdsource?

- Inexpensive
- Access to fairly diverse participant pool
- Fast participant recruitment
- Easy to pay participants
- Can contact participants for follow-up without collecting their PII

Alternative: online study with recruitment ads or participant pool

- Advantages
 - Depending on where/how you recruit, may have more control over type of participants
- Disadvantages
 - Usually takes longer to recruit participants
 - May be more complicated to pay participants (sometimes uses raffle to simplify payment)
 - May require collection of PII to follow-up and/or send payments or prizes

Alternative: paper survey in public place

- Advantages
 - Depending on where/how you recruit, may have more control over type of participants
- Disadvantages
 - Time consuming and labor intensive
 - Participant pool limited to geographic location
 - Requires data entry (unless done on a tablet)

Alternative: paper survey by postal mail

- Advantages
 - Can randomly select participants
- Disadvantages
 - Tends to have low response rate
 - Expensive to mail surveys
 - Requires data entry

Alternative: lab study

- Advantages
 - Allows for direct observation of participants
 - Facilitates physical interaction with artifacts
 - Allows for direct interaction between participants and experimenter
- Disadvantages
 - Requires a lot more time and physical space
 - Participant pool limited to geographic region of lab

Mechanical Turk

- Crowdsourcing service run by Amazon.com
- Requesters setup account and deposit money
- Requesters post Human Intelligence Tasks (HITs)
- Workers (called Turkers) accept HITs, complete them, and request payment
- Requesters review work, approve payment
- Amazon takes money from requester's account and deposits it in worker accounts

Limitations

- Can't directly observe participants
 - Pilot in person to debug study
 - Sometimes you can instrument software to collect keystrokes, mouse movements, or other things you want to observe
- Some users not motivated to pay attention, or have become professional survey takers
 - Use attention checks to filter out inattentive participants
 - Pay participants fairly
 - Recruit extra participants to get what you need
- MTurk population younger, more tech-savvy, but still more diverse than typical lab study

Mazurek et al., CCS 2013

- We collected data on real CMU passwords
- We had MTurk workers make passwords under identical condition
- Unlike CMU folks, MTurk workers had nothing of value behind their accounts
- While MTurk passwords were slightly weaker, the strength was very similar and they had similar characteristics

Recruit workers on MTurk

Participate in a Carnegie Mellon University research study.

You will be asked to fill out a 5-minute survey for a \$0.55 payment. We will email you to come back in a few days to log in again and fill out another survey for a \$0.70 bonus payment.

Do not submit this HIT multiple times. You will not be paid if you participate in this study more than once. If the study website tells you that you have participated before, please return the HIT.

(Note: This link will not become visible until you accept this HIT.)

When you have completed the study, enter your completion code here to submit your work for approval and payment.

You still usually need consent form

Research Consent Form

This task is part of a research study conducted by Lorrie Cranor at Carnegie Mellon University.

The purpose of the research is to survey users about their behavior visiting secure websites.

Procedures

Participants will be asked to answer survey questions, which should take about 5 minutes. They will be asked to return later to login and answer more survey questions, which should also take about 5 minutes.

Participant Requirements

Participation in this study is limited to individuals age 18 and older.

Risks

The risks and discomfort associated with participation in this study are no greater than those ordinarily encountered in daily life or during other online activities.

I am age 18 or older. Yes ☐ No ☐

I have read and understand the information above. Yes ☐ No ☐

I want to participate in this research and continue with the task. Yes ☐ No ☐

Continue

Logistics of collecting data on Mturk

- Mturk provides basic survey capabilities but is very limited
- You can redirect participants to a survey website, like Google Forms, SurveyGizmo (we have a CUPS account you can use for class project), Qualtrics, or SurveyMonkey
- You can redirect participants to your own custom study website
- When participants finish study on another website, they will return to Mturk to request payment
 - Provide them with random code so they don't request payment without doing the study
 - Or provide static code plus ask for turker ID
 - Tricks to make manual code verification easier
 - For large studies, script code check

Paying participants

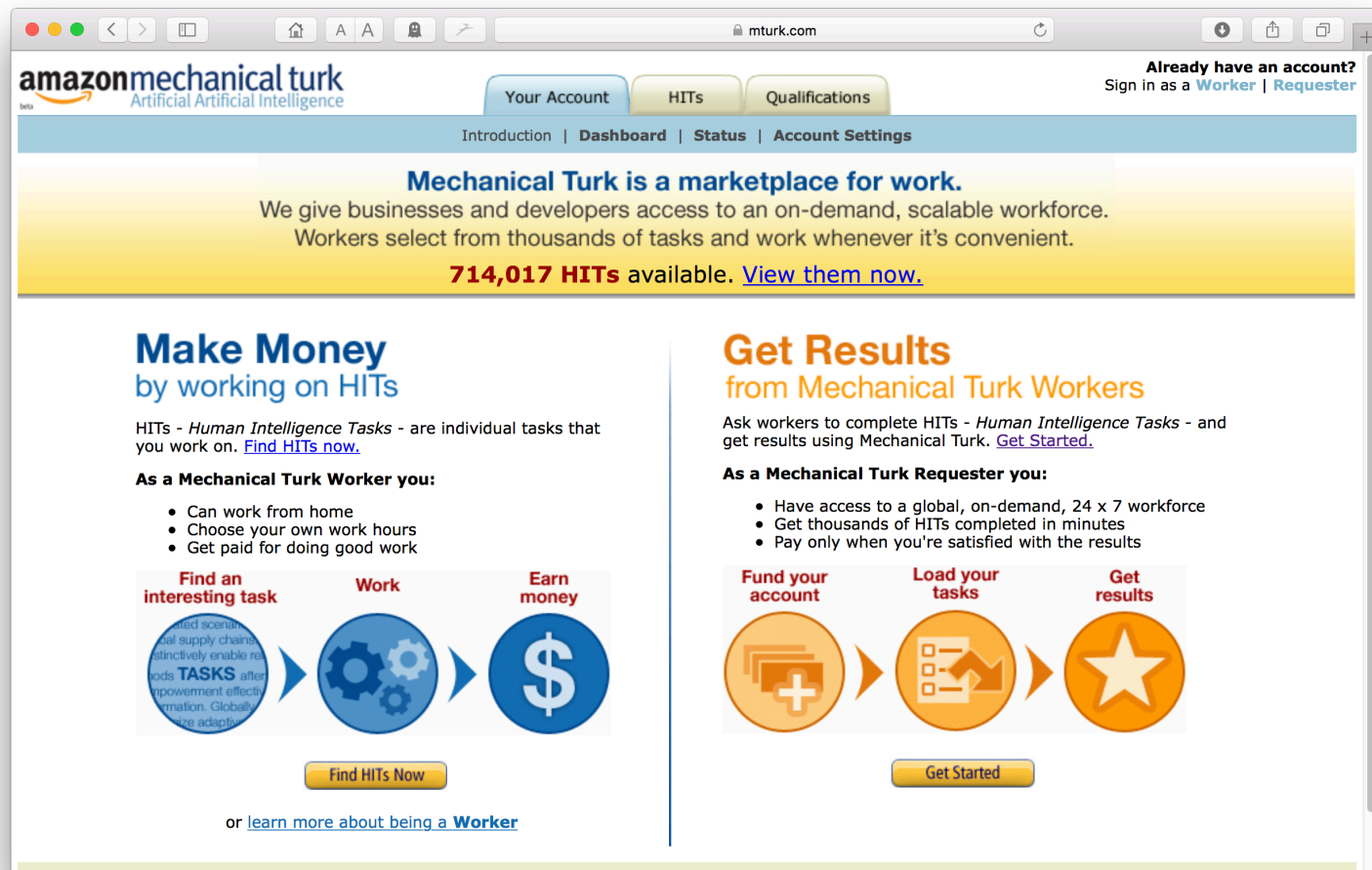
- When the participant has finished, you can review their work and pay them from your account
- Pay workers promptly or they will complain (to you, to other workers, to IRB)
- Pay workers fairly
 - Figure out how long task should take and pay at least minimum wage (\$7.25/hour), probably more (\$10/hour often suggested as fair)

Other things to know

- Screen workers with Mturk settings or your own screening survey
- You can send workers notifications through Mturk
- Prevent repeated worker for same task
 - Tell workers if they participate more than once they won't get paid
 - Write scripts to check worker IDs and reject workers who try again
- Turkers communicate with each other

Let's launch a live study

- <http://www.mturk.com>



Your turn

- You are going to do your own study for homework
- <http://cups.cs.cmu.edu/courses/ups-sp17/hw3.html>

Projects!

- <http://cups.cs.cmu.edu/courses/ups-sp17/projects.html>

Let's check on our study

- <http://www.mturk.com>