06- Introduction to Crowdsourced Studies

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Usable Privacy and Security

Carnegie Mellon University
CyLab

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Engineering & Public Policy

Today's class

- Why do we want to crowdsource?
- Mechanical Turk: A Crowdsourcing service
- Why might we not want to crowdsource?
- A few other considerations
- Let's Launch a Live Study!

Can Longer Passwords be Secure and Usable?

- *Richard Shay, Saranga Komanduri, Adam L. Durity, Philip (Seyoung) Huh, Michelle L. Mazurek, Sean M. Segreti, Blase Ur, Lujo Bauer, Nicolas Christin, and Lorrie Faith Cranor. (CHI 2014)*
- We wanted a large number of participants
- We wanted randomly assigned conditions

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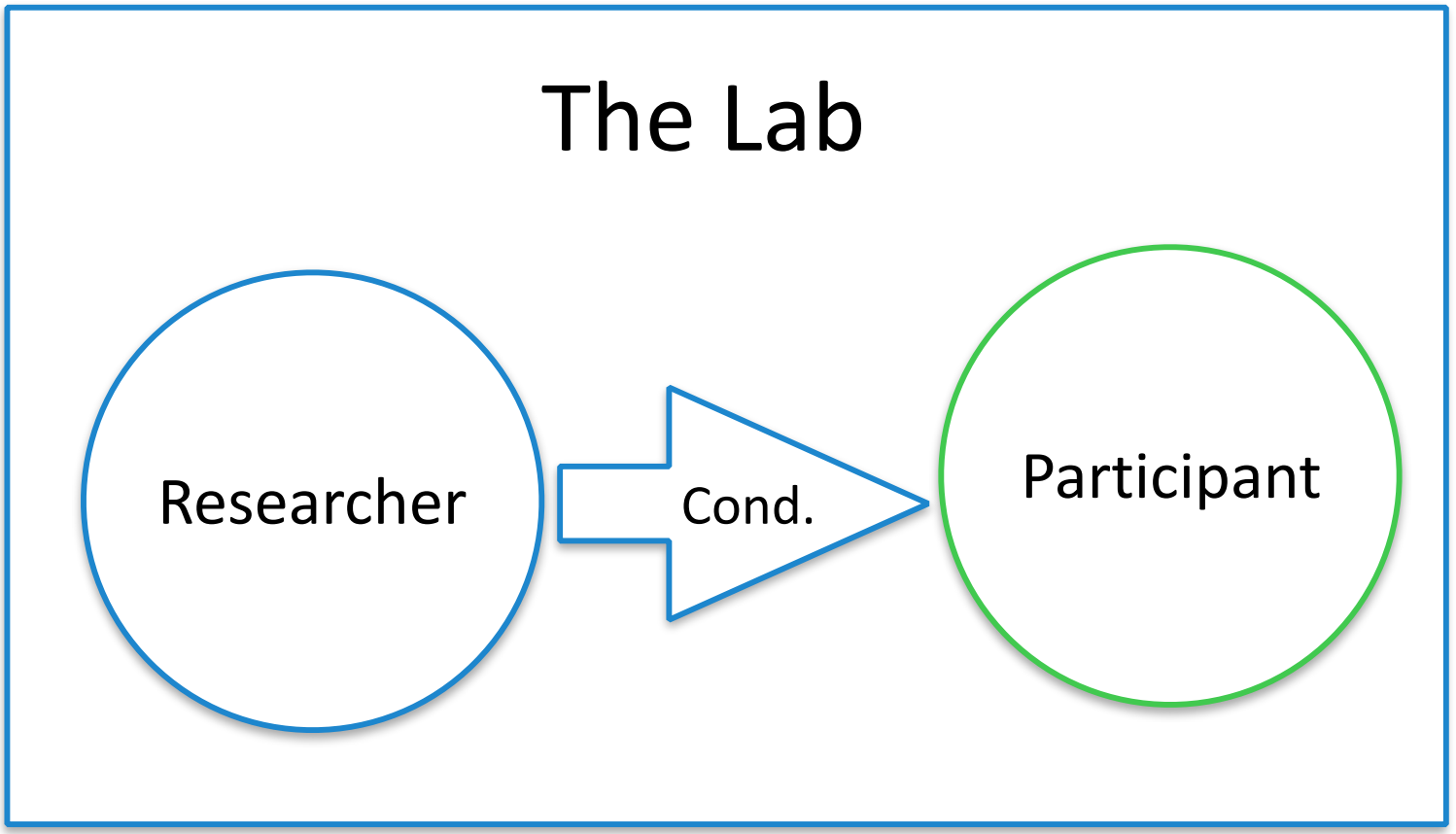
- We wanted a large number of participants
- We wanted randomly assigned conditions

How do we get many participants with randomly assigned conditions?

Let’s consider some options.

Laboratory Study

- Bring people into the lab to take study

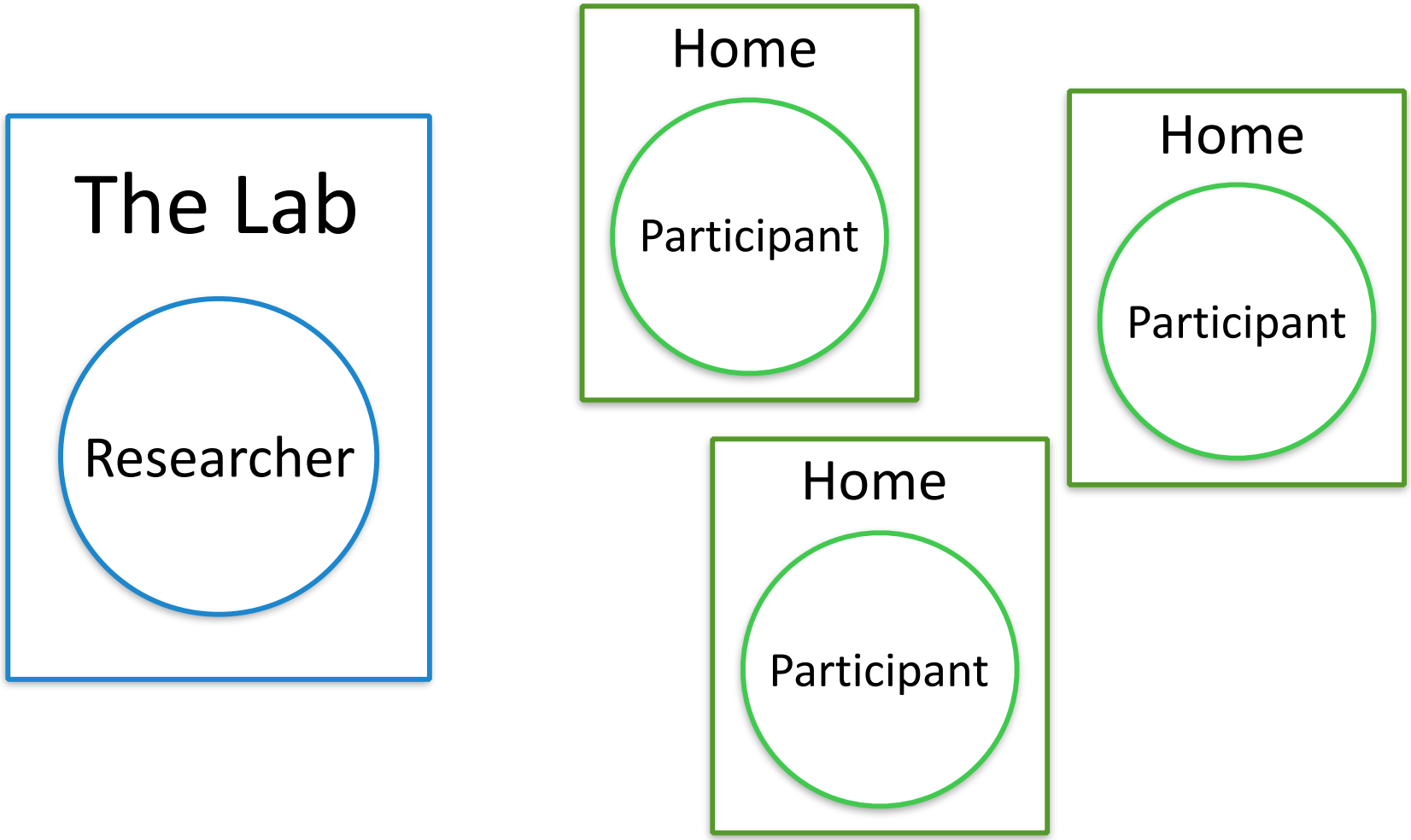


Laboratory Study

- Bring people into the lab to take study
- The Good
  - Allows randomly assigning conditions
  - Allows researchers careful observation
- But…
  - Restricts geographic space
  - Greatly restricts number of participants

Online Survey

- Post study online (e.g., SurveyGizmo)

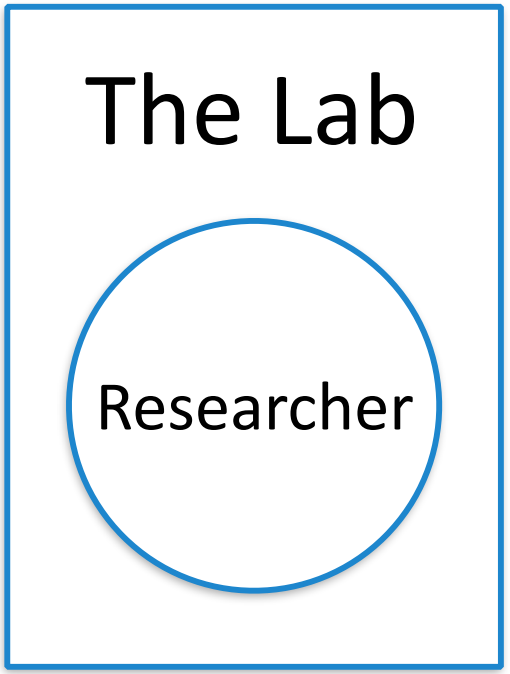


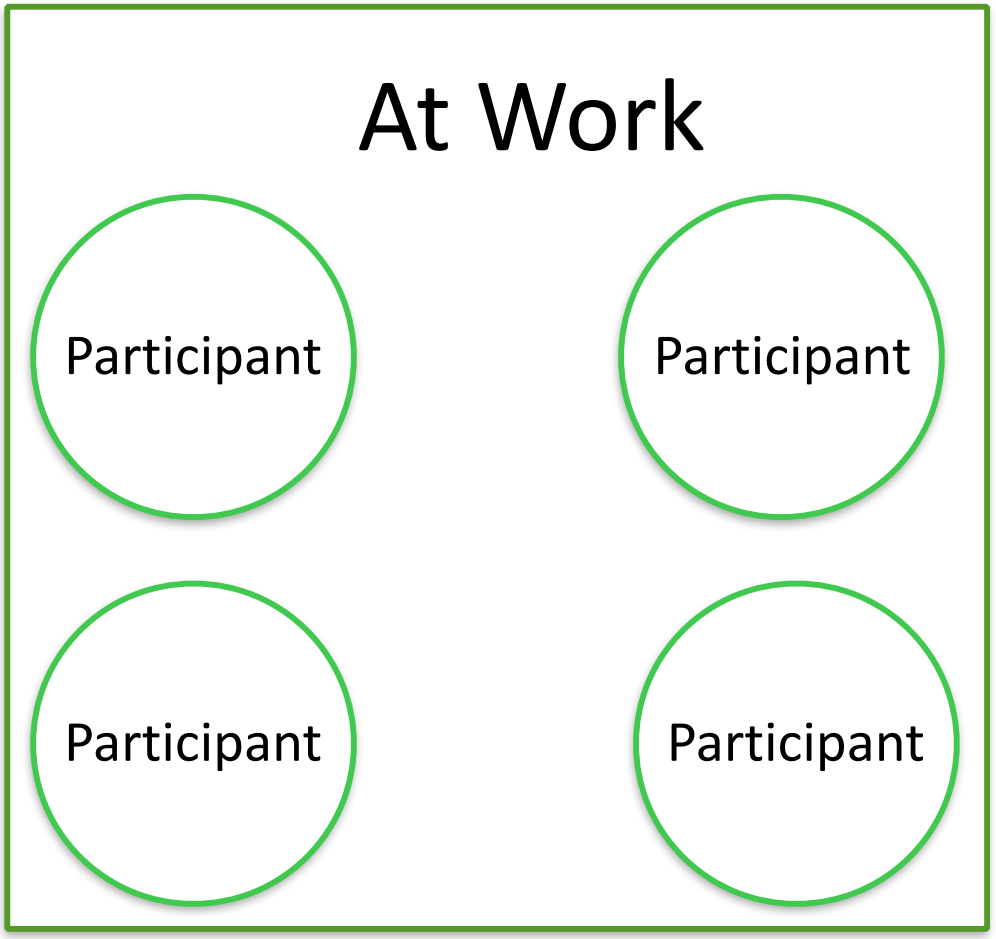
Online Survey

- Post study online (e.g., SurveyGizmo, Google Consumer Surveys)
- The Good
  - Allows rapid, inexpensive data collection
- But…
  - Surveys generally don't have conditions
  - Surveys don't have participants performing any tasks

In-Situ Studies

- Study Users in their “natural habitat”

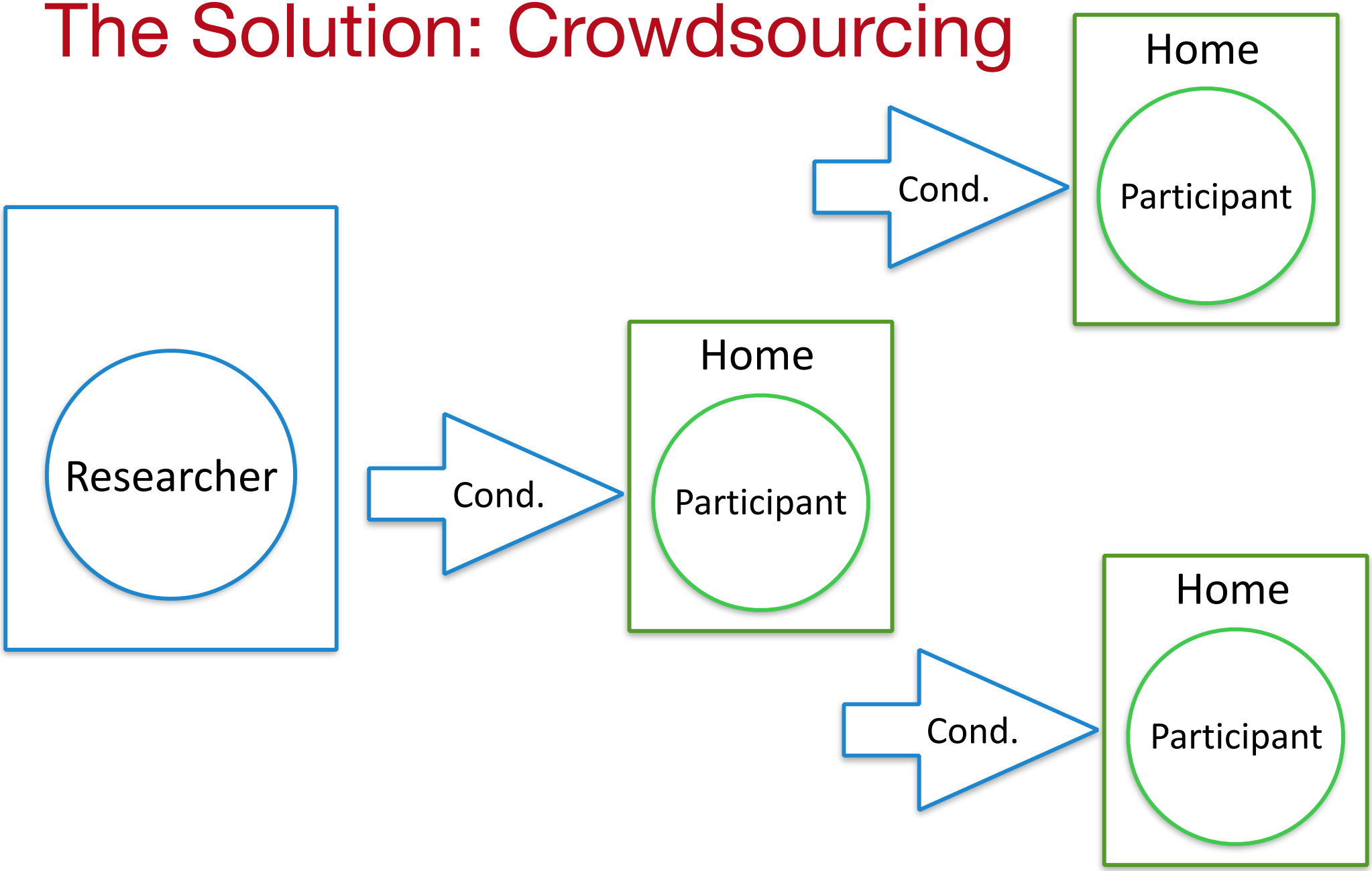




In-Situ Studies

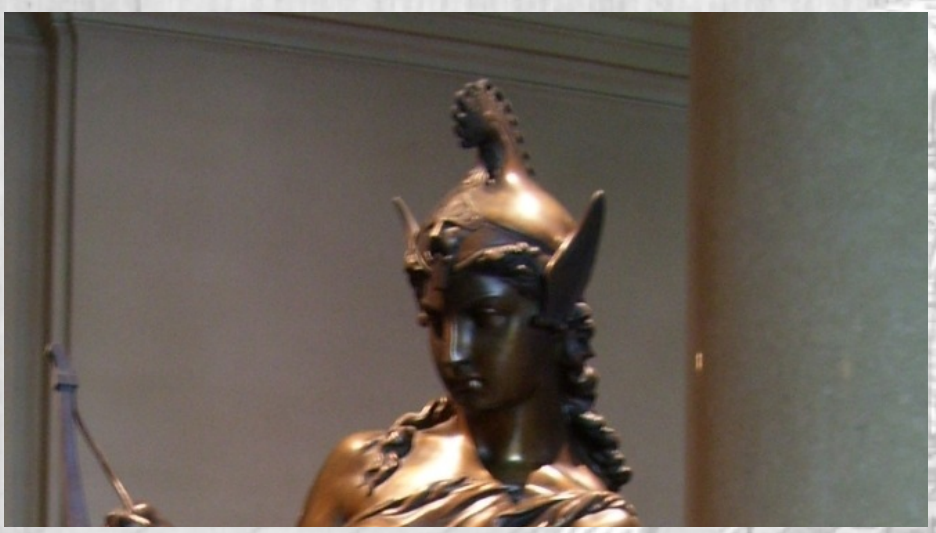
- Study Users in their “natural habitat”
- The Good
  - Gets realistic data about behavior
- But…
  - Only studies things as they are
  - Doesn’t allow for assigned conditions

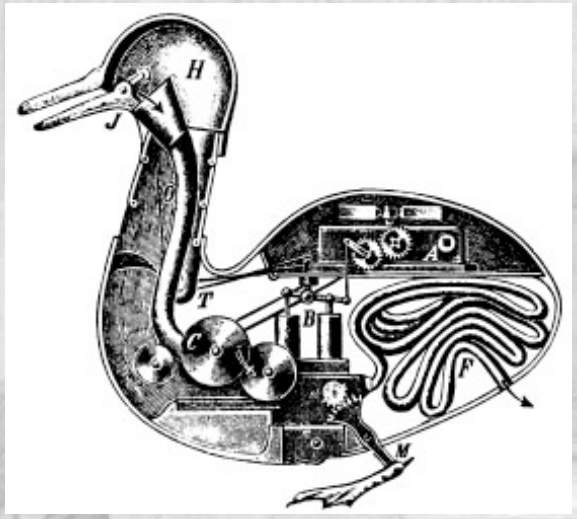
The Solution: Crowdsourcing



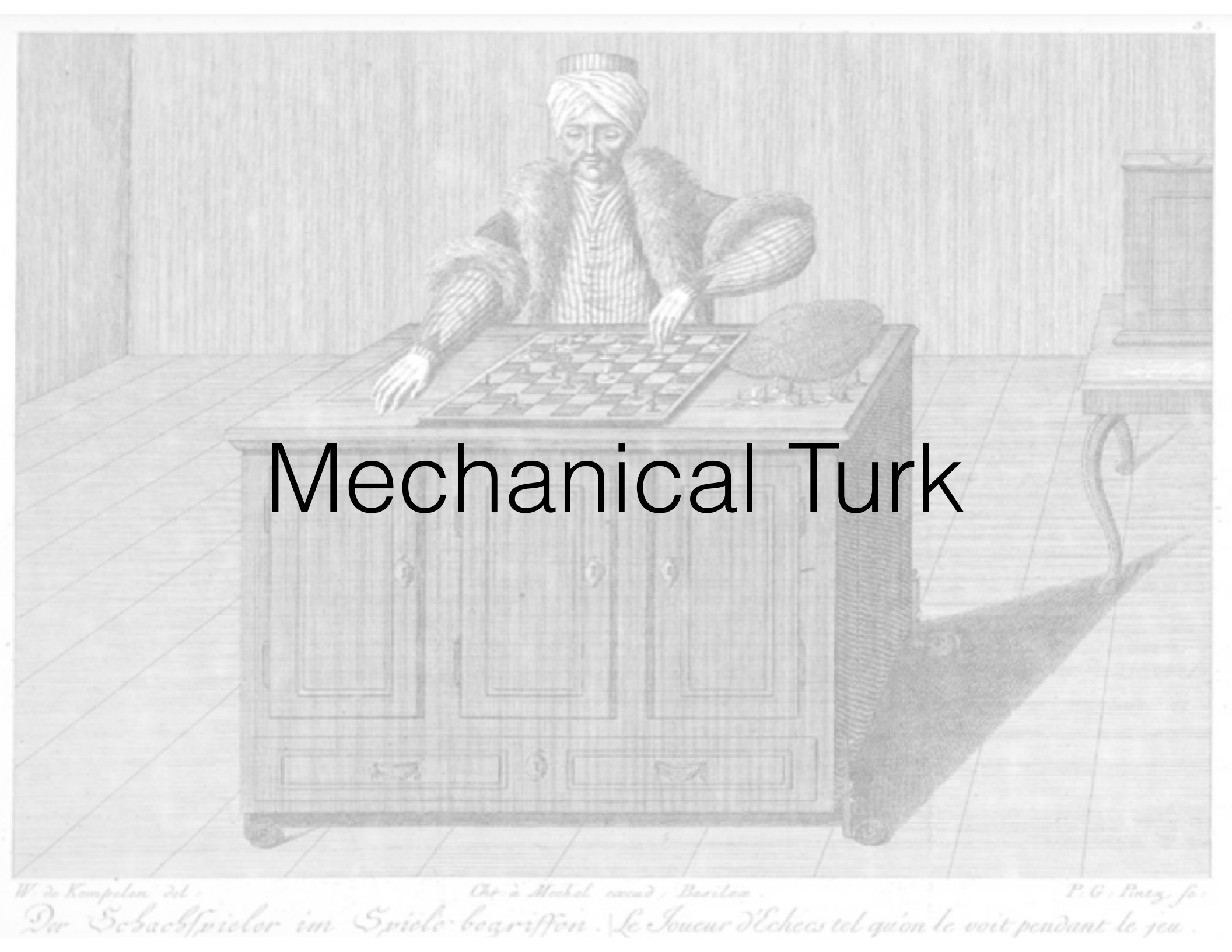
The Solution: Crowdsourcing

- "Best of Both Worlds"
  from Lab Studies and Online Surveys
- Large pool of participants
- Easy to recruit, screen, pay workers
- Recruit from across the country or the world

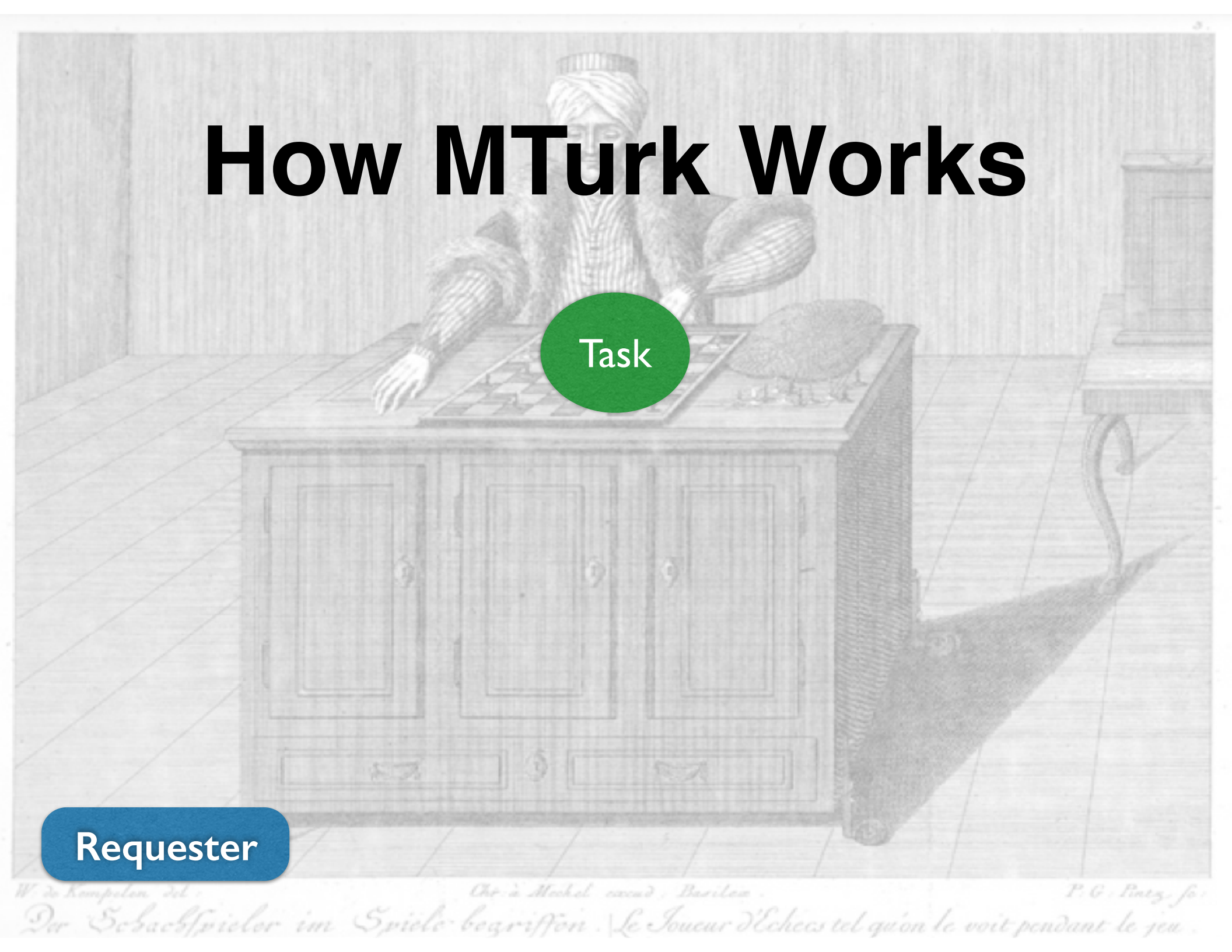




amazonmechanical turk
beta
Artificial Artificial Intelligence


Mechanical Turk

How MTurk Works



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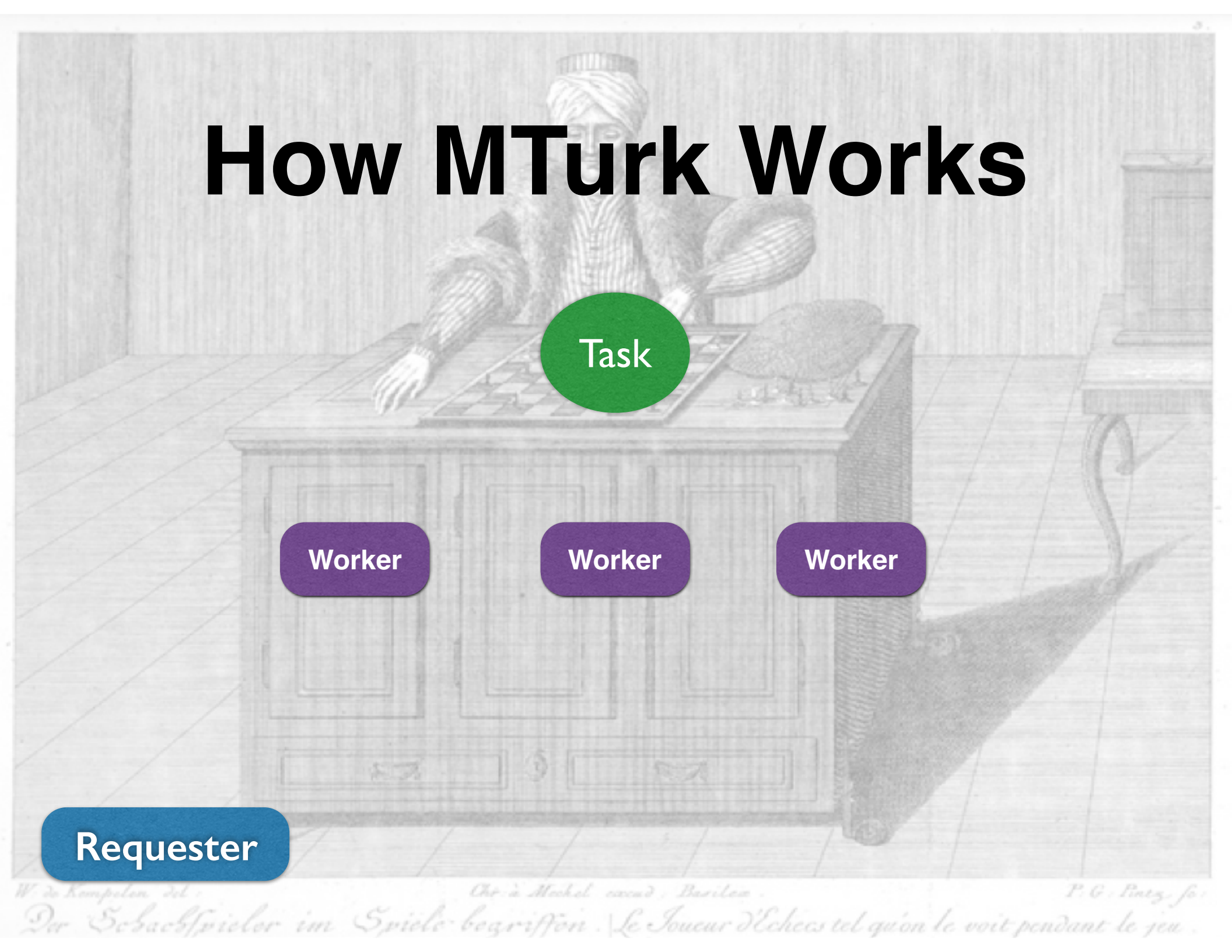

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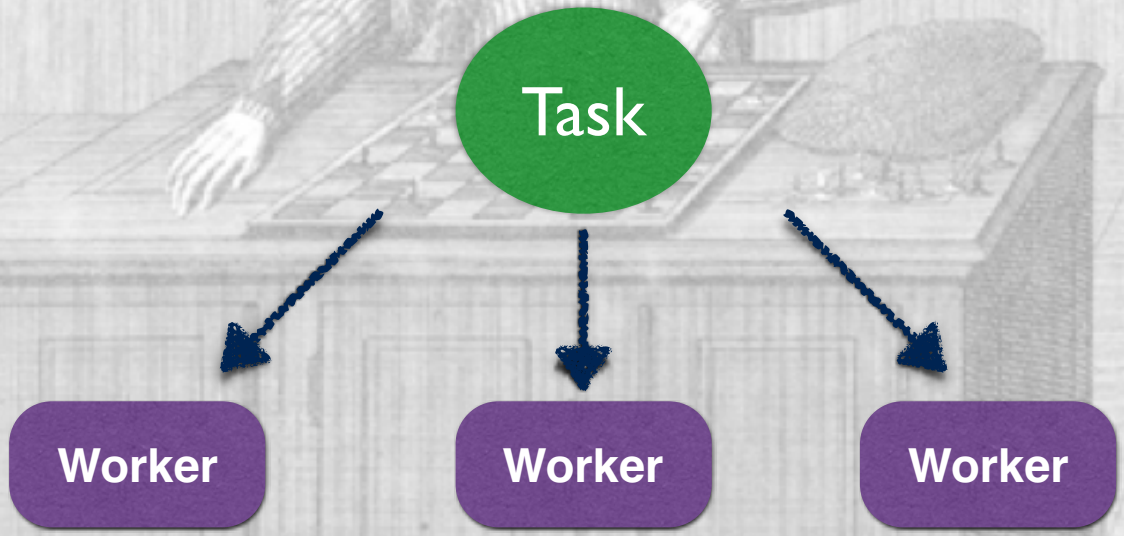

Requester

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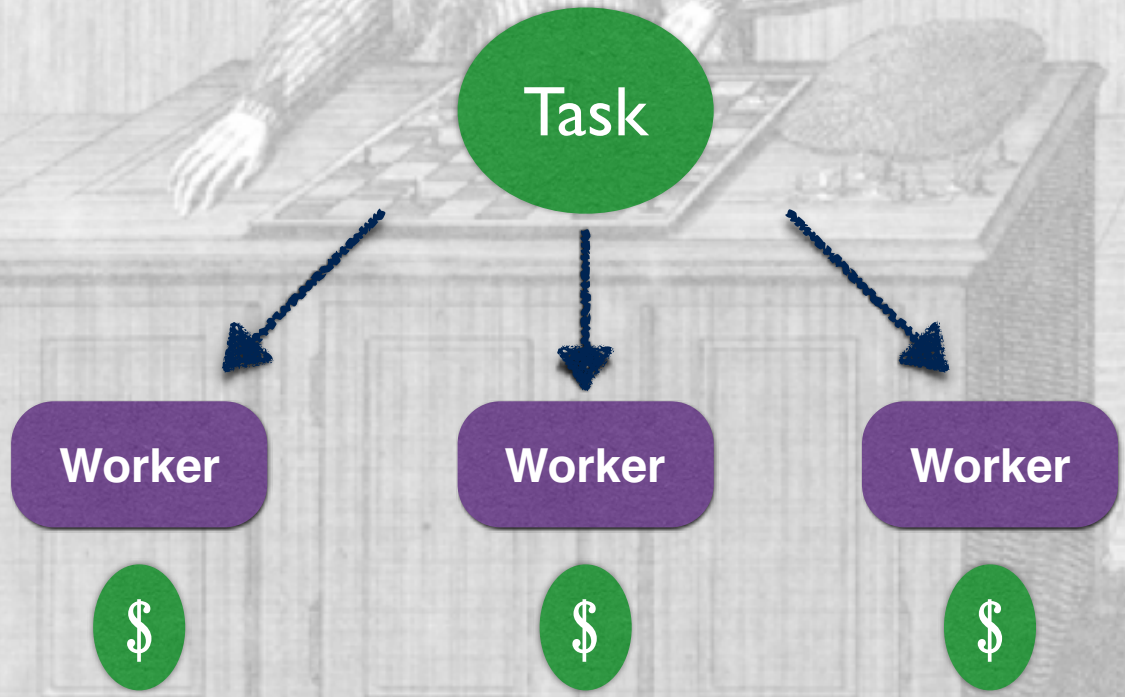

Requester

Some Limitations to Crowdsourced Studies

Limitations

- No follow-ups / can't observe participants
  - Piloting helps with this!
- Some users will enter garbage
  - Collecting lots of data and paying more help mitigate this
- MTurk population younger, more tech-savvy, but still more diverse than typical lab study (Buhr 2011, Ipeirotis 2010)

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

A few specific considerations

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 need a 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

Where do participants take the study?

- You can have them take the study on MTurk, but the features are limited.
- You can redirect participants to a survey website, like SurveyGizmo or SurveyMonkey.
- We built our own study infrastructure to make it easier to manage studies with thousands of participants.

Paying Participants

- When the participant has finished, you notify MTurk and the participant is paid.
- The payment is taken from your pre-paid MTurk account.

Other Useful Features

- Screen workers
- Reject workers
- Send workers notifications
- Prevent repeated worker for same task
  - But you often need to post many tasks for the same study
- Around 100 different workers per diem
- Much more cost-efficient than lab studies