Mechanical Turk and IRB

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Original Mechanical Turk

- Chess-playing machine constructed in 1770, unveiled as a hoax in 1820s
Mechanical Turk

- Wikipedia says:
  The Amazon Mechanical Turk (MTurk) is one of the suite of Amazon Web Services, a crowdsourcing marketplace that enables computer programs to co-ordinate the use of human intelligence to perform tasks which computers are unable to do.

- Two parties

  - Requesters – Create and manage Human Intelligence Tasks (HITs), small units of work, for money.
  - Workers – Select and complete HITs for money.

- Amazon takes a small percentage of every transaction
Mechanical Turk is a marketplace for work.
We give businesses and developers access to an on-demand, scalable workforce.
Workers select from thousands of tasks and work whenever it’s convenient.

36,161 HITs available. View them now.

Make Money
by working on HITs

HITs - Human Intelligence Tasks - are individual tasks that you work on. Find HITs now.

As a Mechanical Turk Worker you:
- Can work from home
- Choose your own work hours
- Get paid for doing good work

Find an interesting task  ➔  Work  ➔  Earn money

Find HITs Now

or learn more about being a Worker

Get Results
from Mechanical Turk Workers

Ask workers to complete HITs - Human Intelligence Tasks - and get results using Mechanical Turk. Register Now

As a Mechanical Turk Requester you:
- Have access to a global, on-demand, 24 x 7 workforce
- Get thousands of HITs completed in minutes
- Pay only when you’re satisfied with the results

Fund your account  ➔  Load your tasks  ➔  Get results

Get Started

or learn more about being a Requester
<table>
<thead>
<tr>
<th>HIT Template Name</th>
<th>HIT Title</th>
<th>Start with this template</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank Template</td>
<td>Default Title [See an example]</td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td>Find the Website Address for Restaurants [See an example]</td>
<td></td>
</tr>
<tr>
<td>Data Correction</td>
<td>Provide the correct spelling of search terms [See an example]</td>
<td></td>
</tr>
<tr>
<td>Data Extraction</td>
<td>Get Product Name from Image [See an example]</td>
<td></td>
</tr>
<tr>
<td>Image Filtering</td>
<td>Flag offensive content images (WARNING: This HIT may contain offensive content. Worker discretion is advised.) [See an example]</td>
<td></td>
</tr>
<tr>
<td>Image Tagging</td>
<td>Tag an image [See an example]</td>
<td></td>
</tr>
<tr>
<td>Policy Compliance - Text</td>
<td>Does this forum post violate the forum policies? (WARNING: This HIT may contain offensive content. Worker discretion is advised.) [See an example]</td>
<td></td>
</tr>
<tr>
<td>Product Categorization</td>
<td>Choose the best category for this product [See an example]</td>
<td></td>
</tr>
<tr>
<td>Product Comparison - Duplicates</td>
<td>Are these products the same? [See an example]</td>
<td></td>
</tr>
<tr>
<td>Search Relevance</td>
<td>Evaluate the Effectiveness of Search Results [See an example]</td>
<td></td>
</tr>
<tr>
<td>Site filtering</td>
<td>Is this an adult porn site? (WARNING: This HIT may contain offensive content. Worker discretion is advised.) [See an example]</td>
<td></td>
</tr>
<tr>
<td>Survey</td>
<td>Answer a Short Survey [See an example]</td>
<td></td>
</tr>
</tbody>
</table>
Turker Demographics

- Turkers compared to the general US Internet population:
  - **Turkers are younger.** 54% of Turkers are between 21-35 years old, compared to 22% of the general population.
  - **Turkers are mainly female.** 70% of the Turkers are female, compared to 50% of the general population.
  - **Turkers have lower income.** 65% of Turkers have household income less than 60K, compared to 45% of the general population.
  - **Turkers have smaller families.** 55% of Turkers do not have children, compared to 40% of the general population.
  - Geographical distribution of Turkers and Internet users is similar.
  - Racial distribution of Turkers and Internet users is similar, although there are slightly more Asians on Mechanical Turk.

Panos Ipeirotis (2009) “Turker Demographics vs Internet Demographics”
Research Experiences

- **PARC – WikiDashboard**
  - Conducted user studies to compare expertise assessments of Wikipedia editors

- **SILS – Later Button**
  - Conducted user studies to determine the online disclosure behaviors of different types of information

- **IRB**
  - Successfully navigated UNC IRB, with extra back and forth around the definition and then the merits of a system like Mechanical Turk
Demo

- Source files
  - properties, question, input
- Rendered HIT
  - html, sandbox, production
- Data/Result files
  - csv
- Approval/Rejection process
  - web or API (command line)

- Total cost of $35
  - 2030 results from 278 “turkers”
Study Design Considerations

- **Pros**
  - Lots of people
  - Little money

- **Cons**
  - Careful of bad data
    - Malicious (CAPTCHA)
    - Lazy entry (pay more)
  - Careful of duplicate users
    - Qualifications system in place
IRB Considerations

- Users are anonymous?
  - Yes, but it's still human interaction, so it's not exempt.

- Amazon can serve as 'honest broker'
  - 2.10.2. Will any of the personnel involved in this study (this includes collaborators providing data or specimens, personnel listed on grants, co-authors, and faculty advisors) have access to a key that deciphers the code, enabling linkage of identifying information to private information or samples? ___ yes  ___ no
  - 2.10.2.3. Honest broker (centralized custodian who controls data and will not release codes or IDs)?
Future Work

- Novel internet research methods? Hybrids?
- Validity / Efficiency / Appropriateness / Generalizability
- Convenience / Cost / Technical Overhead
- Better to beg forgiveness than ask permission?
- Crowdsourcing
  - micropayments
  - community
  - games

Other studies to be done with Mechanical Turk?
Mechanical Turk Prior Work

- PARC post on user studies and Mechanical Turk

- Demographics post by Panos Ipeirotis

- PARC post on Panos’s post

- Panos again - Turkers self-report how good they are - and do it well

- Follow up demographics post by Panos

- PARC's Markus Jakobsson - 5 How Tos
Supporting Materials


- Successful “Later Button, part 2” UNC IRB Process
  - Unsuccessful Exemption Submission
  - Full IRB Submission
  - Follow-Up and Part B