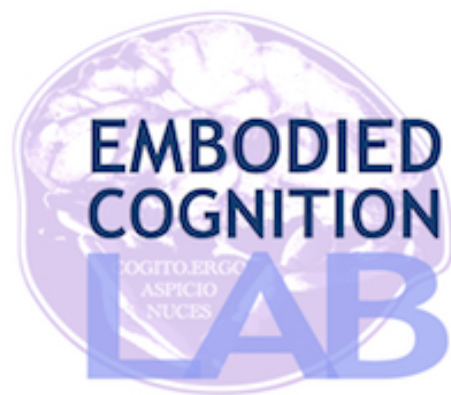


Using Amazon's Mechanical Turk for online data collection

James Brand

`j.brand@lancaster.ac.uk`



Collaborators/Architects



James Carney



Louise Connell



Dermot Lynott

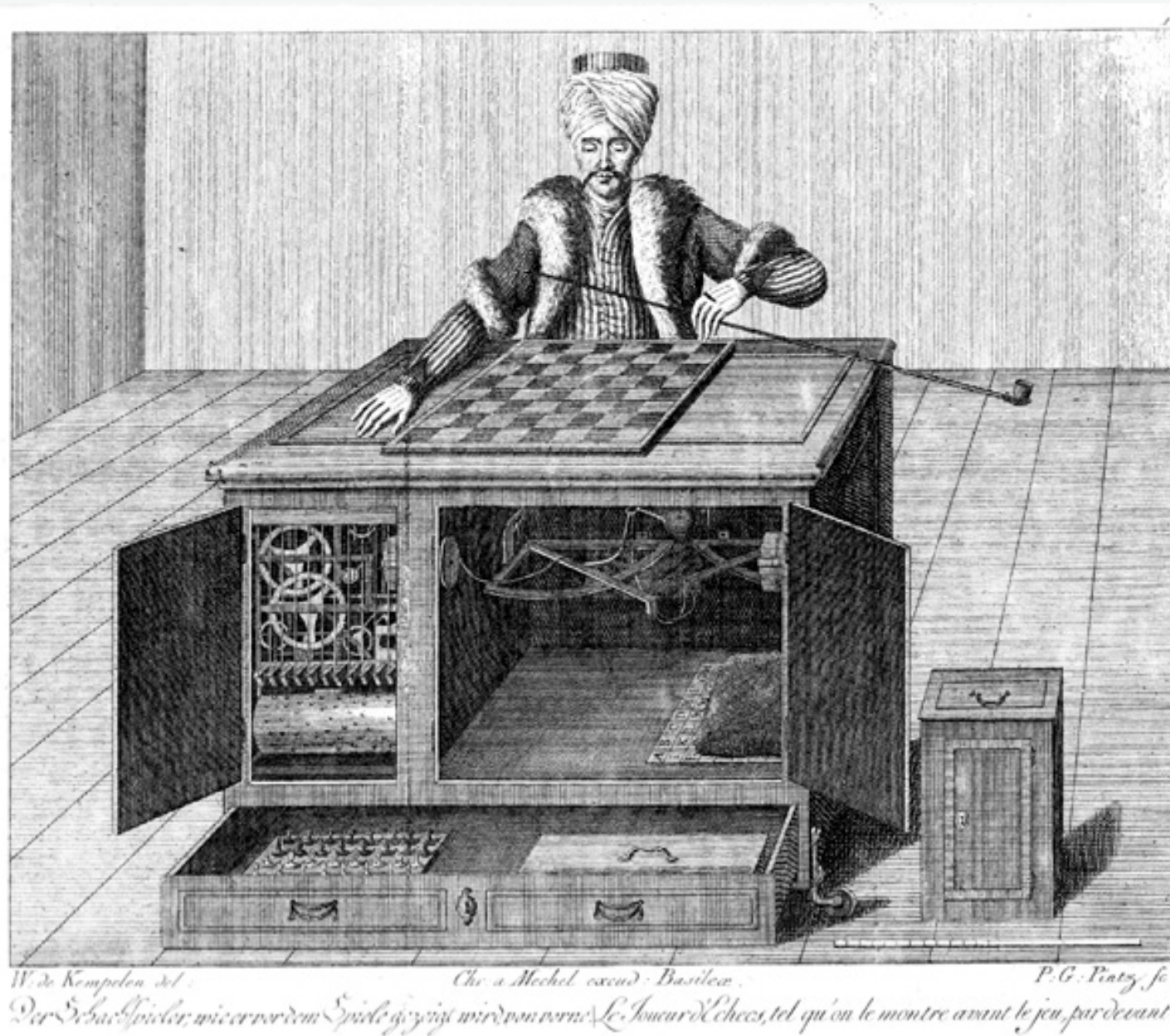


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Part I

Introduction to Amazon Mechanical Turk

What?



Img: https://en.wikipedia.org/wiki/The_Turk

What?



amazon mechanical turk

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**

TASKS (represented by a gear icon) → **Work** (represented by a gear icon) → **Earn money** (represented by a dollar sign icon)

[Find HITs Now](#)

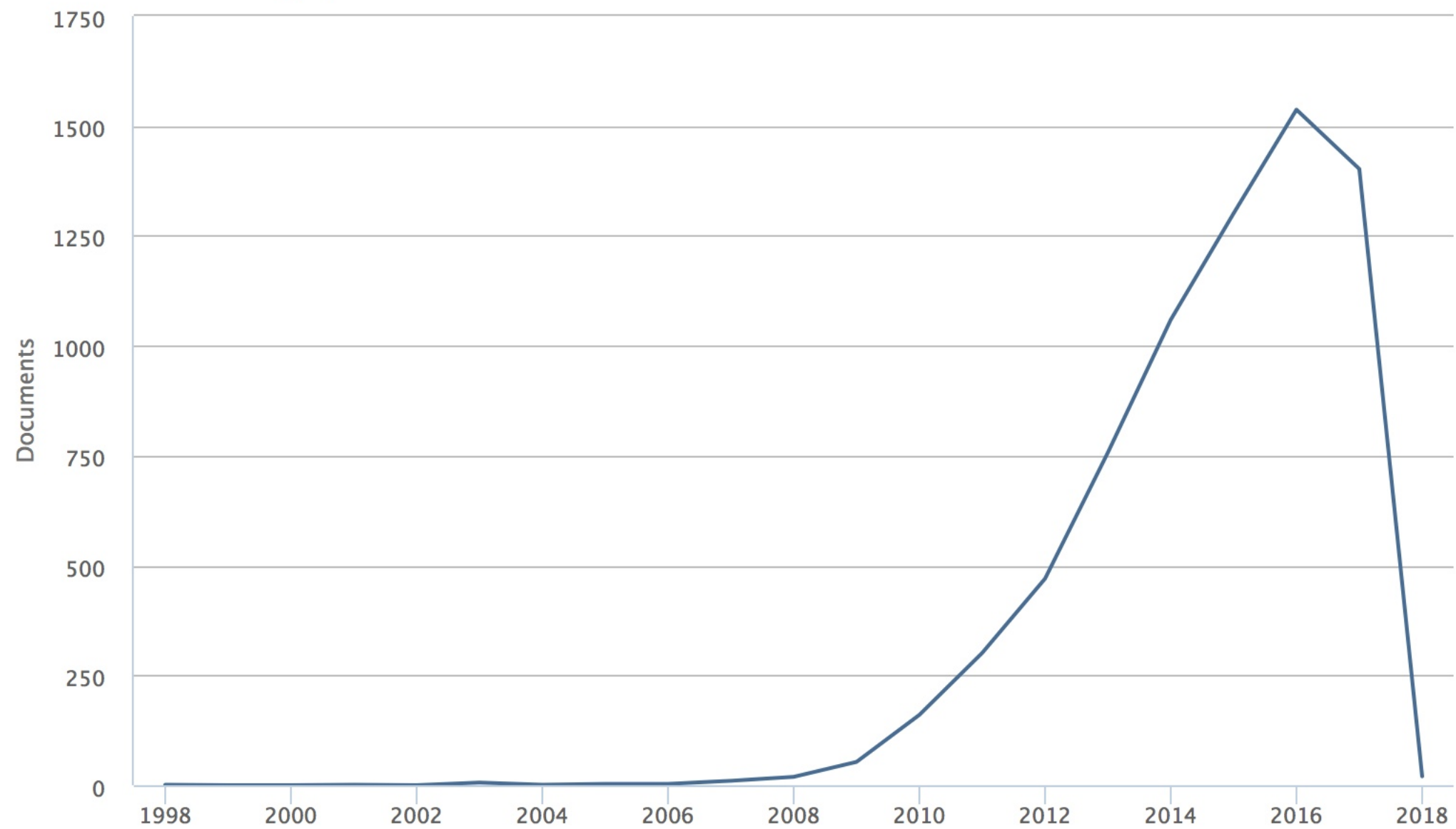
Img: <http://moneyconnexion.com/wp-content/uploads/2017/03/makemoneymturk.jpg>

What?

MTurk	Amazon Mechanical Turk
HIT	Human Intelligence Task (experiments)
Worker	Participant
Requester	Researcher
Sandbox	An area to test out HITs for free
Bonus	Additional payment (optional, normally for good work)
PandA	Preview and Accept (what workers say when they accept your HIT)
Qualifications	MTurk criteria which allows/prevents workers from taking part in HITs

Why?

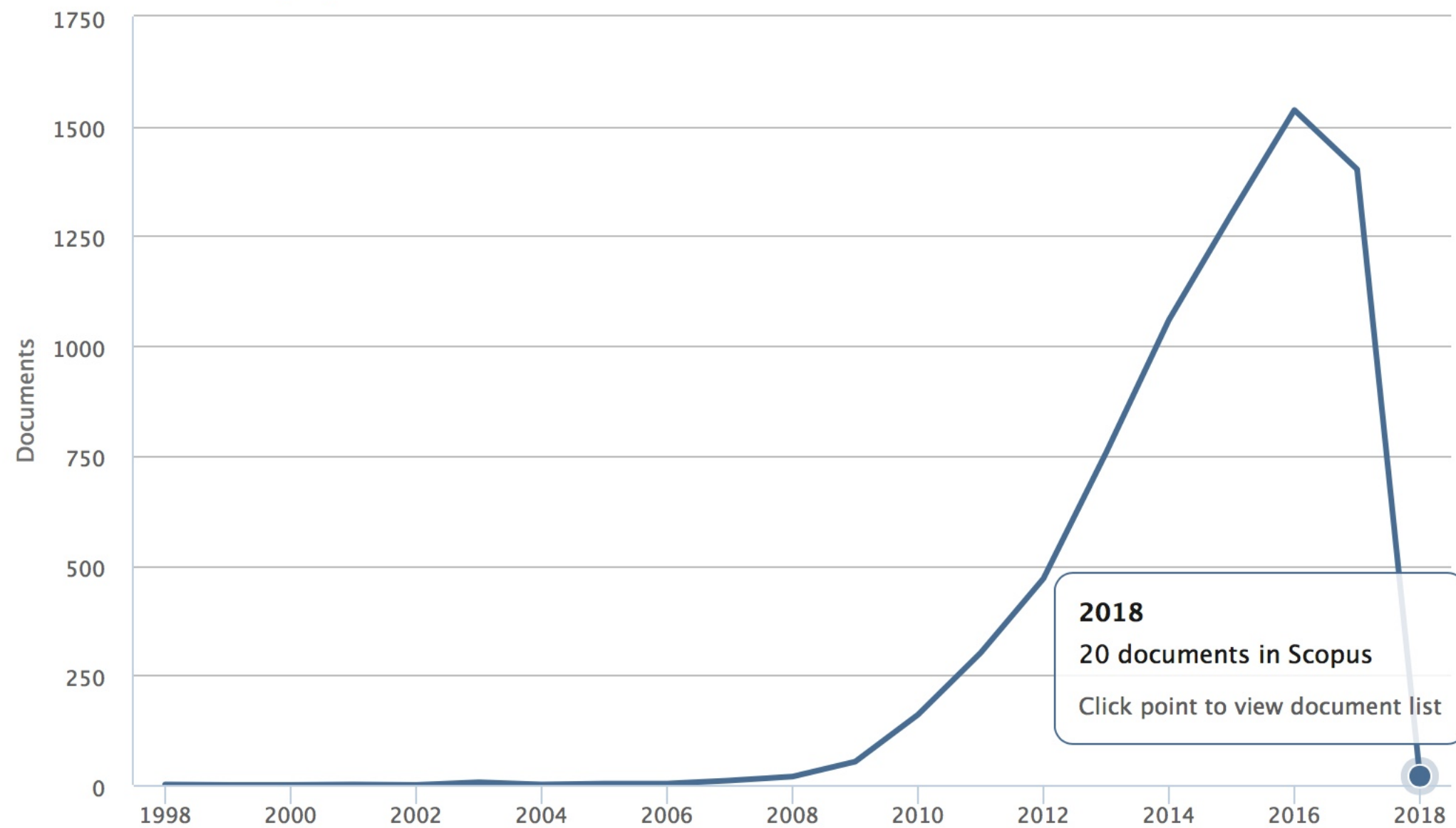
Documents by year



<https://www.scopus.com> search = ‘[Amazon Turk](#)’

Why?

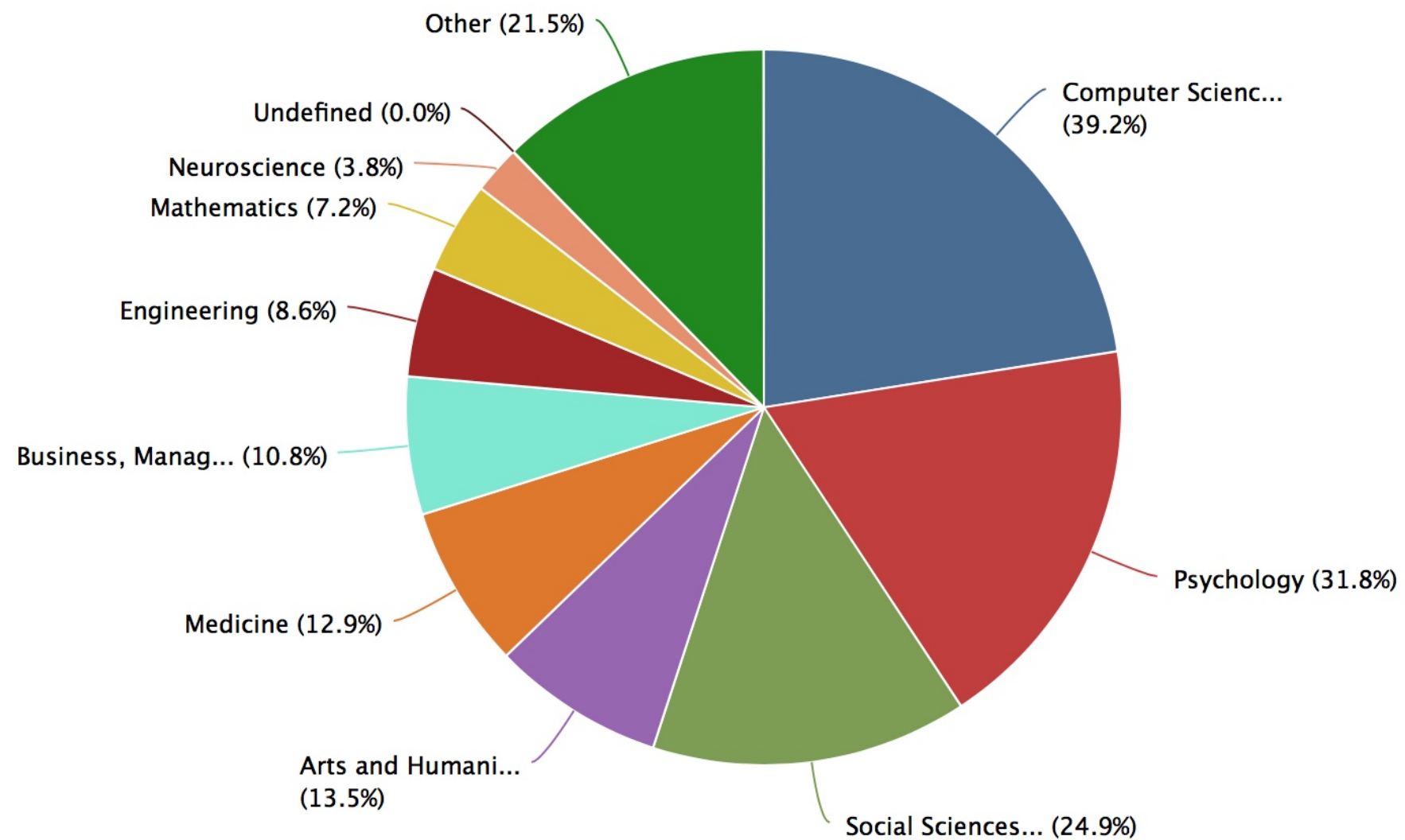
Documents by year



<https://www.scopus.com> search = '[Amazon Turk](#)'

Why?

Documents by subject area



<https://www.scopus.com> search = '[Amazon Turk](#)'

Why?

N = 13,400

in

4 months

Our research!!

Why?

$N = 13,400$
in
4 months*



The Leverhulme Trust

*for a ~17 minute HIT
costing \$2.70 per participant

Our research!!



The Leverhulme Trust

Who?

Service Highlights

On-Demand, Scalable Workforce

Amazon Mechanical Turk provides access to a global marketplace of Workers whenever your business needs them. You can dynamically scale your workforce as your business demands.

- ✓ Access more than 500,000 Workers from 190 countries
- ✓ Connect with Workers who have a variety of skill sets and capabilities
- ✓ Scale up and down in minutes

<https://requester.mturk.com/tour>

Who?

Service Highlights

On-Demand

Amazon Mec
them. You ca

✓ Access r

✓ Connect

✓ Scale up

Judgment and Decision Making, Vol. 10, No. 5, September 2015, pp. 479–491

The average laboratory samples a population of 7,300 Amazon Mechanical Turk workers

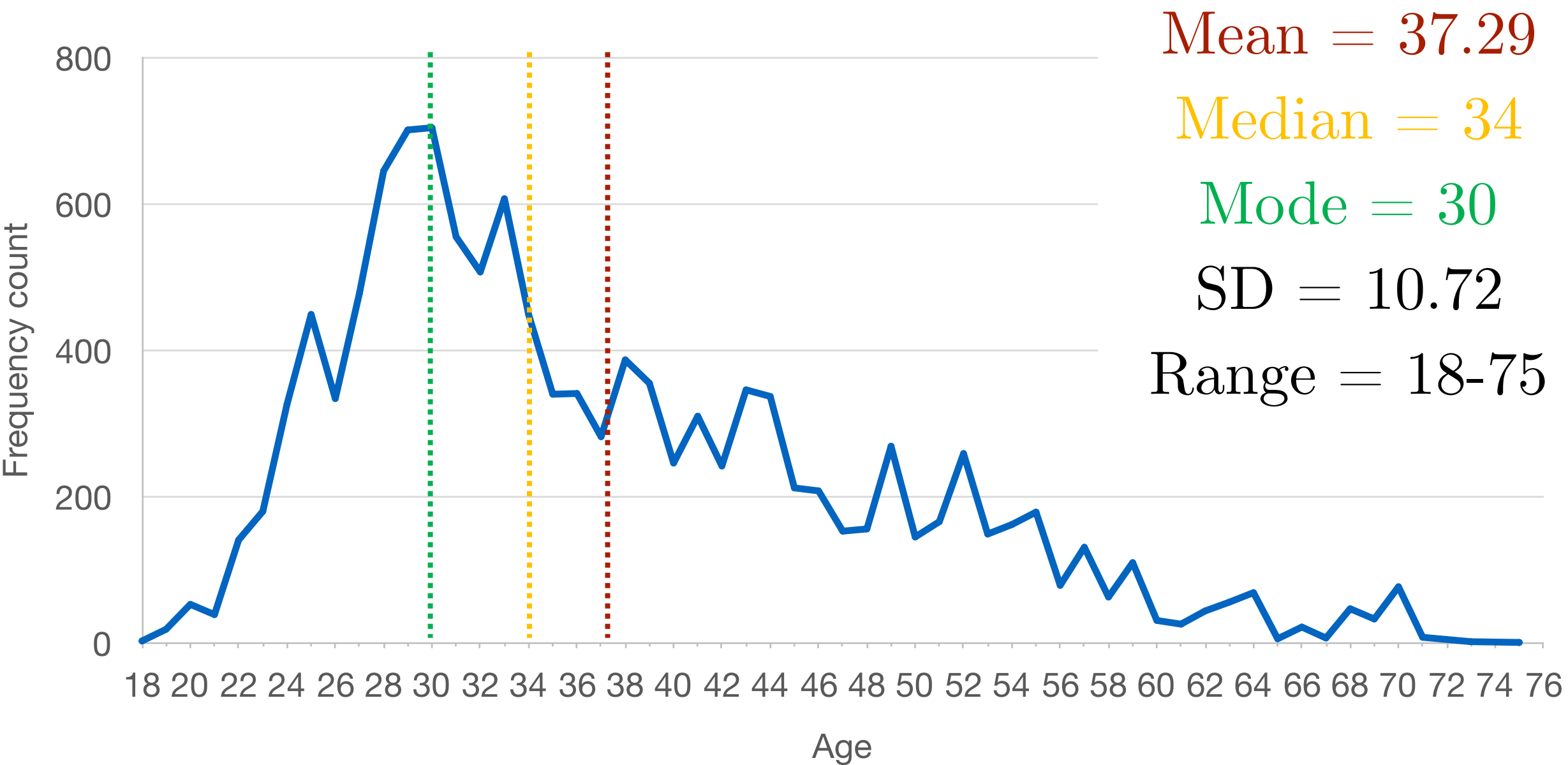
Neil Stewart* Christoph Ungemach[†] Adam J. L. Harris[‡] Daniel M. Bartels[§] Ben R. Newell[¶]
Gabriele Paolacci^{||} Jesse Chandler^{**}

Abstract

Using capture-recapture analysis we estimate the effective size of the active Amazon Mechanical Turk (MTurk) population that a typical laboratory can access to be about 7,300 workers. We also estimate that the time taken for half of the workers to leave the MTurk pool and be replaced is about 7 months. Each laboratory has its own population pool which overlaps, often extensively, with the hundreds of other laboratories using MTurk. Our estimate is based on a sample of 114,460 completed sessions from 33,408 unique participants and 689 sessions across seven laboratories in the US, Europe, and Australia from January 2012 to March 2015.

[Stewart et al., \(2015\)](#)

Who?



Our research!!

Who?

	Total sample N = 9,770	First respondents N = 438
Age	33.51	33.59
Gender	51.7% female	46.8% female
Race	82.9% Caucasian	79.5% Caucasian
Employment	48.5% full time	55.3% full time
Education	31.4% some University 34.8% completed UG degree	22.4% some University 44.5% completed UG degree
Politics	17.9% Republican 41.3% Democrat	18.3% Republican 47% Democrat

[Casey et al., \(2017\)](#)

Live stats!! check <http://www.mturk-tracker.com/#/general>

Who?

Total sample

First respondents

See TurkPrime
section on how to
select specific
demographics

Age

Gender

Race

Employment

Education

Politics

ty
degree

Casey et al., (2017) SAGE Open

Live stats!! check <http://demographics.mturk-tracker.com/#/gender/all>

How (much)?

Worker Reward

You decide how much to pay Workers for each assignment.

Mechanical Turk Fee

20% fee on the reward and bonus amount (if any) you pay Workers. HITs with 10 or more assignments will be charged an additional 20% fee on the reward you pay Workers. The minimum fee is \$0.01 per assignment or bonus payment.

Additional Fee for using the Masters Qualification ([What are Masters?](#))

5% of the reward you pay Workers.



See TurkPrime section
of tutorial to avoid
this

<https://requester.mturk.com/pricing>

How (much)?

Worker Reward

You decide how much to pay Workers for each assignment.

Mecha

ay
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\$1.00 pay to worker
\$0.20 to Amazon = \$1.20

Additio
Master
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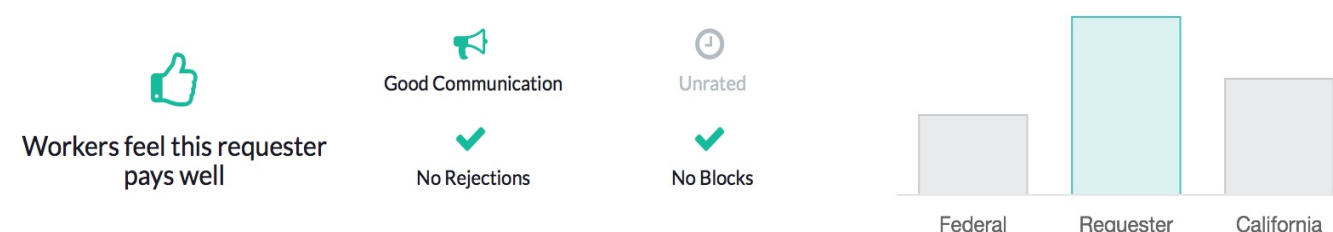
of tutorial to avoid
this

<https://requester.mturk.com/pricing>

How (much)?

- Higher pay = faster data completion¹
- But consider ethical considerations²
- US federal pay = \$7.25 ph
- Forums spread the word of good/bad requesters^{3,4}
- So do rating websites^{5,6}
- GBP - USD 🤔

7 Dermot Lynott Ratings ⓘ



Investigating Semantic Representations(~ 17 minutes) - \$2.25



Fair



Unrated



Pending

\$9.31 / hour

00:14:30 / completion time

Pros

Simple survey with acceptable pay.

Cons

Tedious, repetitive, and subjective.

Advice to Requester

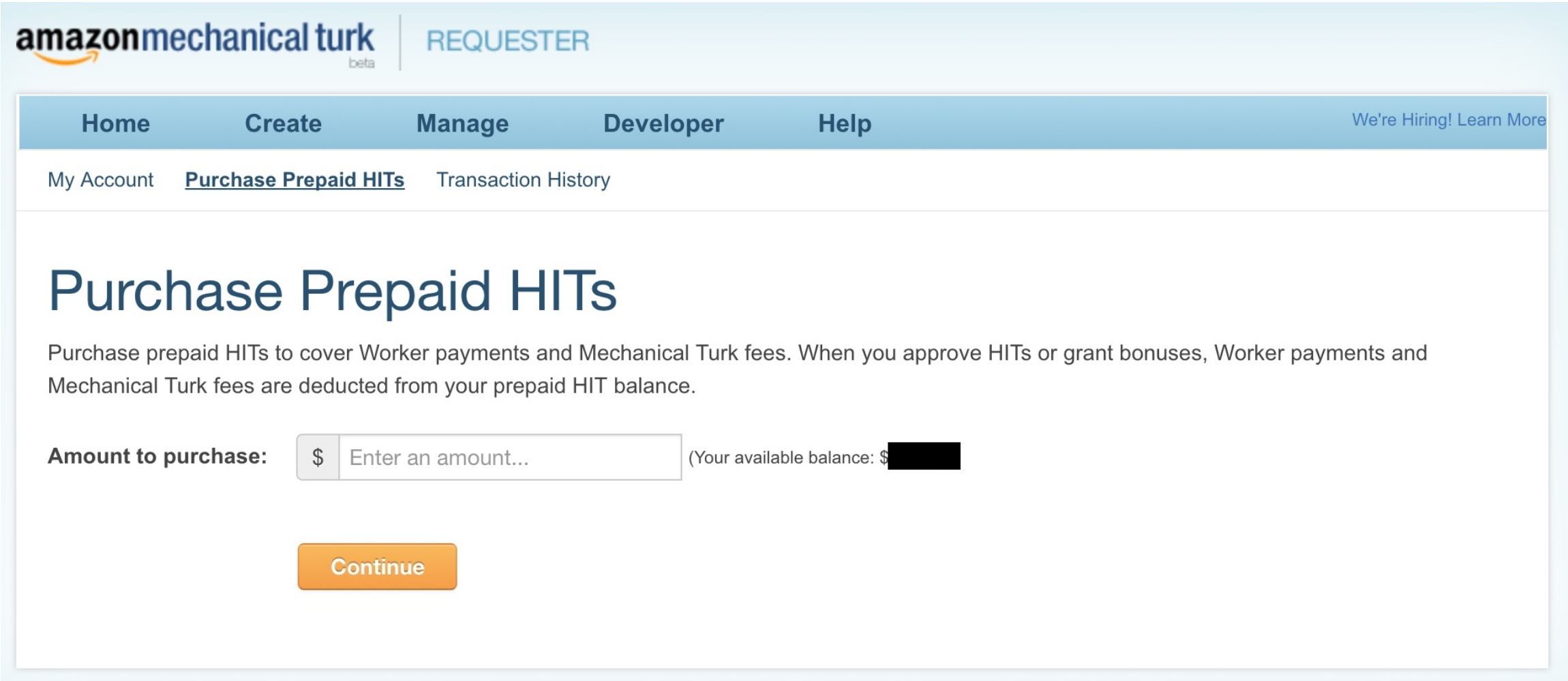
Perhaps give the worker a progress marker, such as numbering the questions (current)/(total), so that we have an idea of how far along we are. It makes the task feel much less tedious.

¹[Berskinsky et al., \(2012\)](#), ²[Fort et al., \(2011\)](#)

³www.mturkcrowd.com ⁴<https://tuckerhub.com> ⁵<https://turkopticon.info> ⁶<https://turkerview.com>

⁷<https://turkerview.com/requesters/?id=A325L0H6Q5L71I>

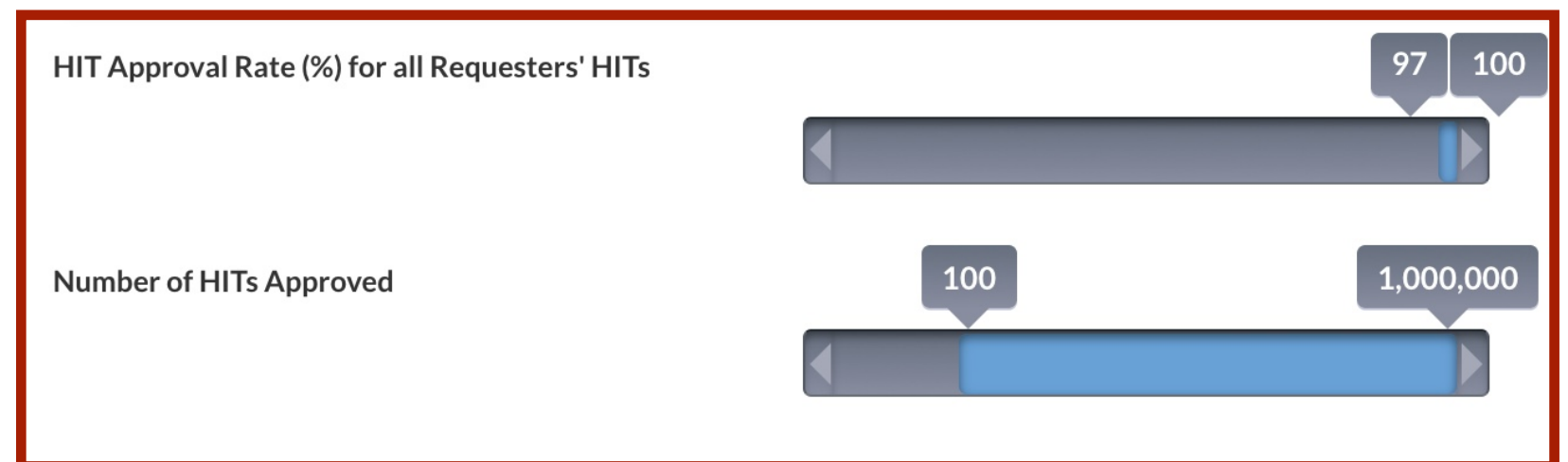
How?



<https://requester.mturk.com>

How?

- Choose experienced workers
- Keep it clear and simple
- Workers tend to complete a number of HITs a day - length? cognitive demand?
- PILOT!!!



<https://www.turkprime.com/>

How?

Ethical guidance

- Outline terms in information/consent form
- Requester has the right to reject work (and reverse rejections, but not reverse approvals)¹
- When possible have fair quality checks incorporated into design² again... PILOT
- Make sure ethics application states these criteria, UREC have accepted non-payment clauses for poor quality data
- ~0.5% of workers rejected in our samples³
- NOTE: Worker IDs are not anonymous⁴

Will I be paid for participating in the research?

You will be paid US \$2.25 for participation on condition that (a) you complete the study, and (b) your performance is of sufficient quality. Among the list of words you will be asked to rate, we have mixed a set of control words where we already know the ratings people usually give. If your ratings for the control words are broadly consistent with these existing ratings, we will consider your performance to be of good quality and pay you in full.

¹[Amazon](#) ²[Necka et al., \(2016\)](#) ³Our research!! ⁴[UMass Ahmerst Ethics](#)

How?



Be organised!

Img: <http://www.independent.co.uk/news/uk/politics/uk-brexit-chaos-eu-diplomats-talks-too-chaotic-to-be-true-bluff-cunning-plan-theresa-may-government-a7876366.html>

How?

Set up an account

http://psiturk.readthedocs.io/en/latest/amt_setup.html

No, you don't have to be a US citizen to get an account

https://requester.mturk.com/help/faq#can_requesters_outside_us_use_mturk

Part II

TurkPrime

TurkPrime

SERVICES ▾ DASHBOARD DESIGN STUDY ▾ SUPPORT ▾ LOG IN SIGN UP

See our paper "**TurkPrime.com: A versatile crowdsourcing data ...**" in [Behavior Research Methods](#)

Recruit Online Participants

Simple • Affordable • Powerful

Crowd|Research

Toolkit for Amazon Mechanical Turk

- 🎓 Basic Toolkit Free for Academic Users
- ⚙️ MTurk Panels on Your Own Requester Account

Lab Service: Mechanical Turk Panels

- 👤 Target MTurk Workers by Ethnicity, Age and Custom Traits

Lab Service: Prime Panels

- 🌐 Recruit from 10 Million Participants by any Demographic

Sign Up

▼

Over 5000 Labs and Researchers Worldwide Use TurkPrime



<https://www.turkprime.com/>

TurkPrime Introduction

Web based platform that makes MTurk workflow incredibly simple

FREE for academics

Made by academics

Cost saving features

Worker selection features

[Litman, Robinson & Abberbock \(2017\) Behavior Research Methods](#)

TurkPrime Demo

Live demo... Covering:

Study set up

Demographics selection

Qualtrics integration

MicroBatching

Data processing

Worker payment and rejection

TurkPrime Demo

Live demo... 10 minutes

I will have a prerecorded version just in case...

TurkPrime Demo

Live demo... Covering:

Study set up



Demographics selection



Qualtrics integration



MicroBatching



Data processing



Worker payment and rejection



TurkPrime Demo

Set up account tutorial

<https://youtu.be/6Tl1Gao3FnI>

FAQs

[https://www.turkprime.com/Home/
FrequentlyAskedQuestions](https://www.turkprime.com/Home/FrequentlyAskedQuestions)



Part III

Future directions and considerations

Future directions



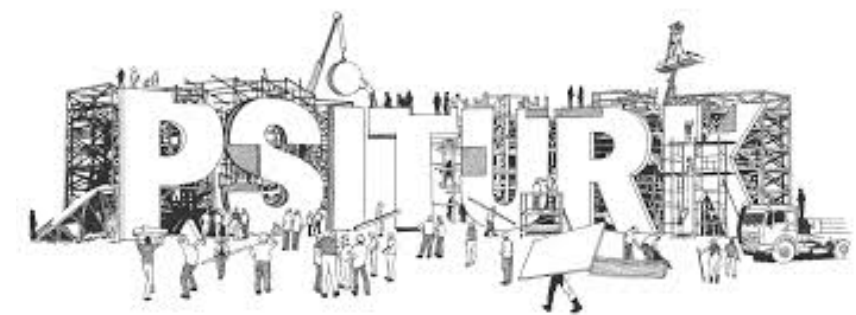
PsychoJS (Psychopy)

[https://github.com/
psychopy/psychojs](https://github.com/psychopy/psychojs)



jsPsych

<http://www.jspsych.org>



PsiTurk

<https://psiturk.org>

Future directions

Open source and replicable!!

See Molly Lewis' site for excellent examples

[https://mllewis.github.io/projects/xtSamp/
xtSampindex.html](https://mllewis.github.io/projects/xtSamp/xtSampindex.html)



Future directions

Eye tracking^{[1](#)}

Infancy research^{[2,3](#)}

Field work^{[4](#)}

Longitudinal studies^{[5](#)}

Transcription^{[6](#)}

Interactive games^{[7,8](#)}

¹[Lebreton et al. \(2015\)](#) ²[Scott & Schulz \(2017\)](#) ³[Scott et al., \(2017\)](#) ⁴[Meier et al., \(2011\)](#)

⁵[Boynton & Richman \(2014\)](#) ⁶[Marge et al., \(2010\)](#) ⁷[Arechar et al., \(2017\)](#) ⁸[Baliatti \(2016\)](#)

Considerations

Tragedy of the commons^{[1](#)}

Non-naïveté^{[2](#)}, but also see [3](#)

Cost increases^{[4](#)}

Anonymity (workers and yours)^{[5](#)}

¹[Stewart et al., \(2017\)](#) ²[Chandler et al., \(2015\)](#) ³[Zwaan et al., \(2017\)](#)

⁴[mturk4academics.wordpress.com](#) ⁵[UMass Ahmerst Ethics](#)

Resources

Todd Gurekis (videos) [link](#)

Gary Lupyan (online class) [link](#)

Michael Frank (online class) [link](#)

Thanks

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