NETS 213: Crowdsourcing and Human Computation

Instructor: Jérémie Lumbroso

Fall 2024, Tues/Thurs, 1:45-3:15

Website:
https://crowdsourcing.wiki

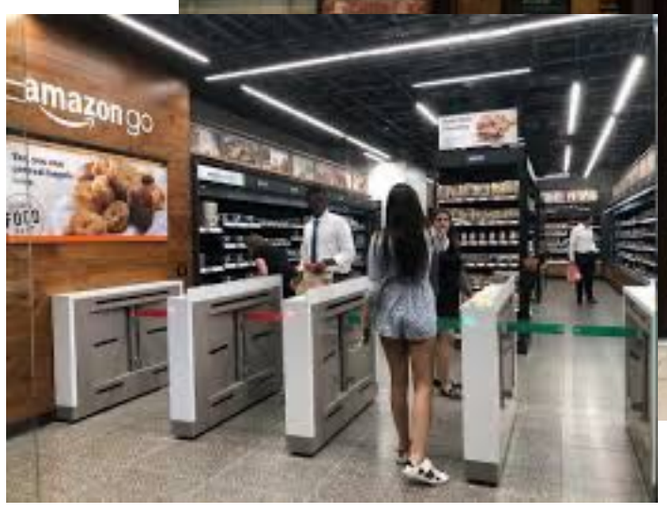
BETA COURSE:
Honest disclaimer

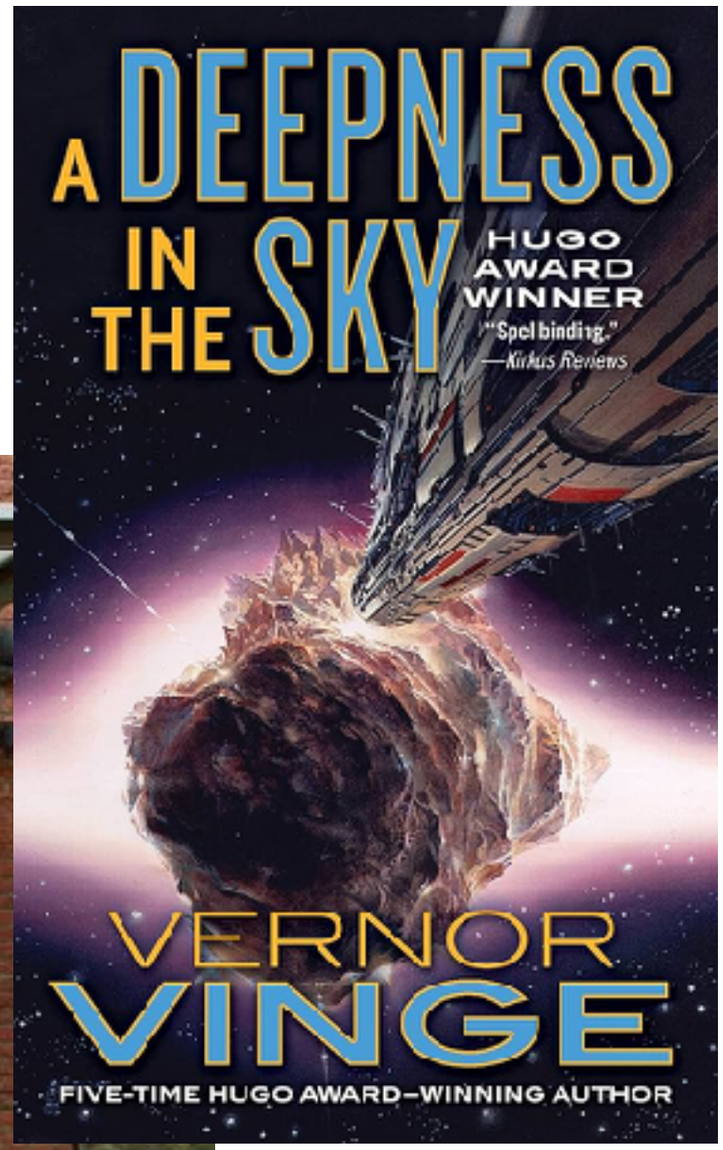
- Thank you for your patience
- Taking over from Chris Callison-Burch after 4 years
- So many new developments to take into account
- **Neurodivergent**

Does Amazon's cashless Just Walk Out technology rely on 1,000 workers in India?

Betty Lin-Fisher
USA TODAY

Published 5:23 p.m. ET April 4, 2024 | **Updated 4:28 p.m. ET April 5, 2024**





Inter-related concepts

"Groups of individuals doing things collectively that seem intelligent"

Collective Intelligence

"A paradigm for utilizing human processing power to solve problems that computers cannot yet solve."

Human Computation

The Sharing Economy

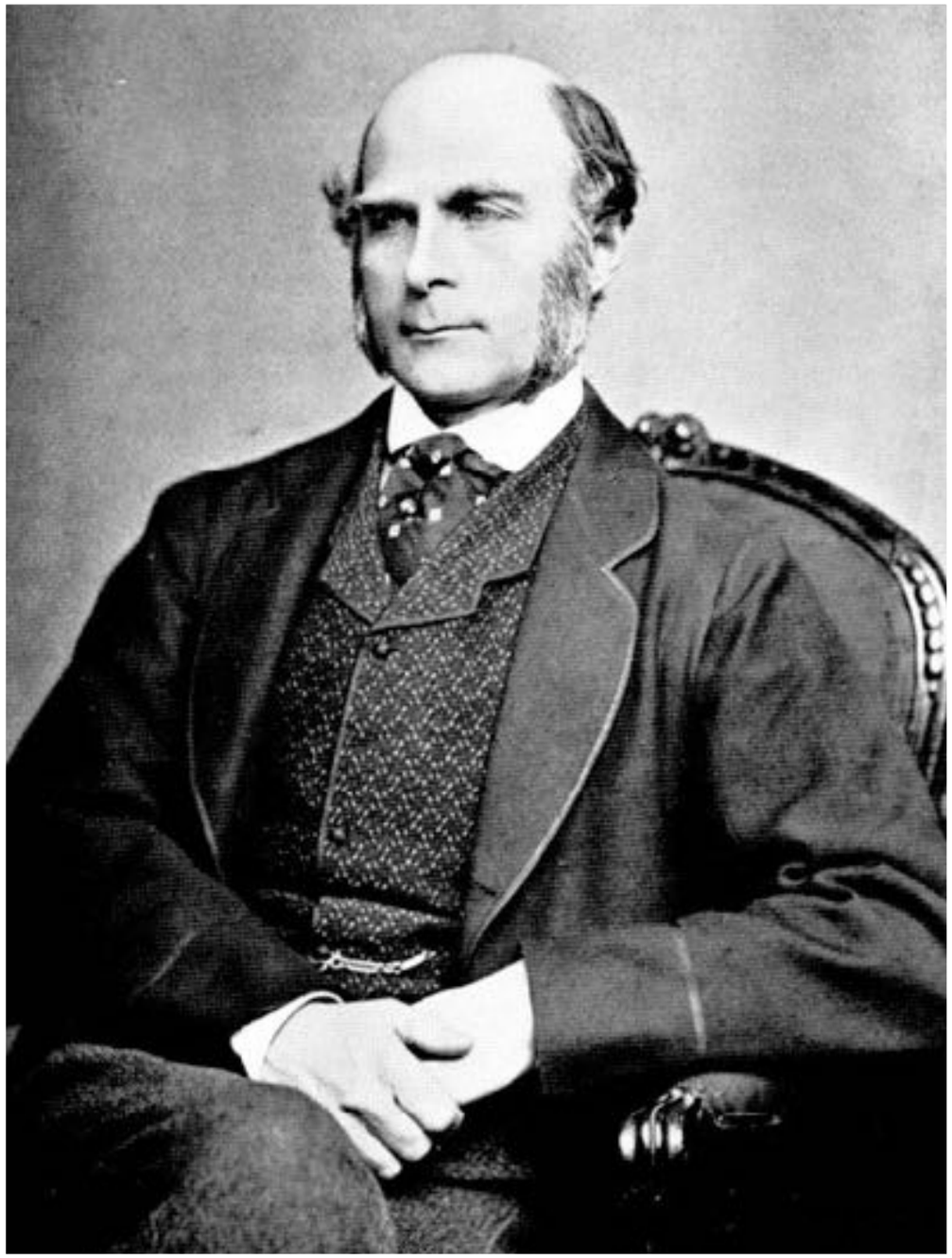
"An economic system in which assets or services are shared between private individuals, either for free or for a fee, typically by means of the Internet:."

Crowd-sourcing

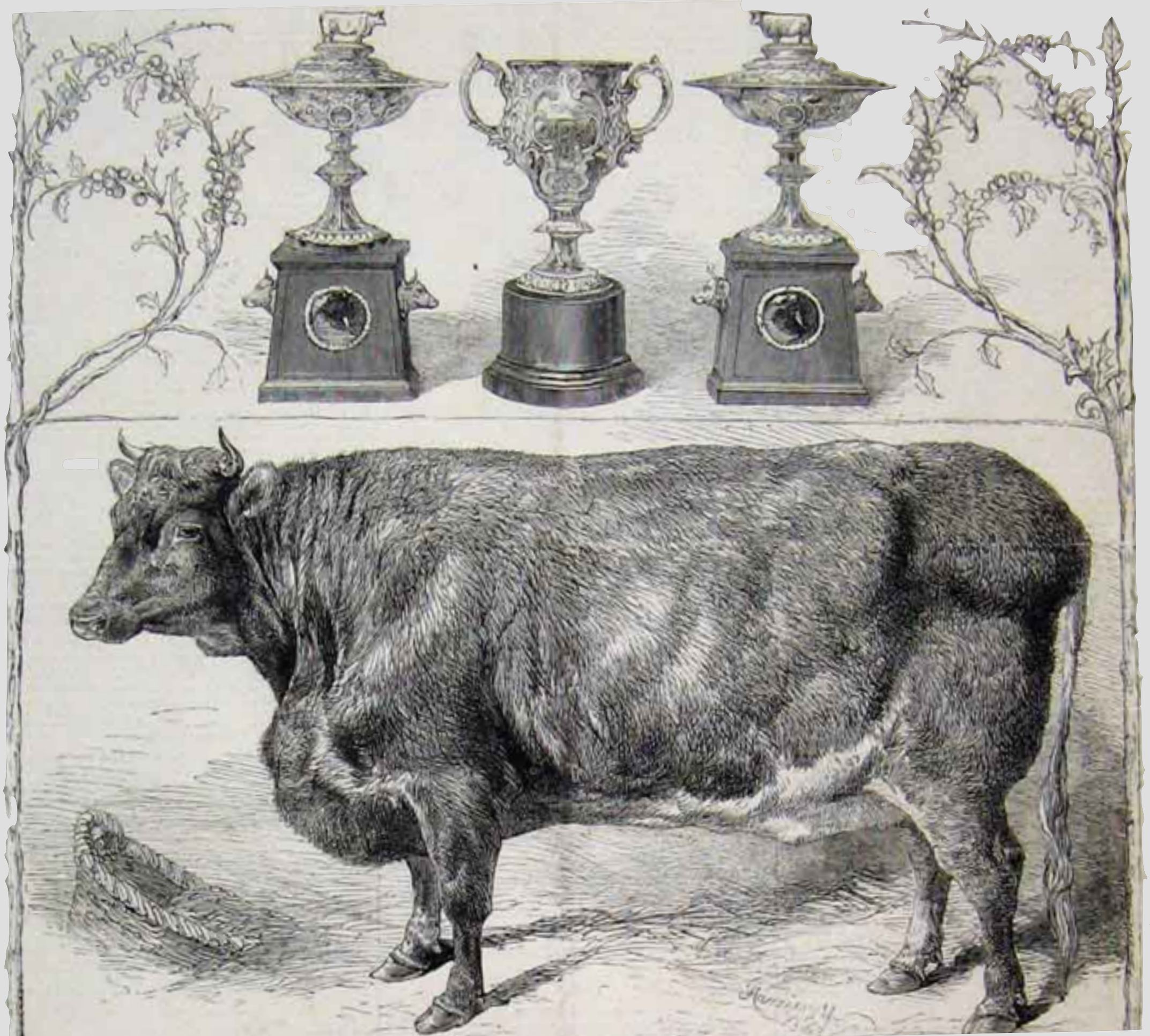
"Outsourcing a job traditionally performed by an employee to an undefined, generally large group of people via open call."

Data Mining

"Applying algorithms to extract patterns from data."

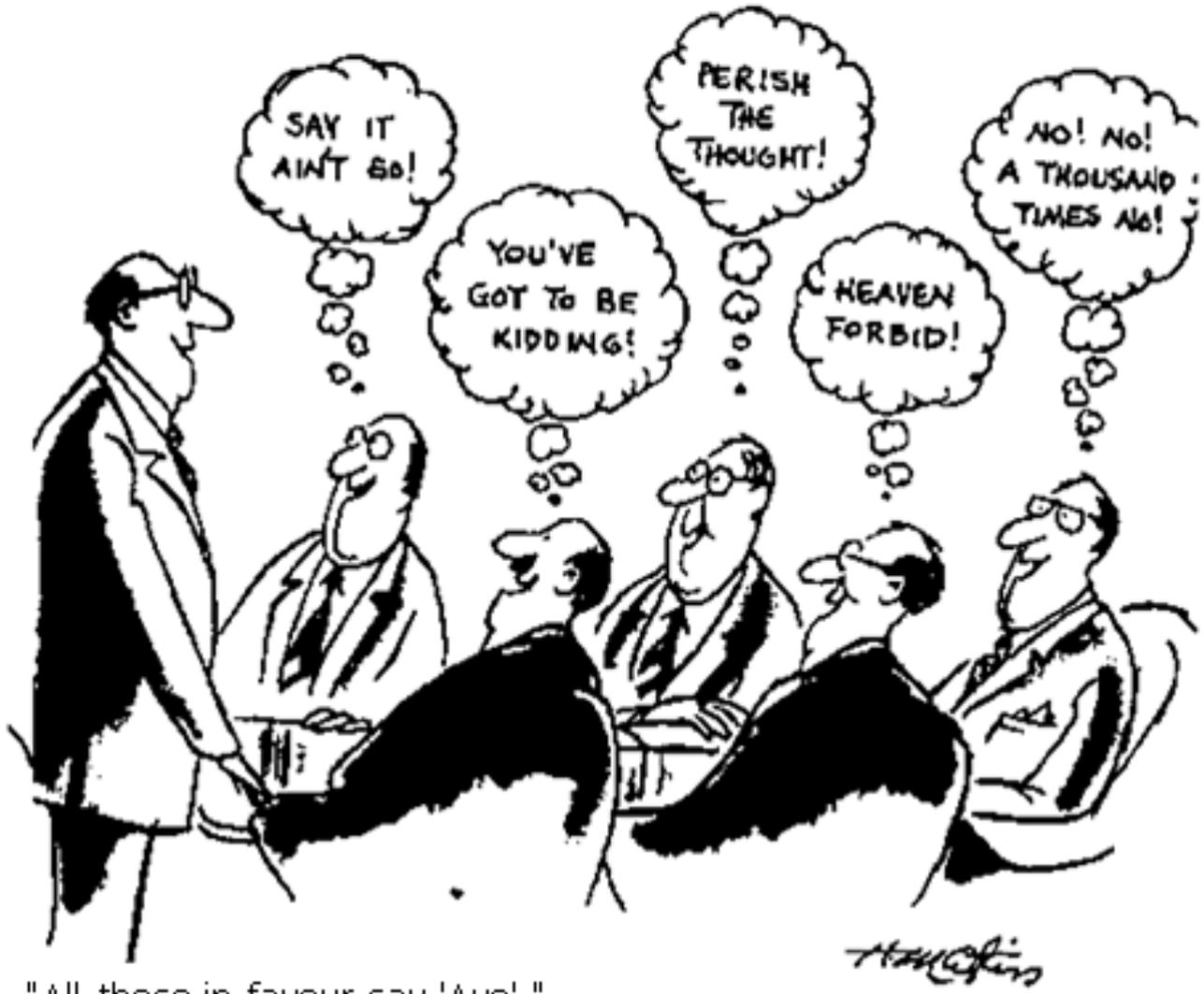


Francis Galton

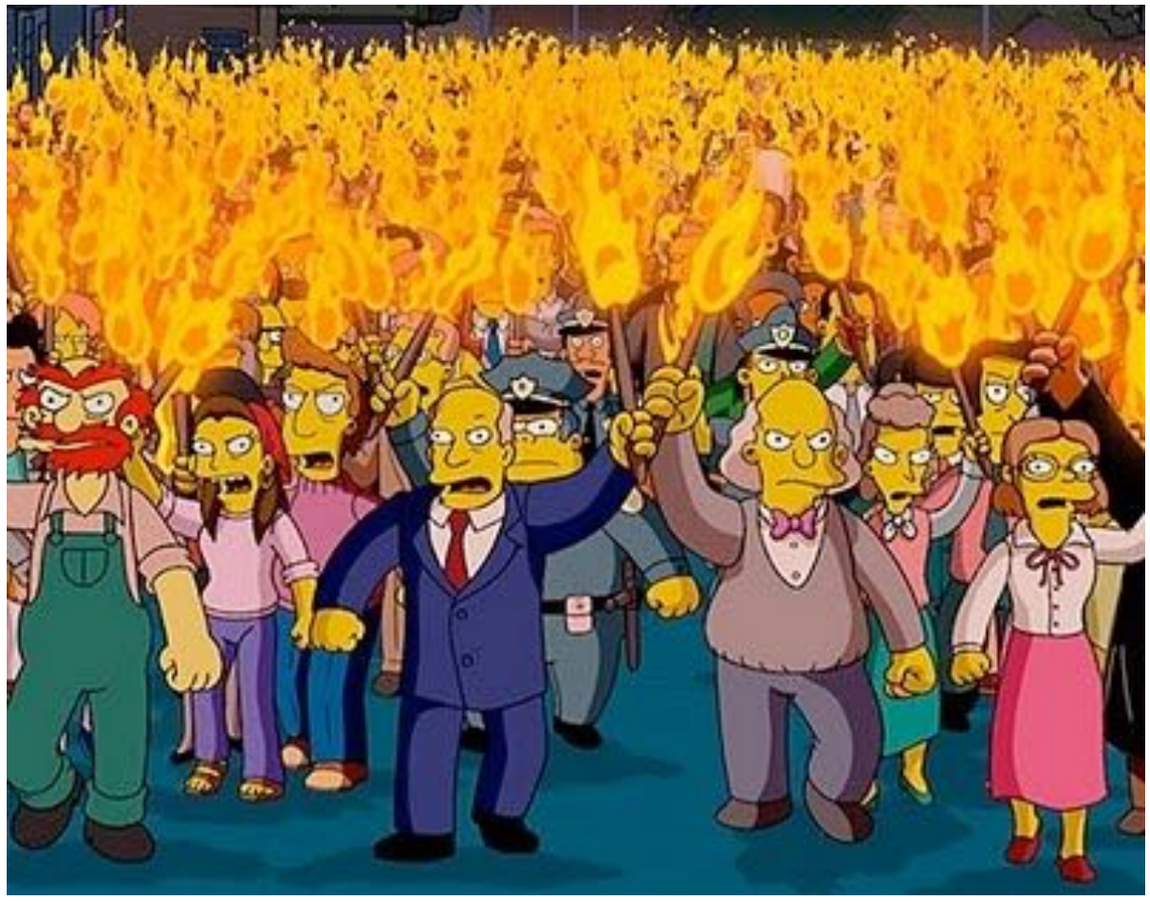


If you guess the right number of jellybeans,
you may win a prize.

Collective Intelligence?



Group Think



Mob Mentality

Collective Intelligence?

Groupthink

Groupthink is a psychological phenomenon that occurs within a group of people in which the desire for harmony or conformity in the group results in an irrational or dysfunctional decision-making outcome

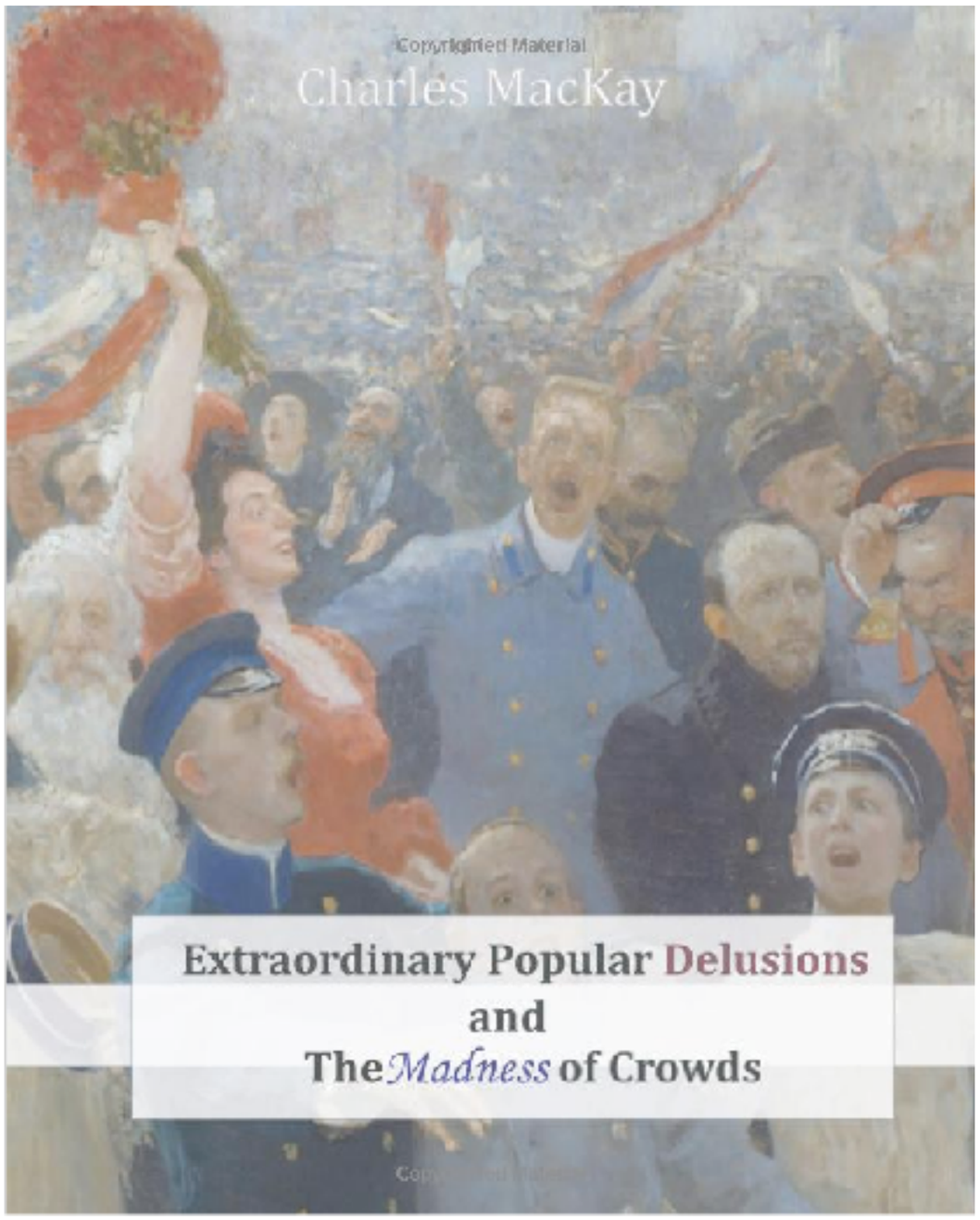
Collective Intelligence?

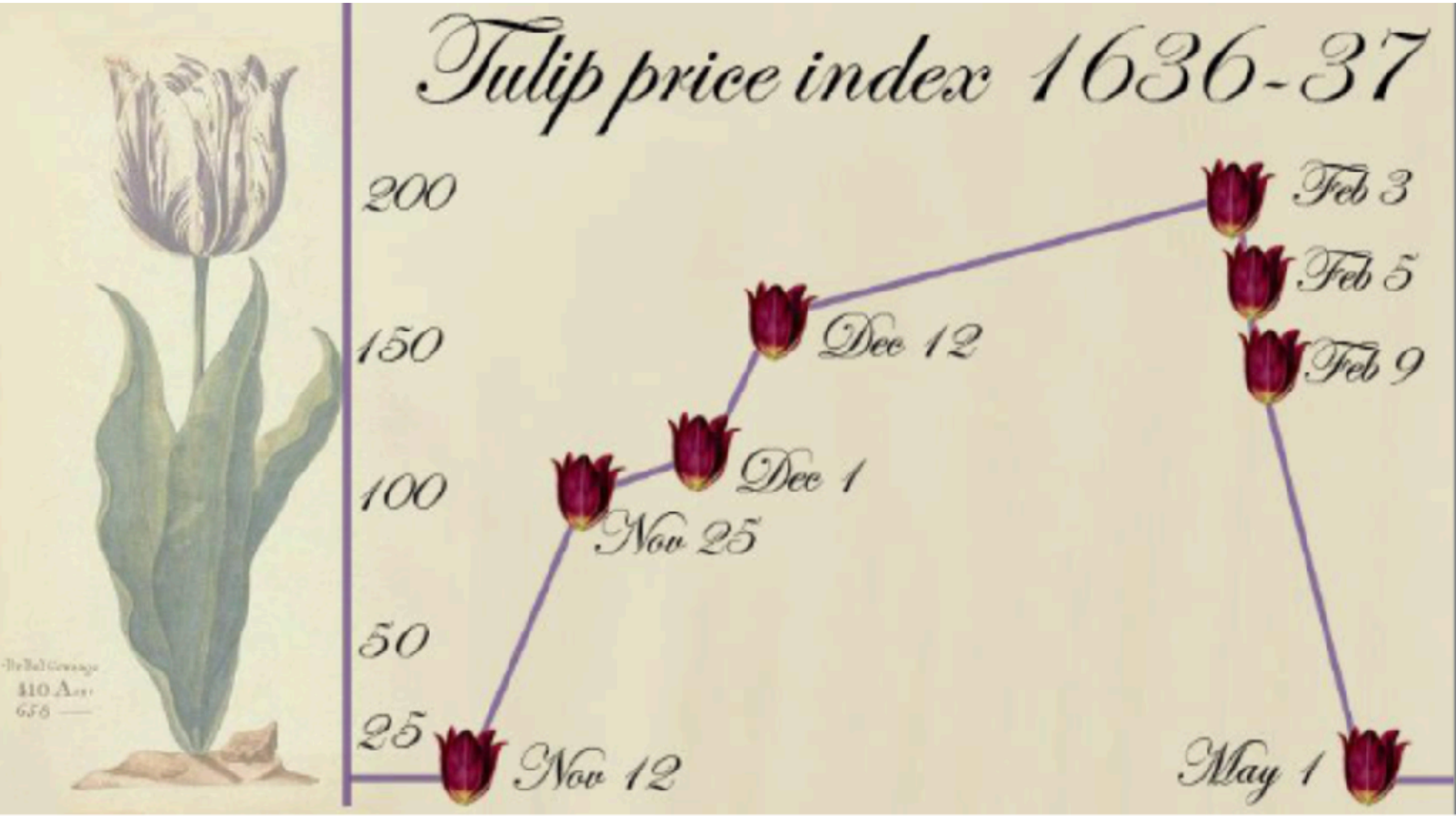
Mob Mentality

Mob mentality, also called as herd mentality, describes how humans adopt behaviors, buy merchandise, and follow trends based on their circle of influence. It explains how one's point of view can be easily altered by those around them.

Popular Delusions and the Madness of Crowds

- Economic bubbles
- Alchemy & Pseudoscience
- Witch hunts
- Prophecies



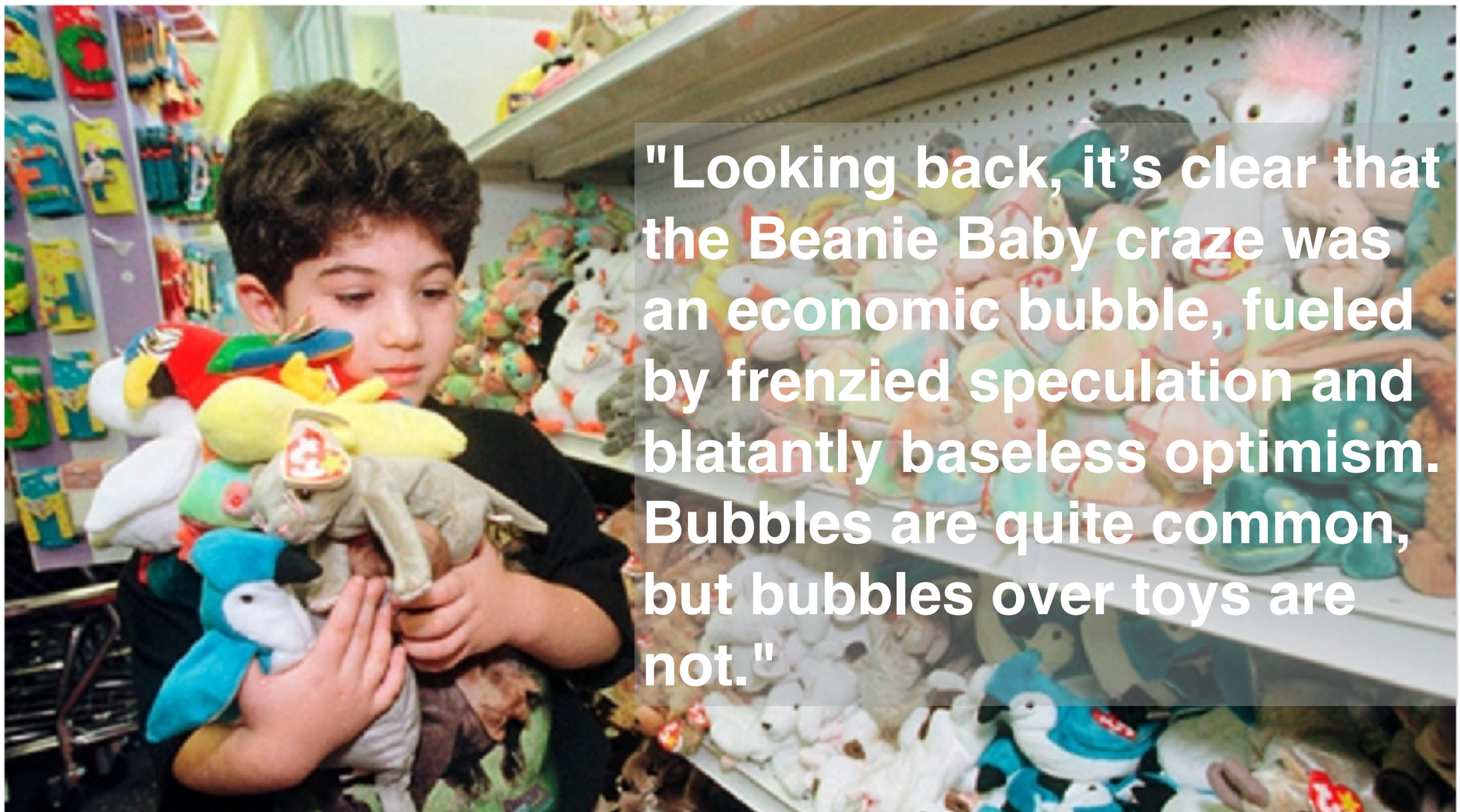

Tulip price index 1636-37
200
150
100
50
25
Feb 3
Feb 5
Feb 9
Dec 12
Dec 1
Nov 25
Nov 12
May 1

Plush Life

Why did people lose their minds over Beanie Babies?

10.1k 601

By Mark Joseph Stern



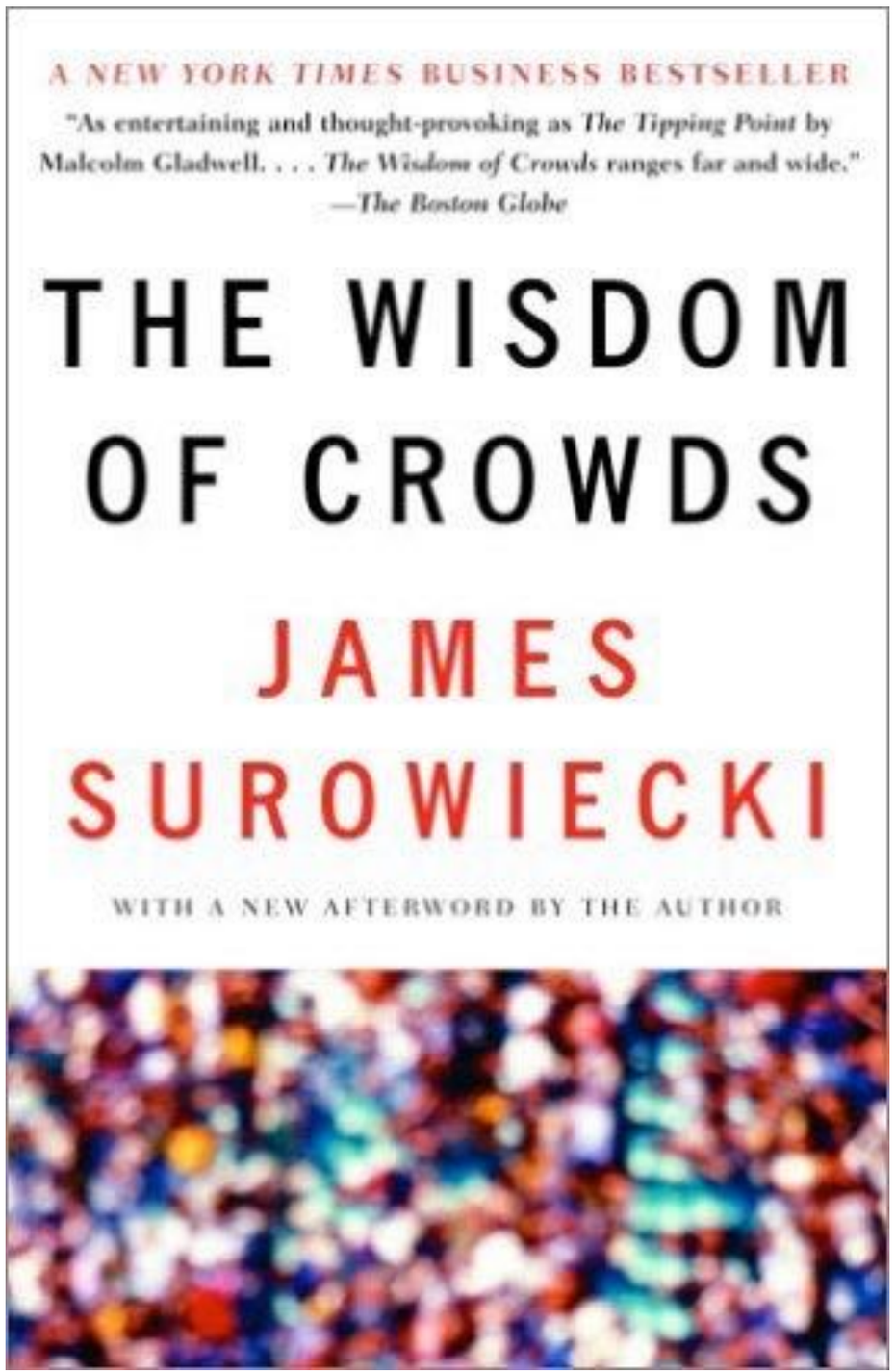
MAKE AMERICA GREAT AGAIN
TRUMP
ANON

TRU
-2020-
KEEP AMERICA

Wisdom of Crowds

Requirements for a crowds to be wise

- Diversity of Opinion
- Independence
- De-centralization
- Aggregation



Groups / Crowds

- Employees of a business
- Participants in a poll
- Sports fans betting on games
- Independent stock market investors
- Internet users linking to sites
- Citizens in a democracy

Ways of aggregating collective intelligence

- Point spreads / parimutuel odds
- Stock prices
- Futures contracts
- Voting
- Computer algorithms, interfaces

Wikipedia

The Free Encyclopedia

2010 Haitian Earthquake

Disaster Response

The maps are bad

Jan 12

Ushahidi

Robert Munro

Disaster Response

Better maps from Crowdsourcing

Jan 23

Ushahidi

Robert Munro

Disaster Response

The responders don't speak Kreyol

- Fanmi mwen nan Kafou, 24 Cote Plage, 41A bezwen manje ak dlo
- Moun kwense nan Sakre Kè nan Pòtoprens
- Ti ekipman Lopital General genyen yo paka minm fè 24 è
- Fanm gen tranche pou fè yon pitit nan Delmas 31

- My family in Carrefour, 24 Cote Plage,41A needs food and water
- People trapped in Sacred Heart Church, PauP
- General Hospital has less than 24 hrs. supplies
- Undergoing children delivery Delmas 31

Ushahidi

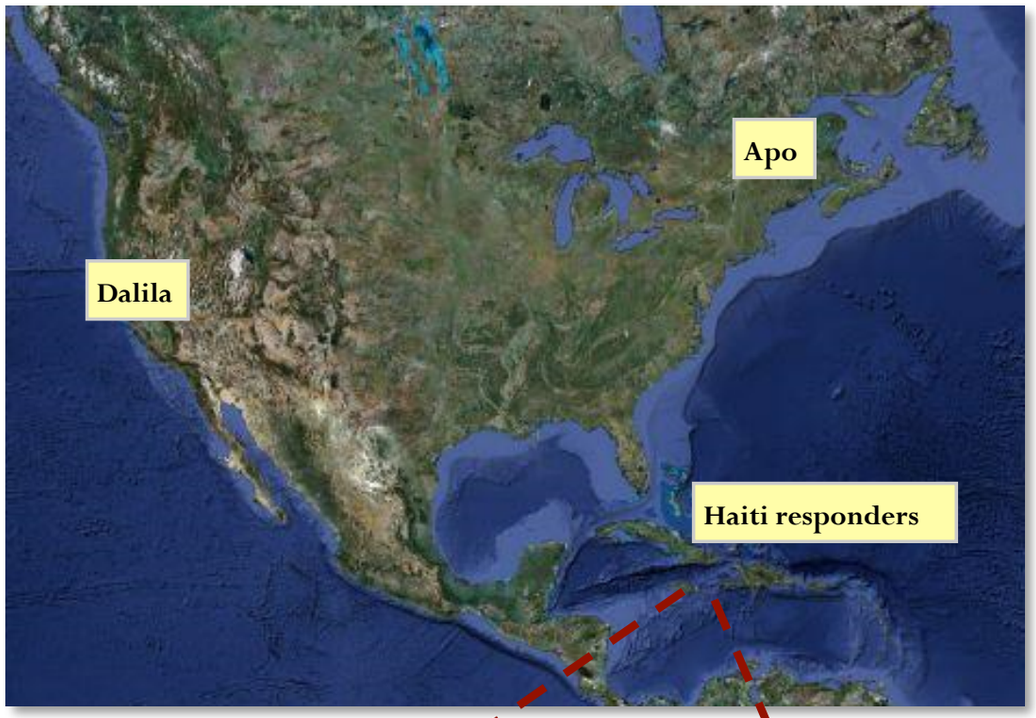
Robert Munro

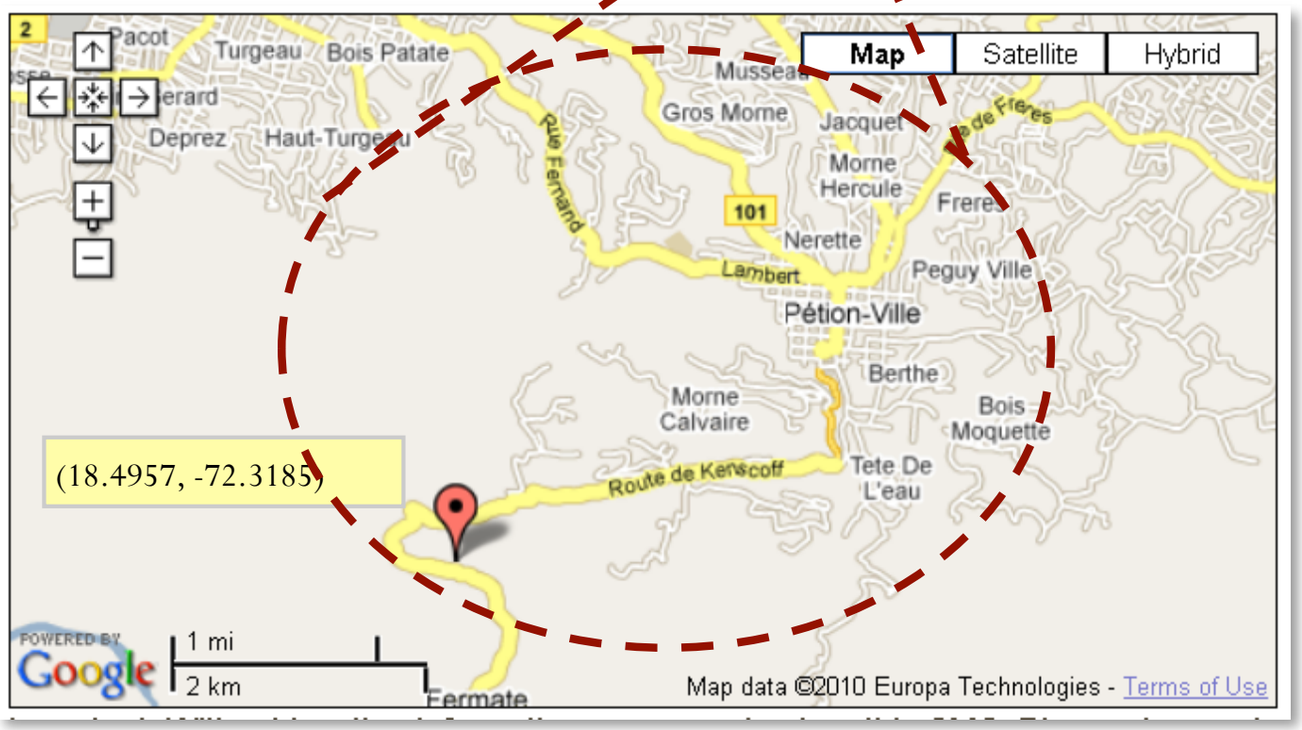
Disaster Response

Maps + Translation + Local Knowledge

Workers collaborated to find locations:

Dalila: I need Thomassin Apo please
Apo: Kenscoff Route: Lat: 18.495746829274168, Long:-72.31849193572998
Apo: This Area after Petion-Ville and Pelerin 5 is not on Google Map. We have no streets name
Apo: I know this place like my pocket
Dalila: thank God u was here





Feedback from responders:

"just got emergency SMS, child delivery, USCG are acting, and, the GPS coordinates of the location we got from someone of your team were 100% accurate!"

Robert Munro

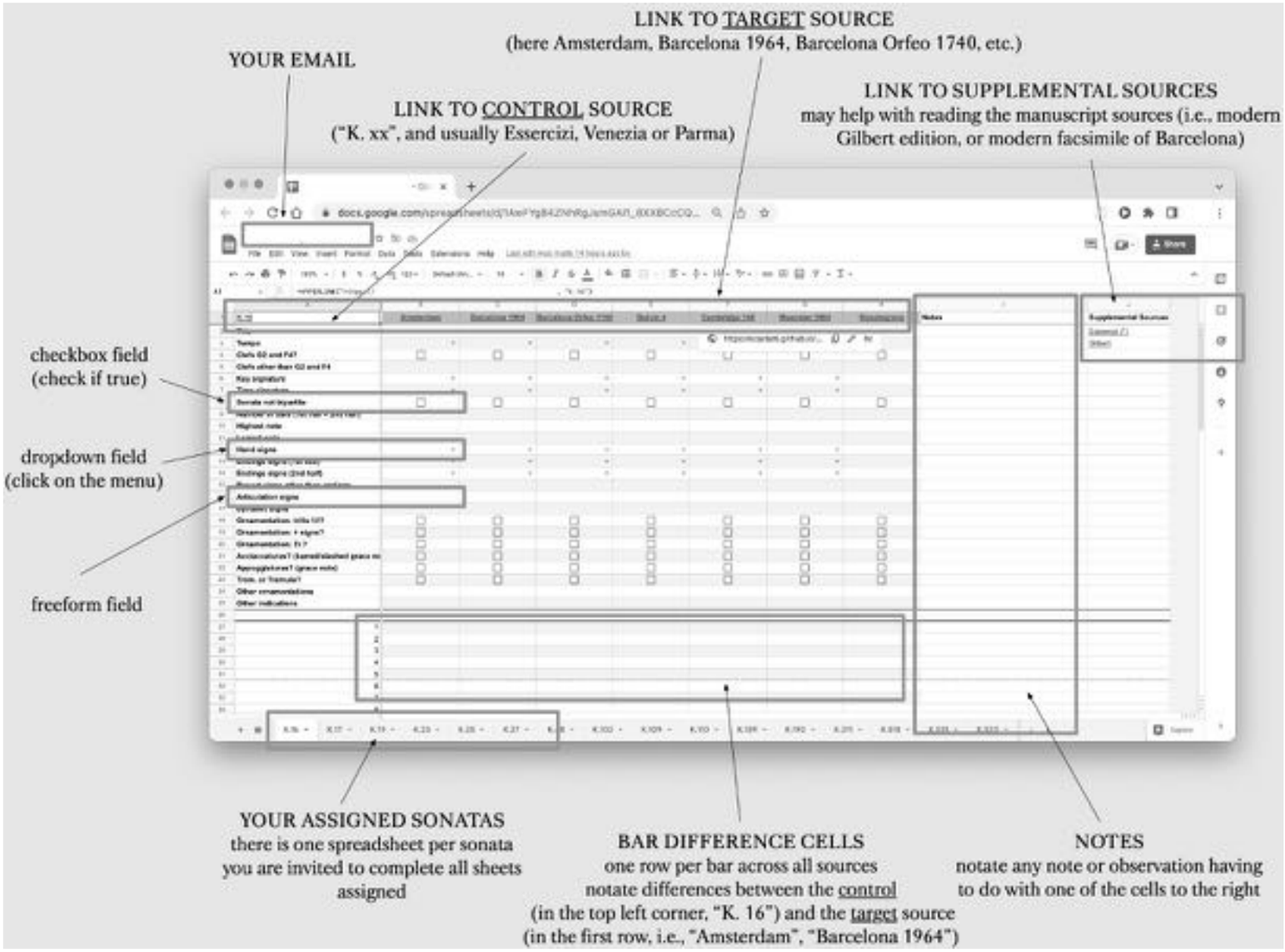
Disaster Response

- Clark Craig of the Marine Corps:
  - "I cannot overemphasize to you what the work of the Ushahidi/Haiti has provided. It is saving lives every day."
- Secretary of State Hillary Clinton:
  - "The technology community has set up interactive maps to help us identify needs and target resources. And on Monday, a seven-year-old girl and two women were pulled from the rubble of a collapsed supermarket by an American search-and-rescue team after they sent a text message calling for help."
- Craig Fulgate, FEMA Task Force:
  - "[The] Crisis Map of Haiti represents the most comprehensive and up-to-date map available to the humanitarian community."
- Ushahidi@Tufts :
  - "The World Food Program delivered food to an informal camp of 2500 people, having yet to receive food or water, in Diquini to a location that 4636 had identified for them."

How can computer science and economics help facilitate collective intelligence?

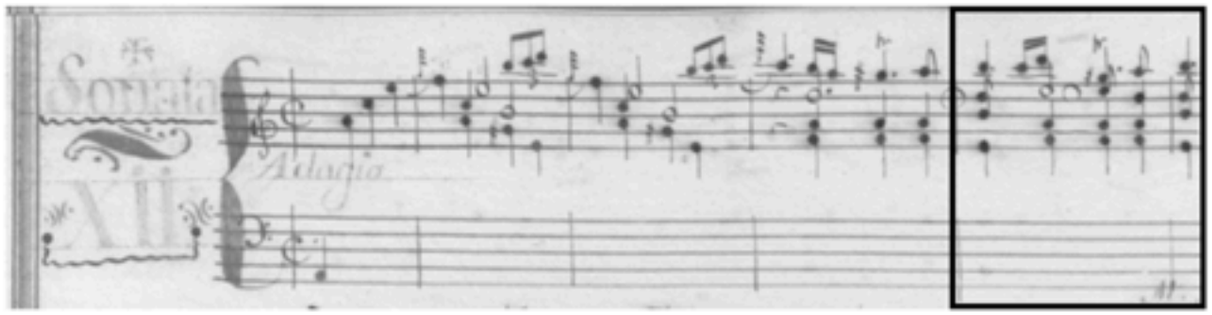
Scarlatti Project

- Collecting Information on manuscripts

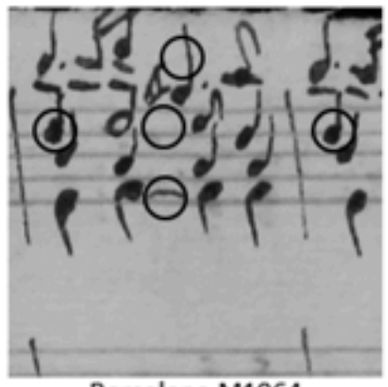


K.109	Barcelona 1964	Cambridge 148	New Haven	New York Cary
1	1a,] 0 ; 1] +r1 ; 1] +r4	1] +r4		
2	1app] acc8 ;] -tripletsign	1app] acc8 ; 3b'] 4 ;] -tripletsign	1app] 16 ; 2e"] 2. ;] -tripletsign	1app] 8 ; 5c"'] gsharp"' ; 6d"'] e"' ;] -tripletsign
3	1app] acc16 ;] -tripletsign	1app] acc8 ;] -tripletsign	1app] 16 ; 2e"] 2. ; 2e"] +tie ;] -tripletsign	1app] 8 ; 5c"'] gsharp"' ; 6d"'] e"' ;] -tripletsign
4	1app] 8 ; 1] +r4 ; 2d"] -tie	1app] 8 ; 2d"] 2 ; 2d"] -tie	1r] e"4 ; 1app] 16 ; 2d"] 2 ; 2d"] -tie	1app] 0 ; 2d"] -tie
5	1d"] 4 ; 2f'] +tie ; 2e"] -tie ; 6gsharp"] -tr	1d"] 4 ; 2a'] +tie ; 2e"] -tie ; 6gsharp"] -tr ; 7d"] 4.	1d"] app8 ; 6e"] app8	2e"] -tie ; 4c"'] a"' ; 5d"'] b"' ; 7d"'] +tie
6	1d"] 4 ; 2e"] -tie ; 6gsharp"] -tr	1e'] 2 ; 2e"] -tie ; 6gsharp"] -tr ; 7d"] 4.	0	2e"] -tie ; 4c"'] a"' ; 5d"'] b"' ; 6gsharp"] -tr
7	1app] 8 ; 1b"] -longwavyline ; 2] +r4 ; 3] +r2	1app] 8 ; 1b"] -longwavyline	1app] 8 ; 1b"] +upstem ; 1b"] -longwavyline	1app] 8 ; 1b"] -longwavyline
8	4app] acc8	4app] 4	4app] 8 ; 5e'] -tr	4app] 8 ; 5e'] -tr
9	5app] acc16	3f'] +flat ; 5app] 8	5app] 8 ; 5d"] -tie ; 6e'] -tr	3f'] 4 ; 3f'] +tie ; 5] +f'4 ; 5app] acc8 ; 6e'] -tr
10	5d"] -tr	5d"] -tr		
11	1app] 8 ; 1c"'] -tr ; 5app] 8	1app] 8 ; 1c"'] -tr ; 3b'] a' ; 4a'] g' ; 5app] 8	1app] 16 ; 5app] 16	1app] acc8 ; 1c"'] -tr ; 5app] acc8
12	1a] 0 ; 4gsharp'] -M	1a] 0	1a] 0	1a] 0
13	4f] 0	4f] 0		4d'] -tr
14	1e] 0 ; 4gsharp'] -M	1e] 0	1e] 0	1e] 0
15	4f] 0	4f] 0	2gsharp] -sharp	2 extra bars
16				
17	1d'] 2 ; 1d'] +tie ; 7] +d'4		1d'] 2 ; 1d'] +tie ; 7] +d'4	
18	5d'] e' ; 8e'] -tie	5d'] e' ; 8e'] -tie	5d'] e' ; 8e'] -tie	5d'] e' ; 8e'] -tie
19	1a,] 0 ; 4a] 0 ; 7b] 0 ; 10b,] 0			
20	5a] b		5a'] +downstem	

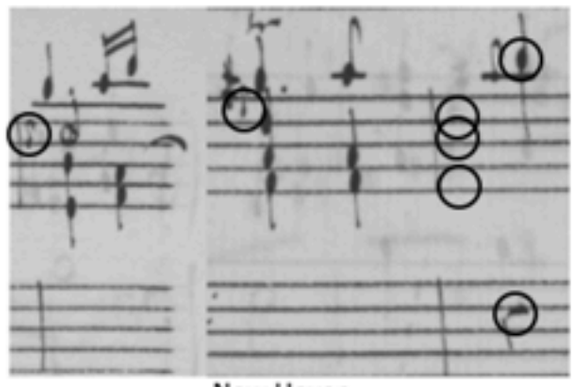
Figure 3 – partial collation of K109, bars 1-20



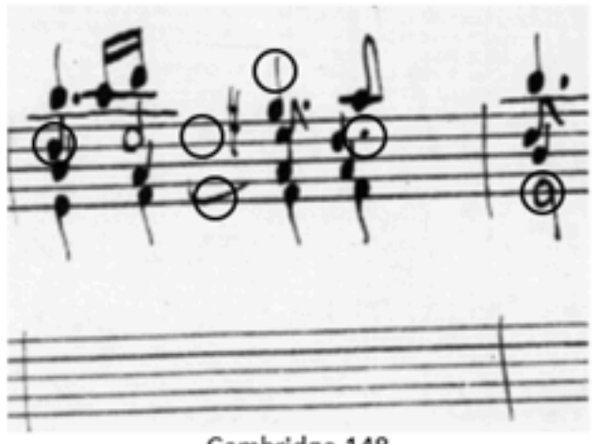
Venice 1749



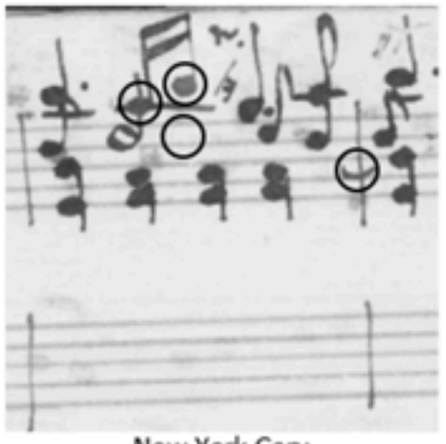
Barcelona M1964



New Haven

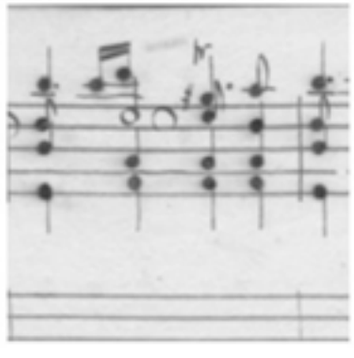


Cambridge 148

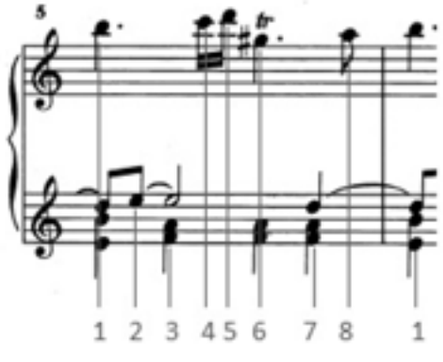


New York Cary

Venice 1749



New York Cary

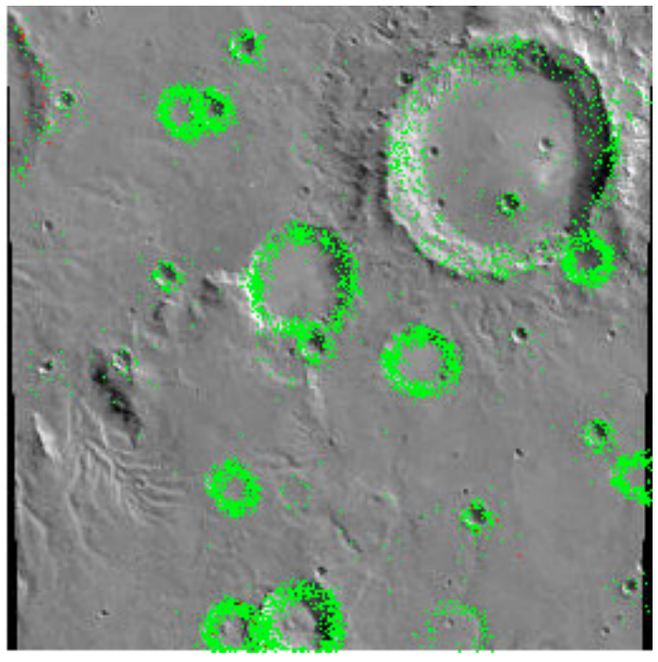


NASA Clickworkers (2000)

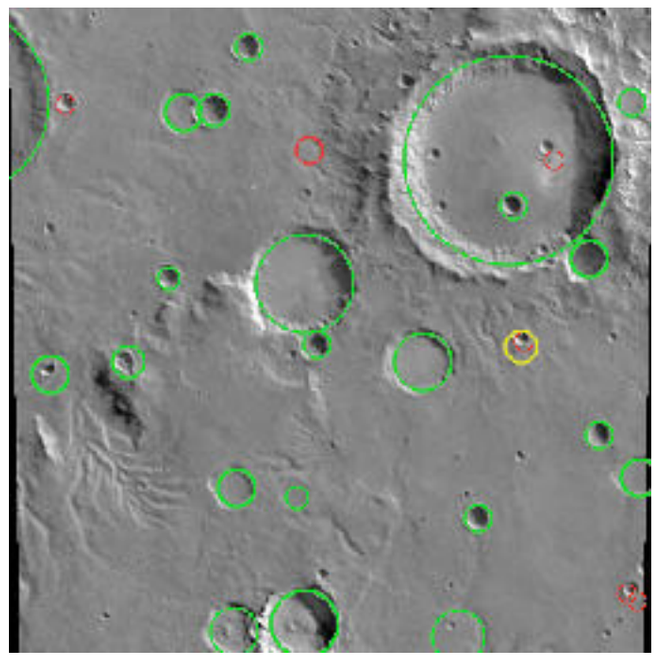
NASA showed that public volunteers could do routine science analysis that would normally be done by a graduate student working for months on end. From 11/2000 to 1/2002, they had **101,000 clickworkers** volunteering **14,000 work hours**, **612,832 sessions**, and **2,378,820 entries**!

We try to have several people cover each region on Mars so that we can compute a consensus, throwing out any mistaken or frivilous entries and averaging out the inaccuracies.

Here are all the clicks we received for this region

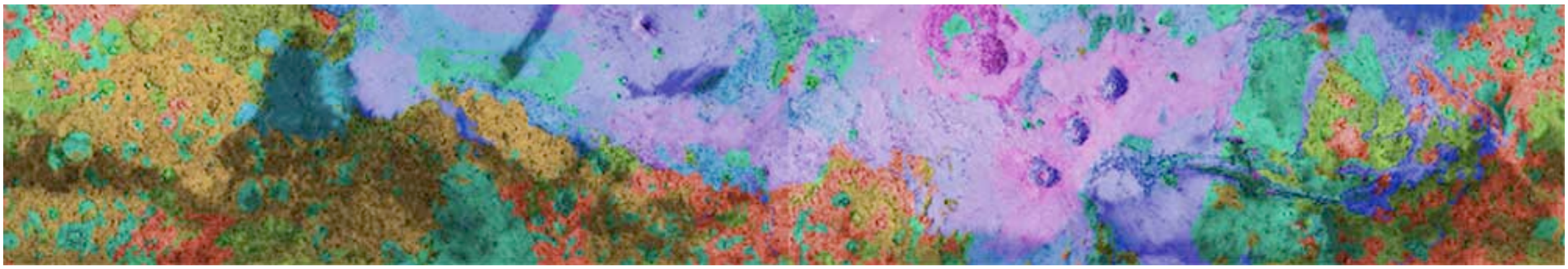


Here is the consensus

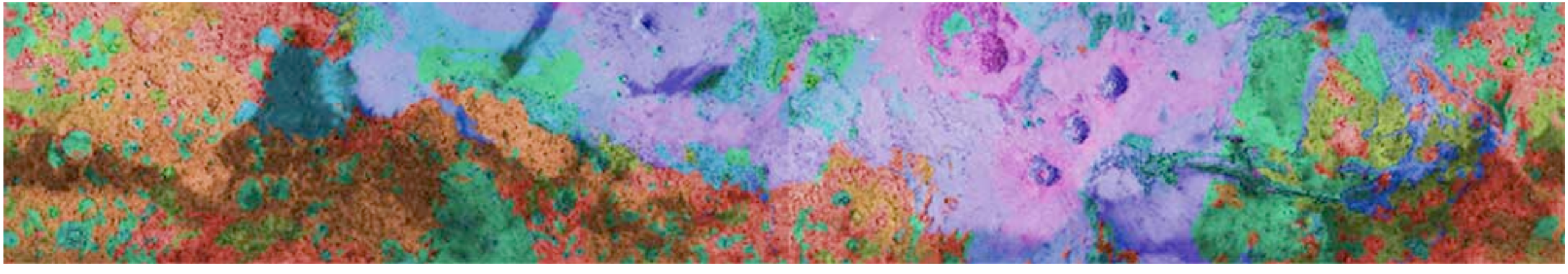


NASA Clickworkers (2000)

Mars age map produced directly from clickworker inputs.

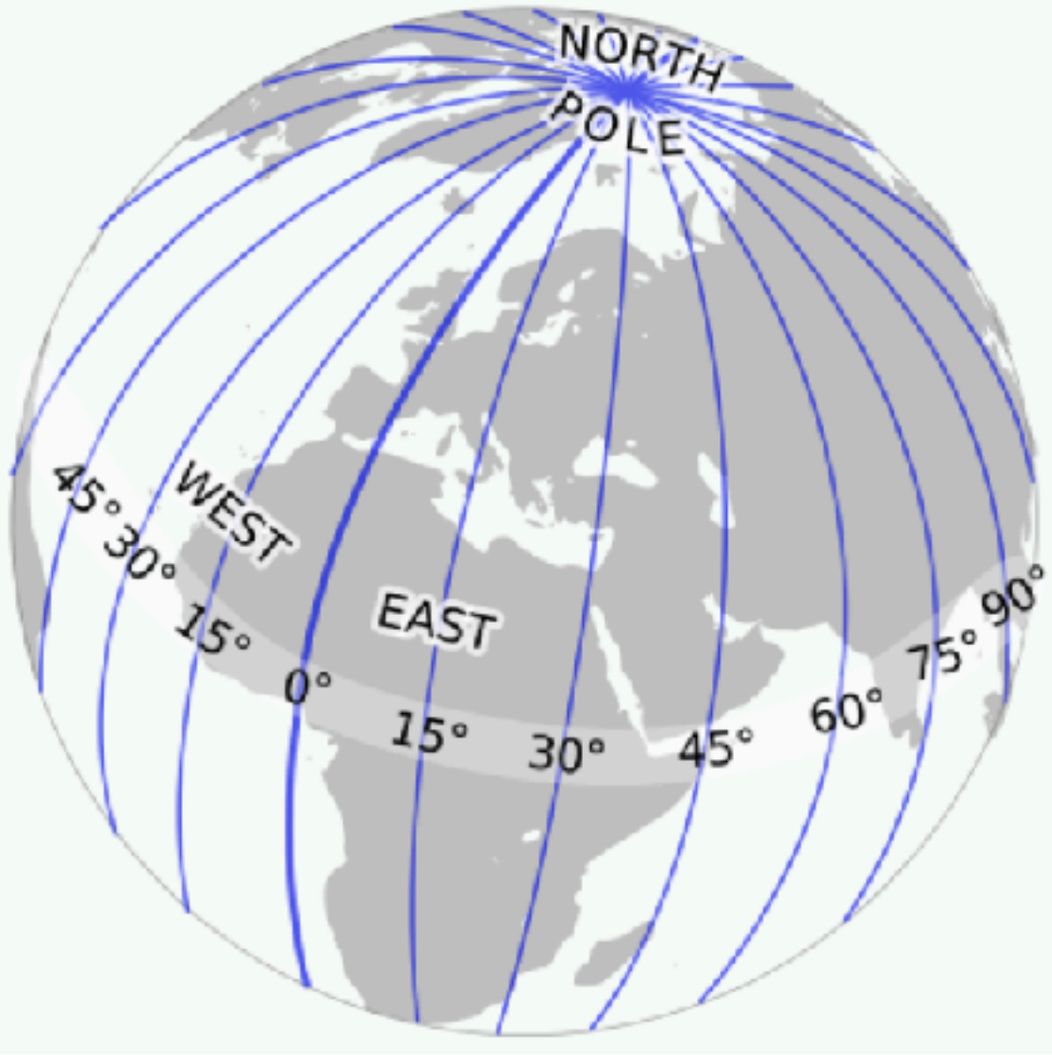


Mars age map produced from scientists



Color guide: red=heavily cratered (old), green=medium, violet=lightly cratered (young).

Longitude rewards



NETFLIX

Netflix Prize

Home | Rules | Leaderboard | Register | Update | Submit | Download

Leaderboard

Display top 40 leaders.

Rank	Team Name	Best Score	% Improvement	Last Submit Time
--	No Grand Prize candidates yet	--	--	--
Grand Prize - RMSE <= 0.8563				
1	PragmaticTheory	0.8584	9.78	2009-06-16 01:04:47
2	BellKor in BigChaos	0.8590	9.71	2009-05-13 08:14:09
3	Grand Prize Team	0.8593	9.68	2009-06-12 08:20:24
4	Dace	0.8604	9.56	2009-04-22 05:57:03
5	BigChaos	0.8613	9.47	2009-06-15 18:03:55

Games with a Purpose

Courses French Profile

Are you a beginner?
Start here with the Basics

Not a beginner?
Try this Placement Test

Basics 2
0/5

Phrases
0/4

Learn Practice Shop

Take a test to jump ahead!

It takes about 5 minutes, and adapts to your level by getting harder (or easier) based on your answers.

Cancel Start

Quit

Translate this sentence

A girl

Une fille

You are correct

Continue

Luis Von Ahn

==

Tom Sawyer

Know Your Nyms?

Know Your Nyms?

KEEP YOUR BRAIN ON ITS TOES

Welcome CCB!

Total Rounds Played: 433

Total Score: 34138.2

Average Score Per Round: 78.84

How to Play | About the Team | Leaderboards

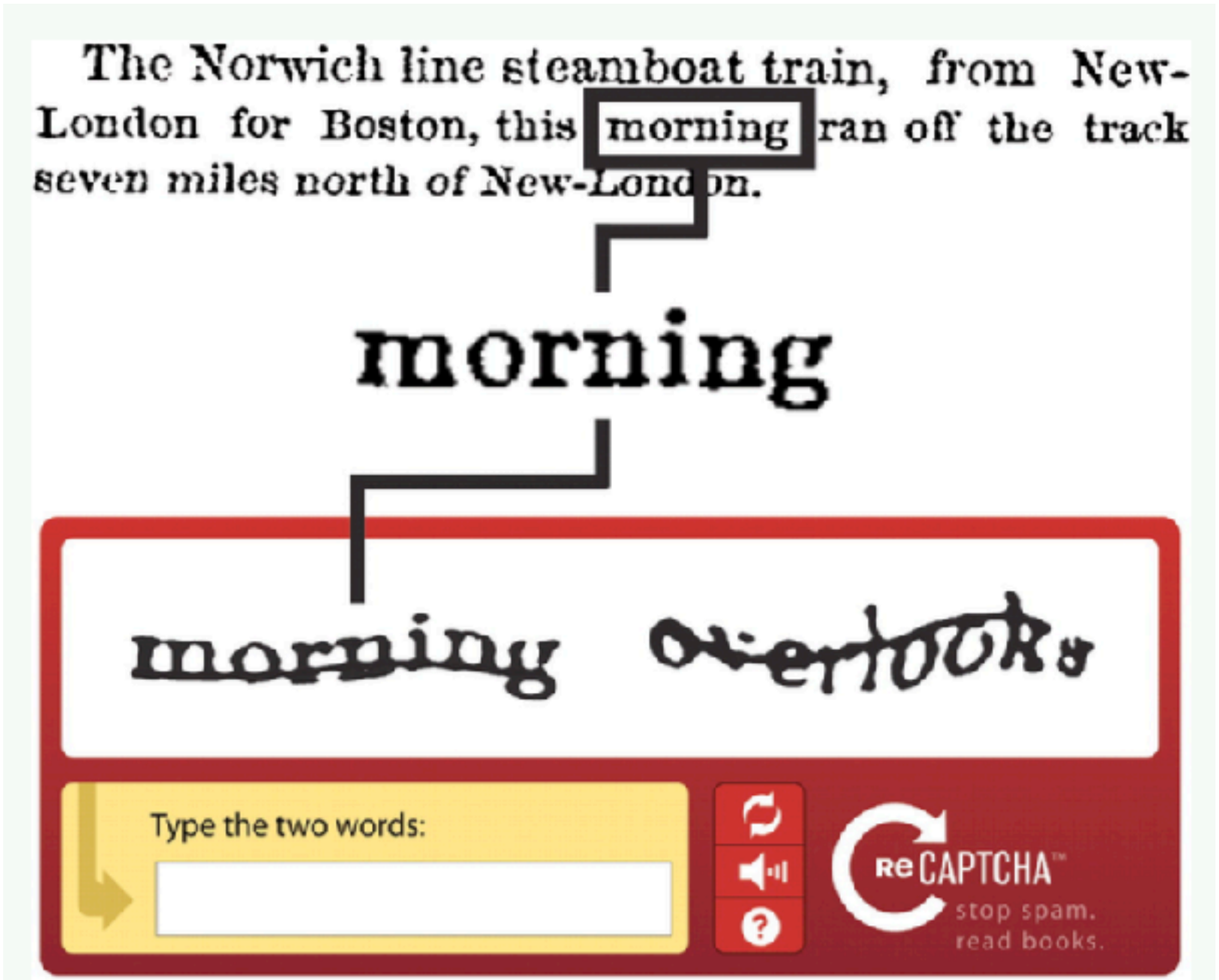
Start Round

Synonyms Antonyms Hyponyms Meronyms

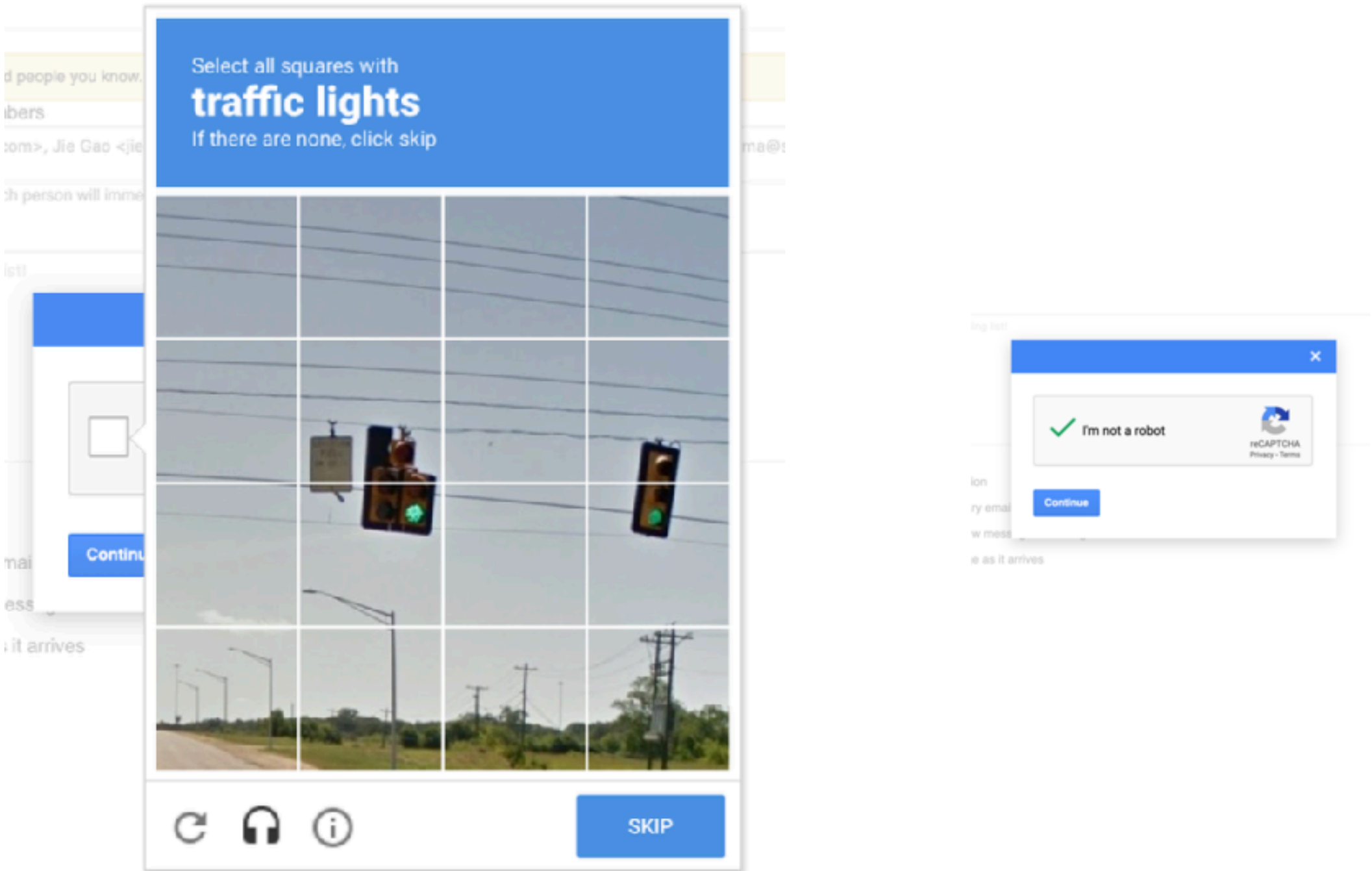
https://www.know-your-nyms.com

Implicit Work

Captcha


The Norwich line steamboat train, from New-London for Boston, this morning ran off the track seven miles north of New-London.
morning
morning
overlooks
Type the two words:
ReCAPTCHA
stop spam.
read books.

Implicit work



Microwork

amazonmechanical turk beta
Artificial Artificial Intelligence

Your Account | HITs | Qualifications

Already have an account?
Sign in as a Worker | Requester

Introduction | **Dashboard** | **Status** | **Account Settings**

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.

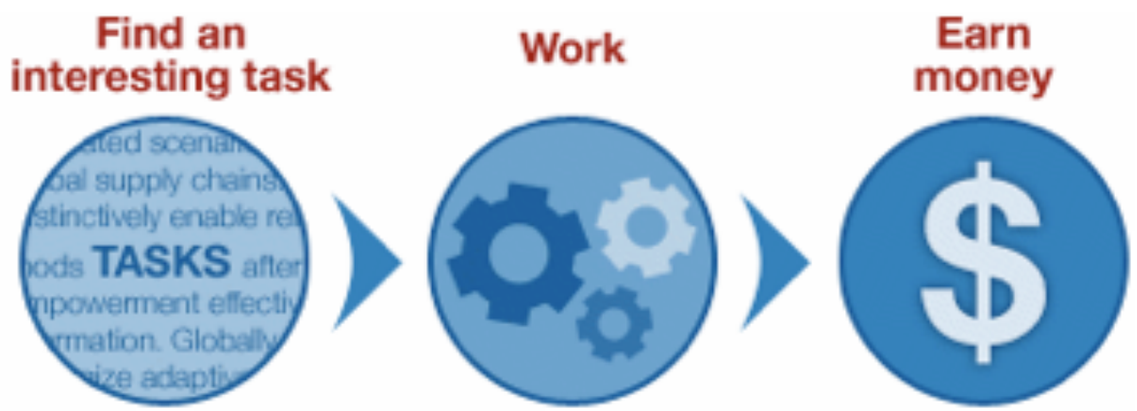
37,649 HITs available. View them now.

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 HITs Now

or learn more about being a **Worker**

Get Results
from Mechanical Turk Workers

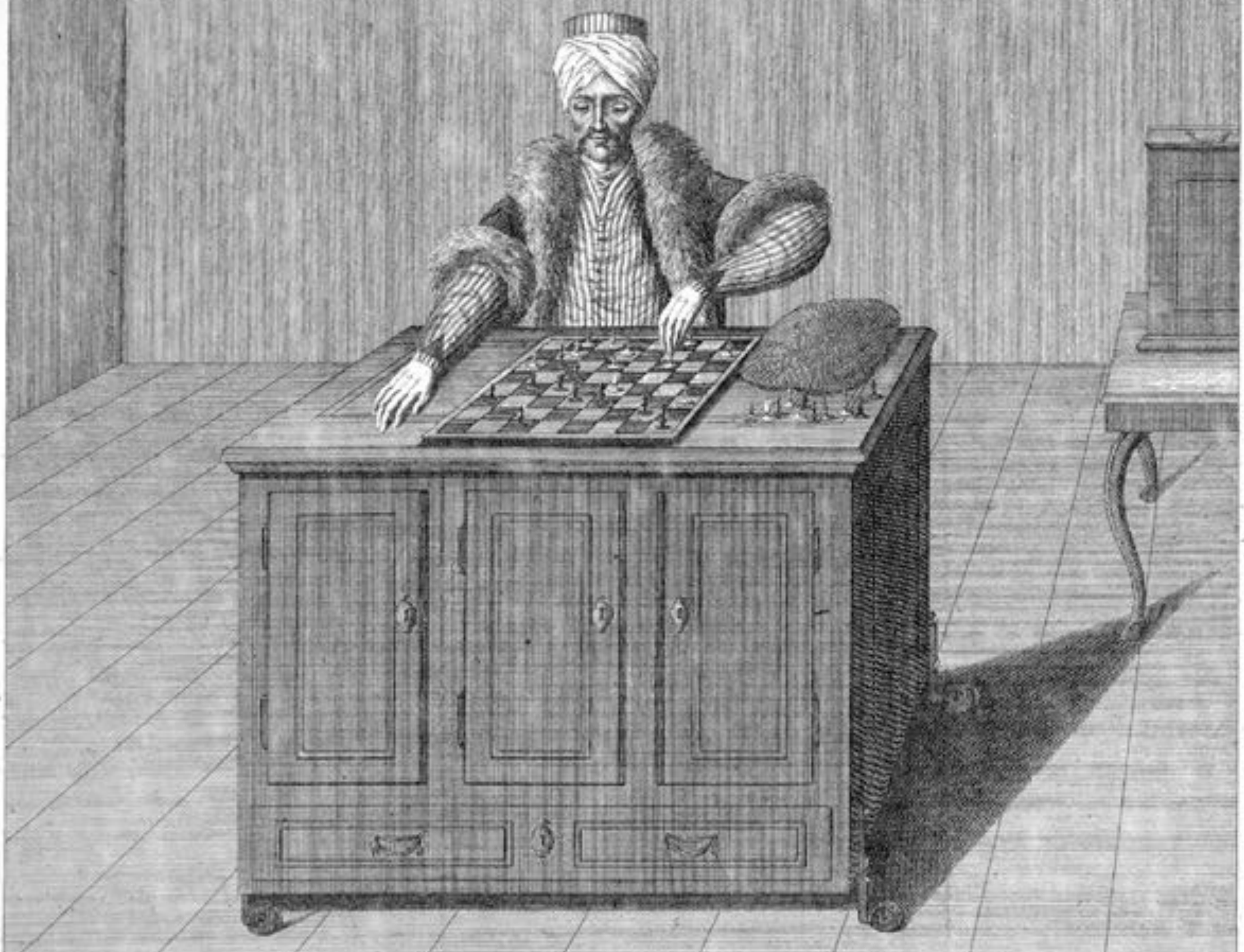
Ask workers to complete HITs - *Human Intelligence Tasks* - and get results using Mechanical Turk. Register Now

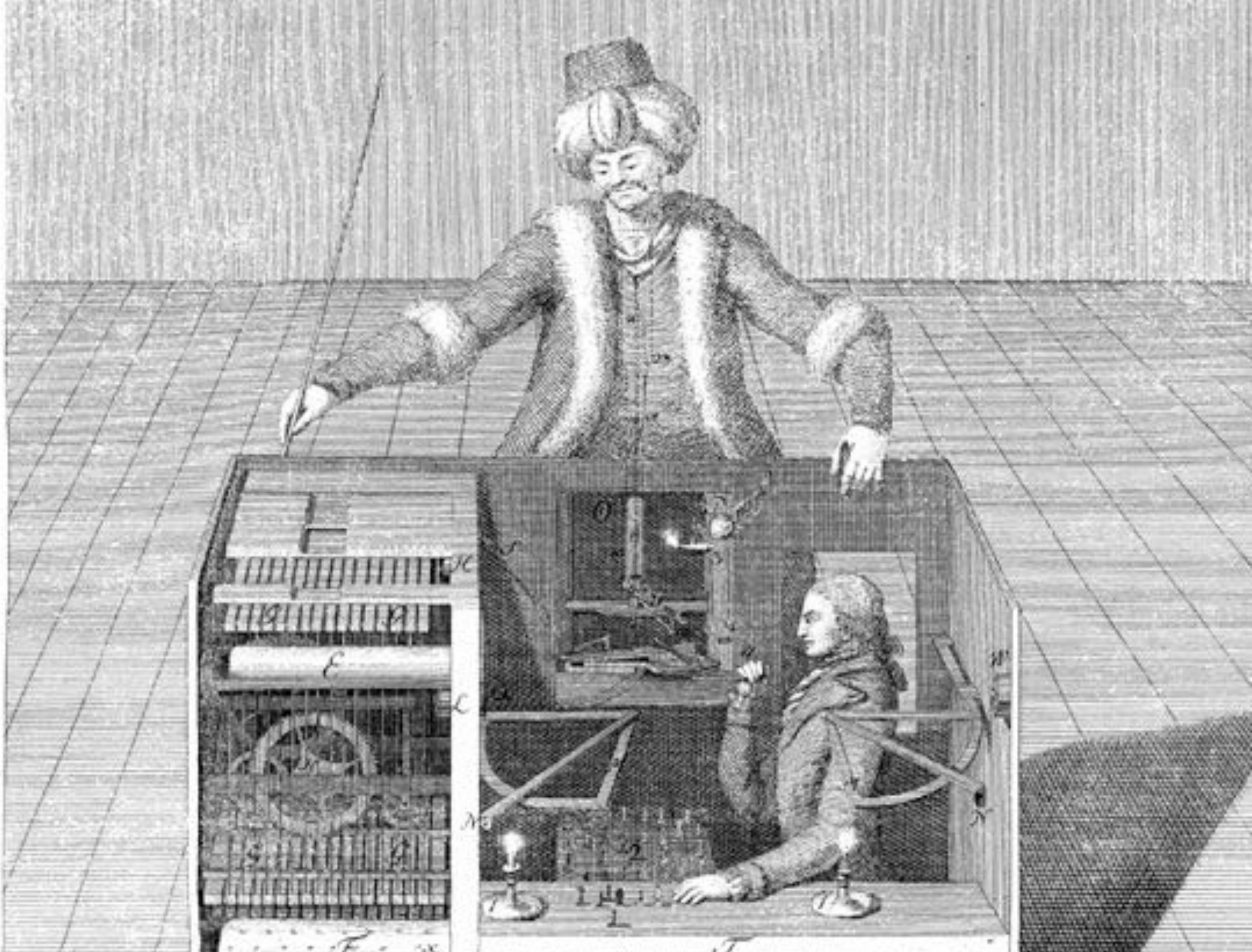
As a Mechanical Turk Requester you:

- 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

Get Started

or learn more about being a **Requester**





Timer: 00:00:00 of 5 minutes

Want to work on this HIT? Accept HIT

Want to see other HITs? Skip HIT

Total Earned: Unavailal

Total HITs Submitted: 0

Enter Postmark & Stamp Information for a Postcard

Requester: Cardcow **Reward:** $0.01 per HIT **HITs Available:** 2 **Duration:** 5 minutes

Qualifications Required: Data Entry for Postcards has been granted

Enter Postmark & Stamp Information for this card

cardcow.com cardcow.com cardcow.com cardcow.com

Postmark City:

Postmark State: (or Country)

Postmark Date: (Ex: Nov-09) (month & day)

Postmark Year: (Ex: 1909)

Stamp: (Ex: 1c, 2c, half penny)

amazonmechanical turk
Artificial Artificial Intelligence
Your Account | HITs | Qualifications
37,530 HITs available now
Sign In
All HITs | HITs Available To You | HITs Assigned To You
Search for HITs containing that pay at least $ 0.00 for which you are qu
Timer: 00:00:00 of 5 minutes
Want to work on this HIT? Accept HIT
Want to see other HITs? Skip HIT
Total Earned: Unavail
Total HITs Submitted: 0
Enter Postmark & Stamp Information for a Postcard
Requester: Cardcow Reward: $0.01 per HIT HITs Available: 2 Duration: 5 minutes
s been granted

Postmark City: Barre

Postmark State: MA

Postmark Date: Oct-11

Postmark Year: 1886

Stamp: 1c

$ 0.01

Postmark City:
Postmark State: (or Country)
Postmark D (Ex: Nov-09
(month & day)
: 1c, 2c,

amazonmechanical turk beta
Artificial Artificial Intelligence

Your Account | HITs | Qualifications

Already have an account?
Sign in as a Worker | Requester

Introduction | **Dashboard** | **Status** | **Account Settings**

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.

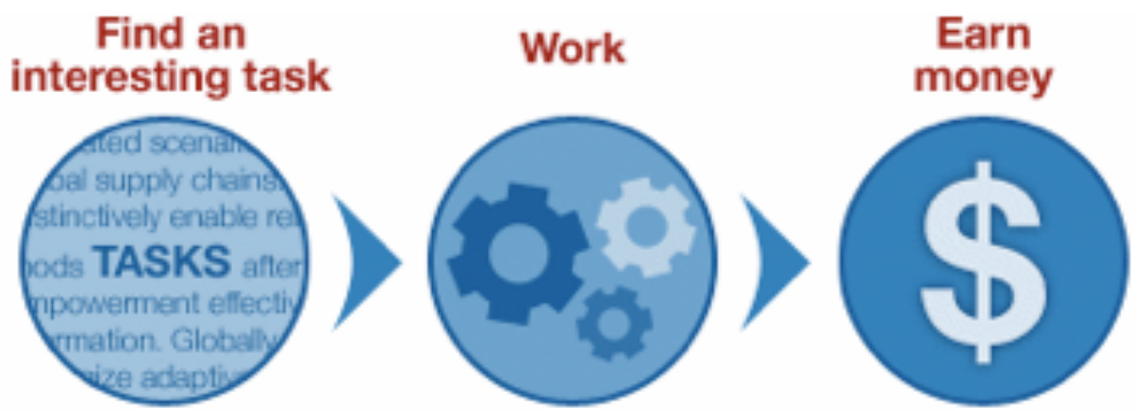
37,649 HITs available. View them now.

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 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

Get Started

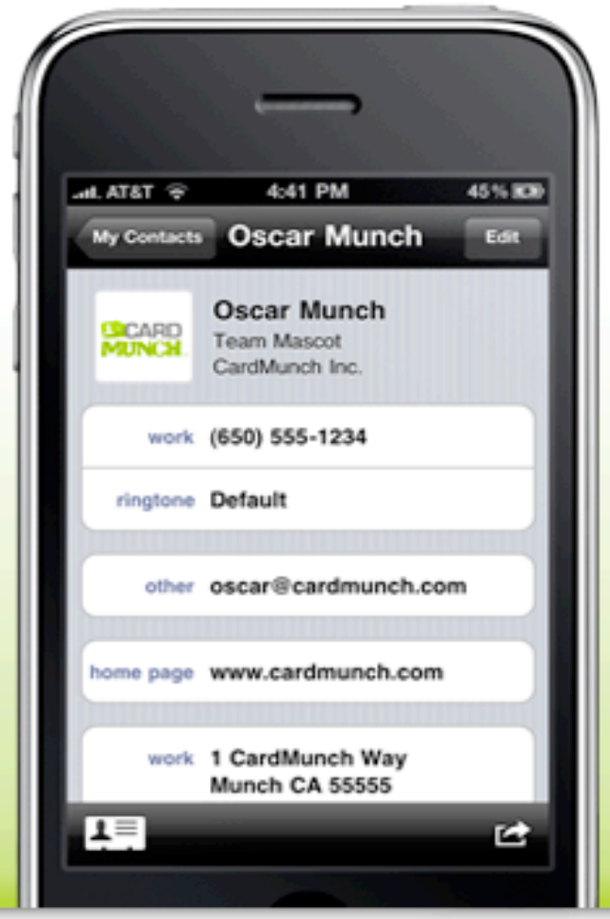
or learn more about being a **Requester**

Business Cards *Solved*

step 1
point & capture

step 2
real people

step 3
contact done



GET STARTED

Simple

Accurate

Reliable

CastingWords

STEP 1 OF

CHOOSE A PRODUCT BELO

TRANSCRIPTION MADE FAST AND EASY.

3 easy steps

UPFRONT PRICING, NO ACCOUNT NEEDED

BUDGET
$1.00/minute

6 DAY
$1.50/minute

1 DAY
$2.50/minute

CASTINGWORDS TRANSCRIPTION SERVICES:

QUALITY IS KING
We catch the difficult words, do the research, and produce rocking transcripts.

CLEAR PRICING
We price per minute of audio - so you know how much you'll be paying for your transcription - now. No surprises.

SIMPLE TRANSCRIPT DELIVERY
Transcripts are emailed to you - and can be picked up here at the site.

LOTS OF FORMATS
Transcripts are delivered in plain text, HTML, and MS Word formats.

HUMAN TRANSCRIPTION
CastingWords' Budget, Express and Expedited products are transcribed, edited, and reviewed multiple times, by people, never machines.

LIVE ORDER TRACKING
You always know what is happening with your audio transcription order.

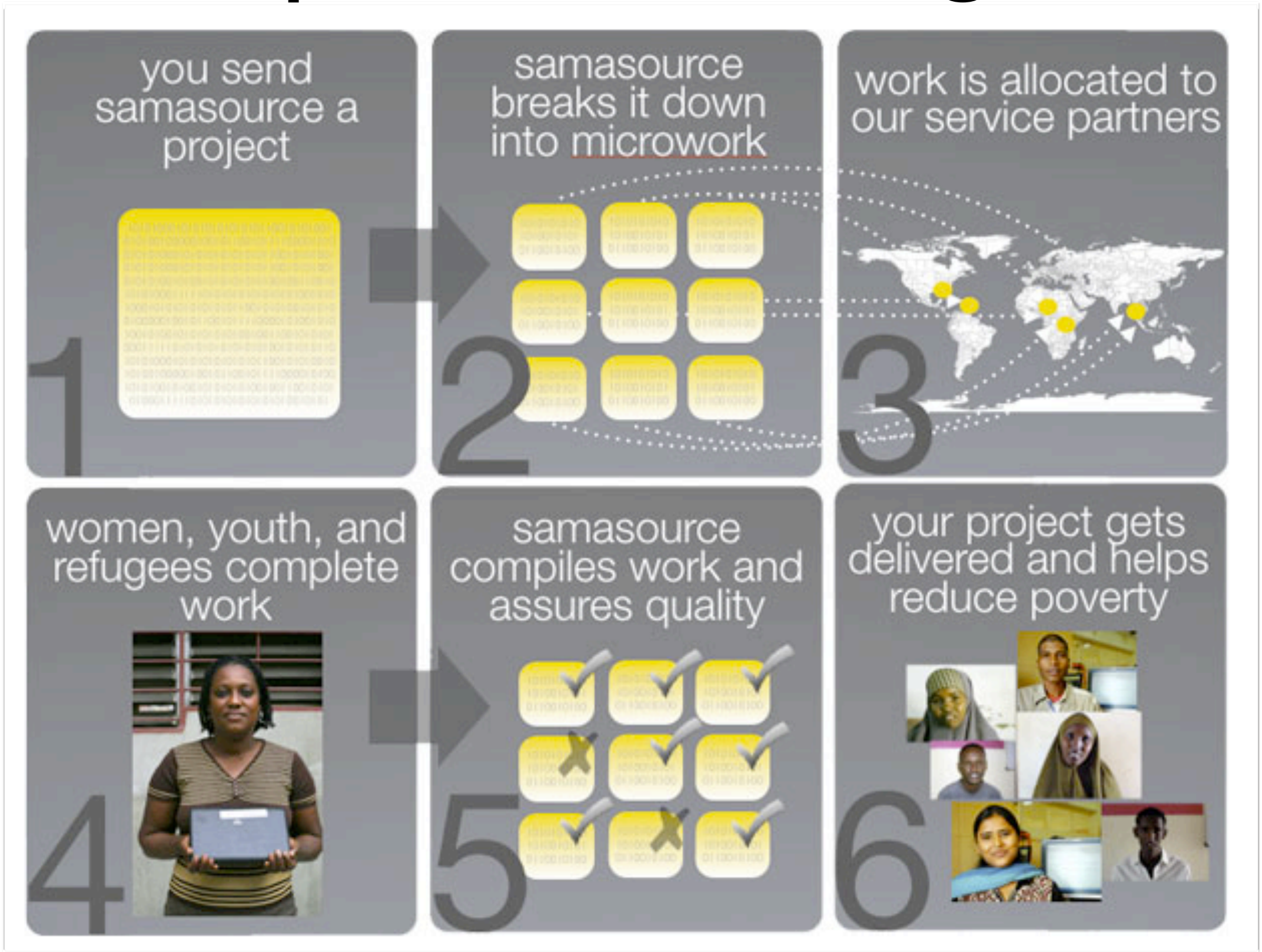
We were constantly surprised that phrases or names that other companies missed, from *"tabula rasa"* to *"turducken"* (it's a Cajun specialty), were identified and spelled correctly.

WALL STREET JOURNAL

NEWS & UPDATES

AUGUST 12 2013: Google Checkout is closing, and we're going to remove it as a payment

Help African Refugees



Improve your sex life

Fleshmap

Dark Side of Crowdsourcing

(J Zittrain, “Minds for Sale”)

- Surveillance
- Alienation and Deskilling
- Moral Valence
- Race to the Bottom

Iranian protesters appearing in widely disseminated online photos from the ongoing post-election demonstrations in Iran, are now being targeted on a website of the Islamic Revolutionary Guard Corps.

The website, called ‘vortex'... shows images of 20 people with red circles drawn around their faces claiming without evidence that they have been involved in creating “chaos” in Tehran.

Citizens are invited to call or email if they can identify the people on the photos. Gerdab also claims that two of the people depicted have already been arrested. The site provides no further information about any of the depicted people.

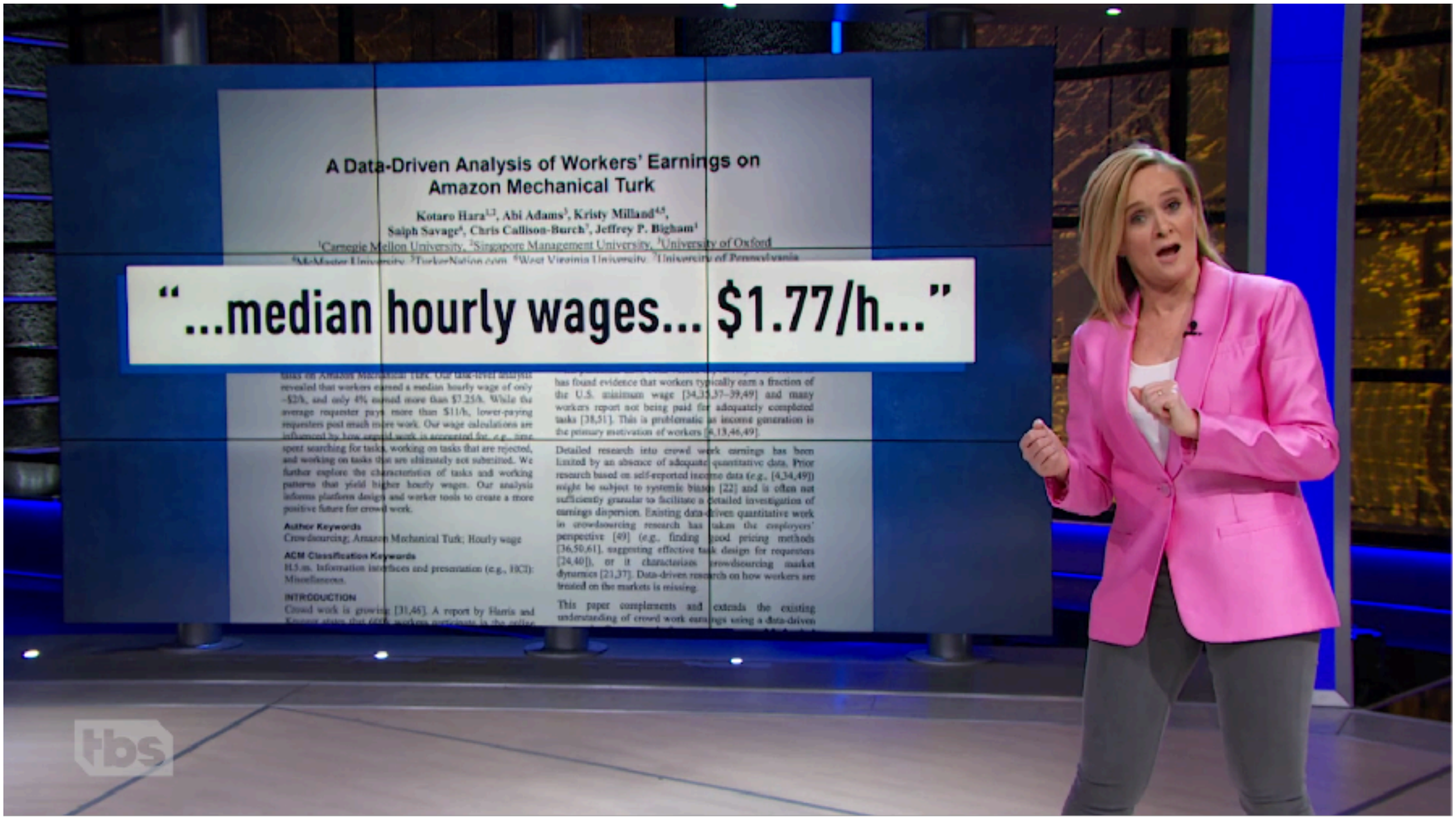
RICO/WestWorld

- (*In the fictional world of WestWorld*) RICO is an app used by individuals to accept short term and illegal work - such as robbing ATMs, kidnapping, and more. Users of the app are alerted to work that they may be qualified for.

Bill Maher on the Sharing Economy

Real Time with Bill Maher: The "Sharing" Economy – August 21, 2015 (HBO)

Samantha Bee on the Gig Economy



America's Gig-Based Economy Gets Zero Stars | Full Frontal - Mar 11, 2020

A Data-Driven Analysis of Workers' Earnings on Amazon Mechanical Turk

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Saiph Savage[6], Chris Callison-Burch[7], Jeffrey P. Bigham[1]
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ABSTRACT
A growing number of people are working as part of on-line crowd work. Crowd work is often thought to be low wage work. However, we know little about the wage distribution in practice and what causes low/high earnings in this setting. We recorded 2,676 workers performing 3.8 million tasks on Amazon Mechanical Turk. Our task-level analysis revealed that workers earned a median hourly wage of only ~$2/h, and only 4% earned more than $7.25/h. While the average requester pays more than $11/h, lower-paying requesters post much more work. Our wage calculations are influenced by how unpaid work is accounted for, *e.g.*, time spent searching for tasks, working on tasks that are rejected, and working on tasks that are ultimately not submitted. We further explore the characteristics of tasks and working patterns that yield higher hourly wages. Our analysis informs platform design and worker tools to create a more positive future for crowd work.

Author Keywords
Crowdsourcing; Amazon Mechanical Turk; Hourly wage

temporarily out-of-work engineers to work [1,4,39,46,65].

Yet, despite the potential for crowdsourcing platforms to extend the scope of the labor market, many are concerned that workers on crowdsourcing markets are treated unfairly [19,38,39,42,47,59]. Concerns about low earnings on crowd work platforms have been voiced repeatedly. Past research has found evidence that workers typically earn a fraction of the U.S. minimum wage [34,35,37–39,49] and many workers report not being paid for adequately completed tasks [38,51]. This is problematic as income generation is the primary motivation of workers [4,13,46,49].

Detailed research into crowd work earnings has been limited by an absence of adequate quantitative data. Prior research based on self-reported income data (*e.g.,* [4,34,49]) might be subject to systemic biases [22] and is often not sufficiently granular to facilitate a detailed investigation of earnings dispersion. Existing data-driven quantitative work in crowdsourcing research has taken the employers' perspective [49] (*e.g.,* finding good pricing methods [36,50,61], suggesting effective task design for requesters

Reddit manhunt falsely accuses wrong person

- After the Boston Marathon bombing Redditors tried and failed to find the bombers by pouring over photographs
- Sunil Tripathi, a Brown U student who had gone missing was falsely accused
- Why did they fail so badly?

How to put crowdsourcing towards good uses

Use of MTurk-like systems in research

- Participant pool for user studies, polling, cognitive science experiments
- Annotation for machine learning tasks like computer vision or NLP
- Human Computer Interaction: worker pools are hardwired into the UI
- New Programming Languages Concepts
- Study markets themselves for economics research, cost-optimization

Crowdsourcing and the Social Sciences

Social Psychology

From **Buhrmester, Kwang, & Gosling (2011, Perspectives on Psychological Science) Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality, Data?** :

Findings indicate that: (a) MTurk participants are slightly more representative of the U.S. population than are standard Internet samples and are significantly more diverse than typical American college samples; (b) participation is affected by compensation rate and task length but participants can still be recruited rapidly and inexpensively; (c) realistic compensation rates do not affect data quality; and (d) the data obtained are at least as reliable as those obtained via traditional methods.

Economics

From Horton, Rand & Zeckhauser (2010, Experimental Economics) – The Online Laboratory: Conducting Experiments in a Real Labor Market :

Online experiments can be just as valid as laboratory and field experiments, while requiring far less money and time to design and to conduct. We describe the benefits of conducting experiments in onlin labor markets and we replicate three classic experiments.

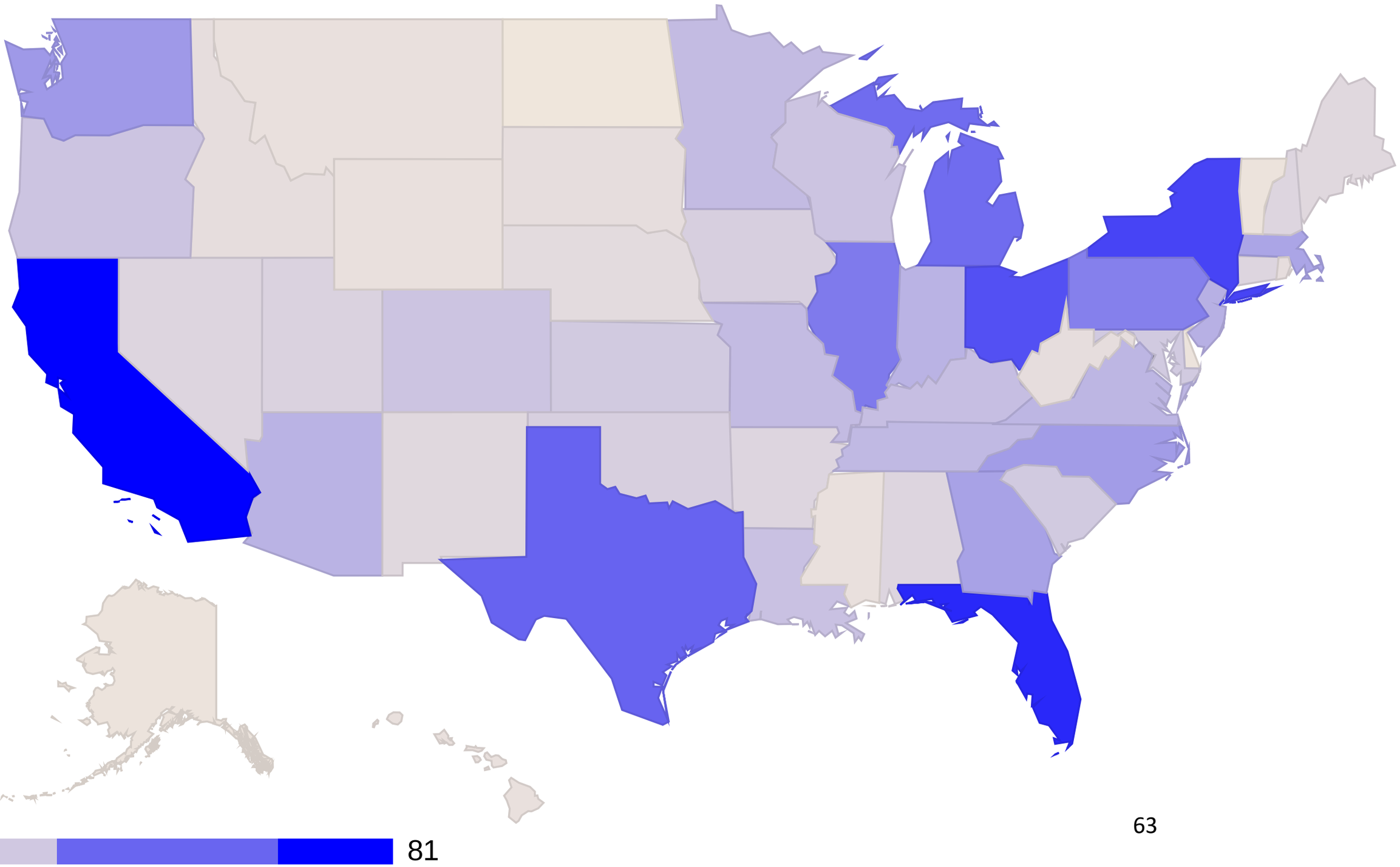
Clinical Psychology **Management/Cognition** **Theoretical Biology**

Examples from Gilad Fili Feldman's blog: http://mgto.org/

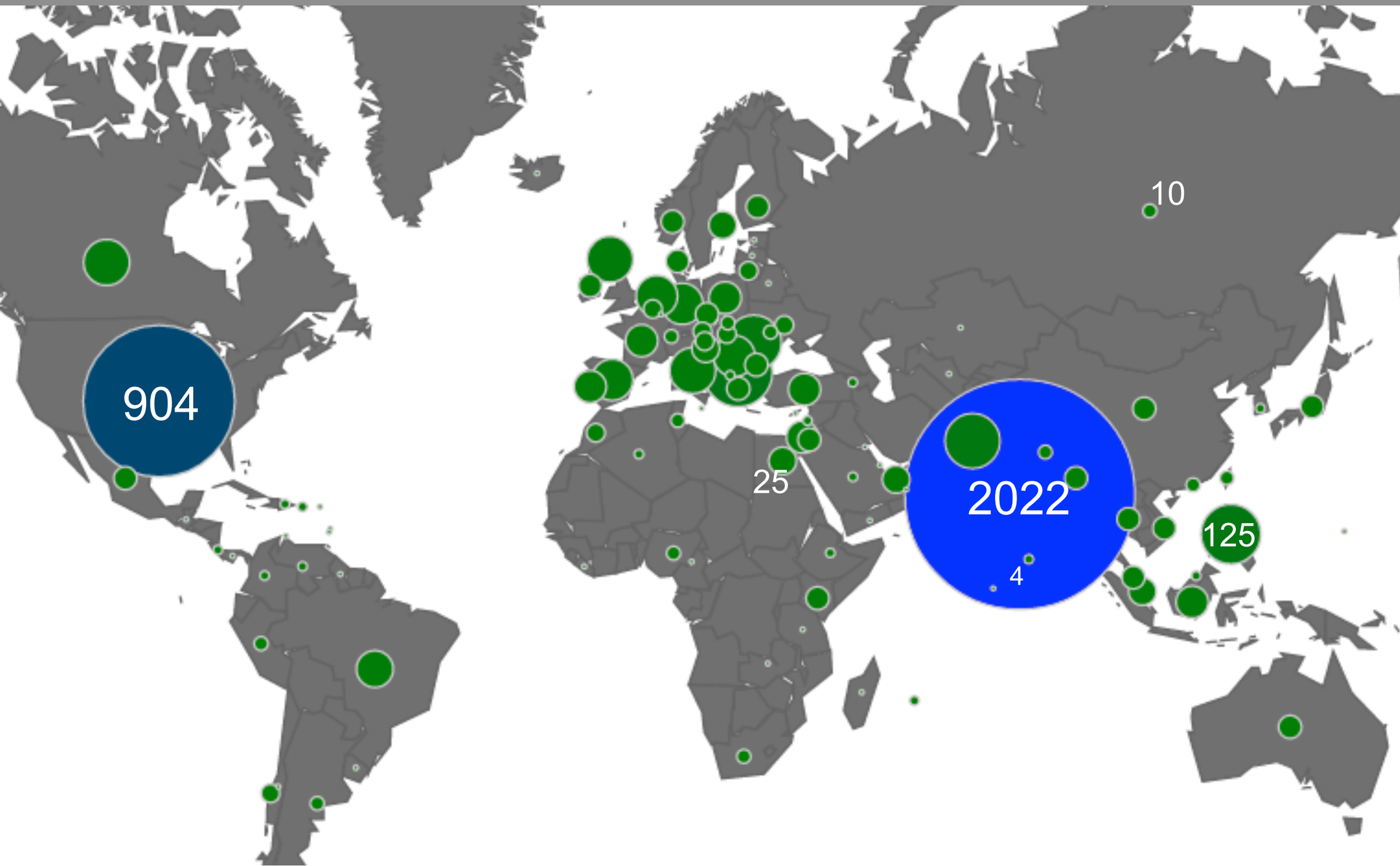
Crowdsourcing and the Social Sciences

ViewSer: Enabling Eye Tracking[lite] at Scale (Agichtein SIGIR 2011, CHI 2011)

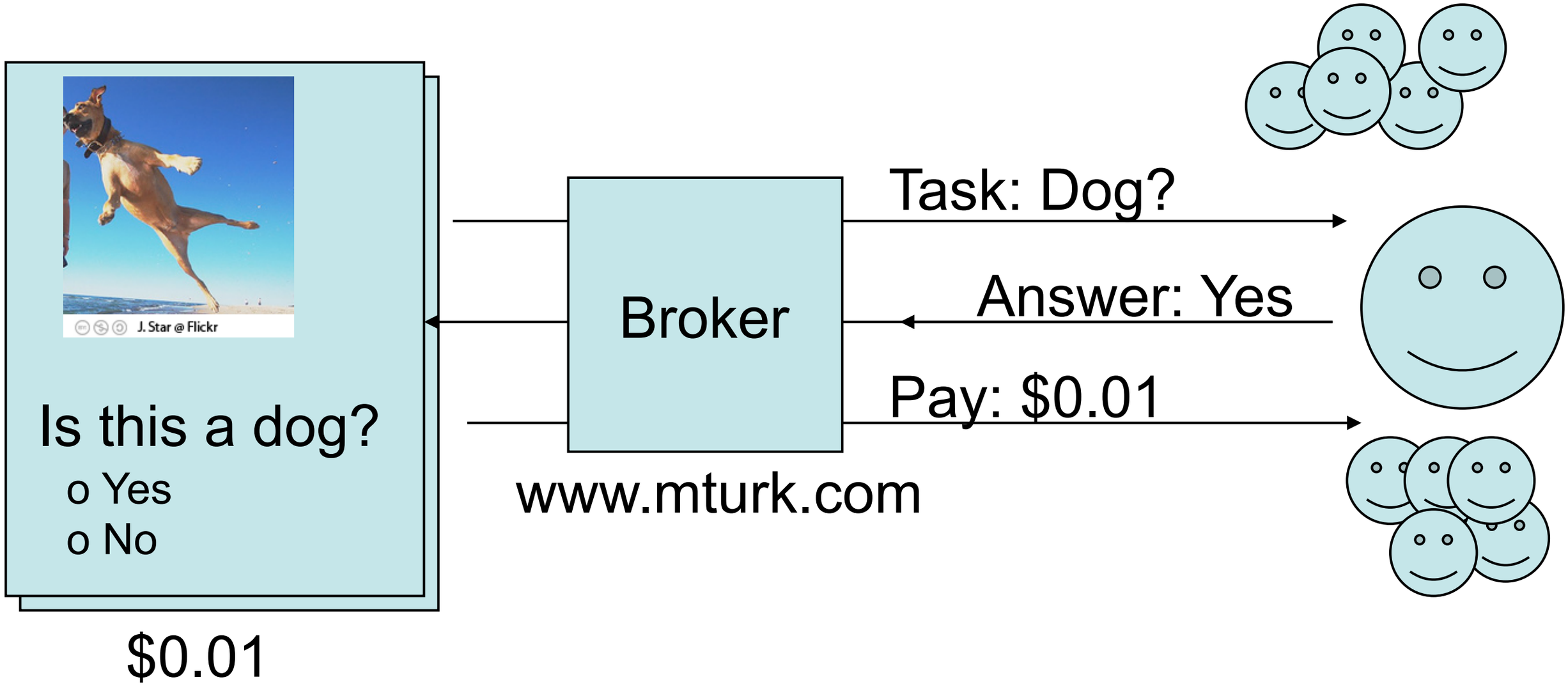
User studies / polling



World wide workforce



Annotation for machine learning / artificial intelligence tasks



“We decided we wanted to do something that was completely historically unprecedented. We’re going to map out the entire world of objects.” The resulting dataset was called ImageNet.

IMAGENET

Moped

Motorbike

Trail Bike

Go-cart

Bicycle

Car, auto

Helicopter

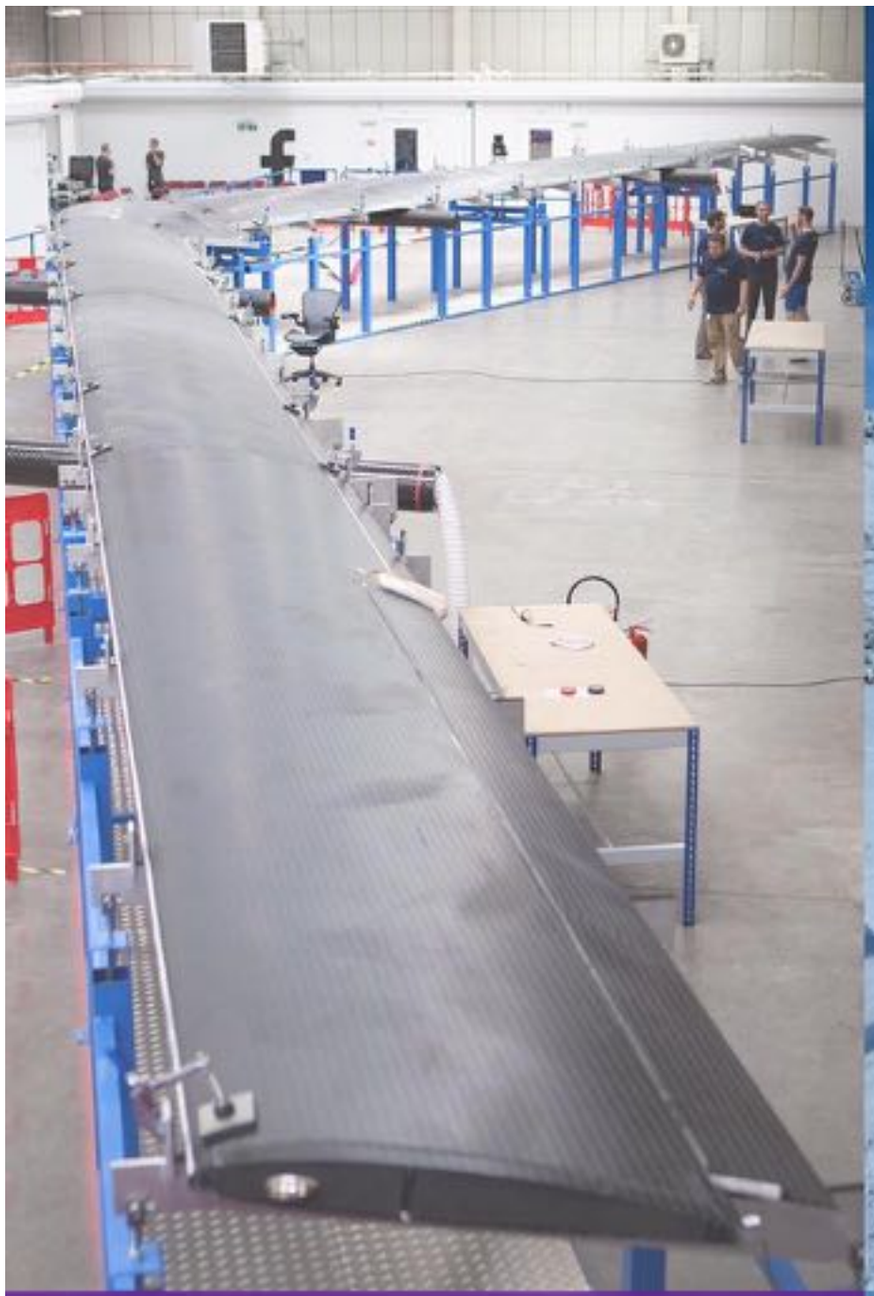
HD
N
rS
lS
rE
lE
rW
rH
lH
lW
rKn
lKn
rA
lA

Mark Zuckerberg

January 6 at 4:23pm · Palo Alto ·

Follow

2016 is a big year for launching the future technology we've been building.



Human Computer Interaction

- VizWiz - best paper award at UIST 2010
- Mobile service that aids bind uses with “visual questions” in near-realtime
- https://www.youtube.com/watch?v=EtfriMJQ0_M

"Double-tap to take a photo."

"Double-tap to begin recording your question and again to stop."

"The first answer is 'The right side,' the second answer is …"

Recording...

Use the microphone button to record a question.

the corn is on the right

The c an all the way to the right.

The right side.

User

"Which can is the corn?"

Local Client

Remote Services and Worker Interface

Database -

Web Server -

Speech Recognition -

Server

quikTurkit

Which can is the corn??

Answer the question:

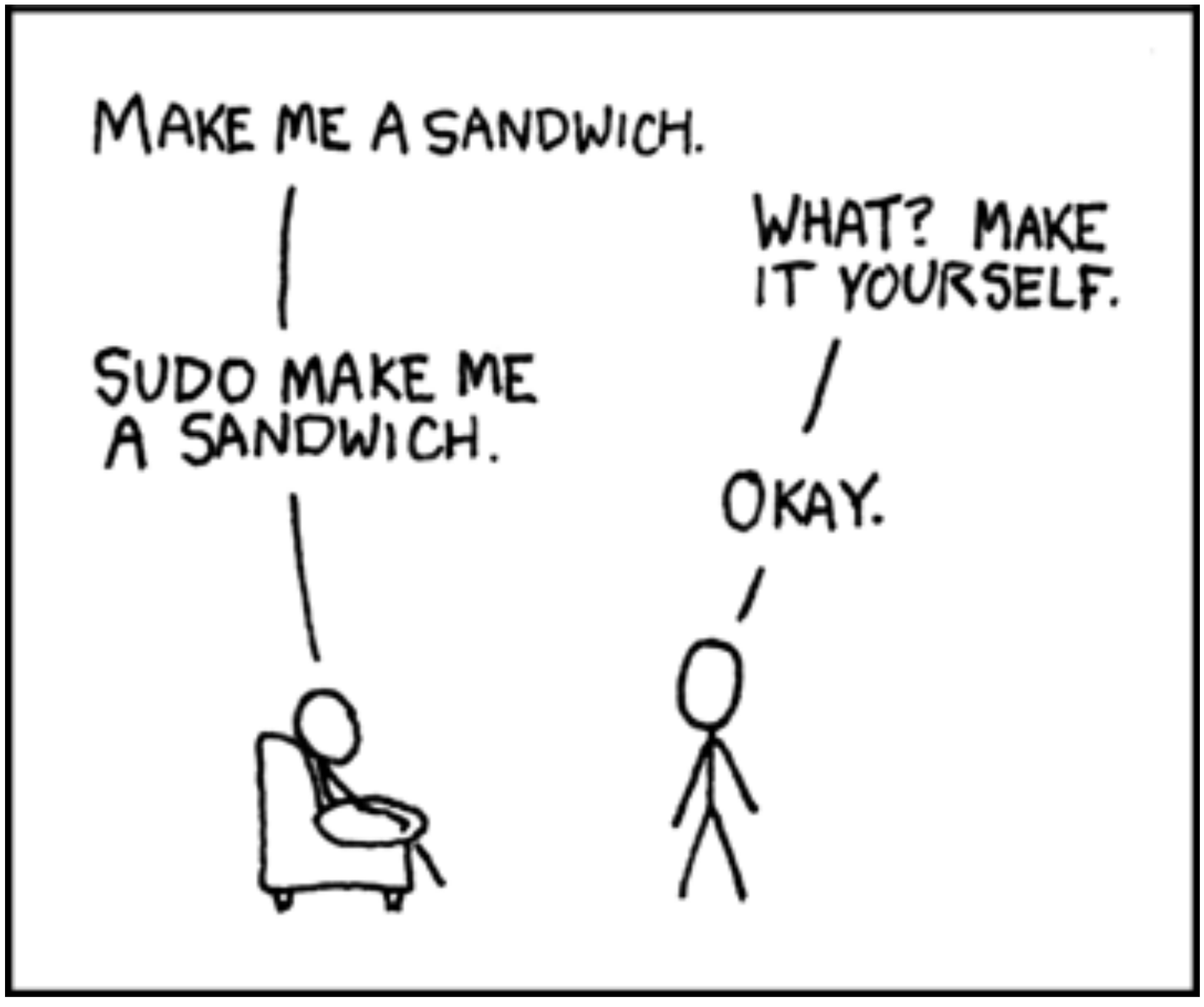
Submit Answer

Unable to answer the question?

Human Computer Interaction

- Soylent - a Word Processor that is made of people http://projects.csail.mit.edu/soylent/
- Uses workers on MTurk to perform several tasks
  - Shortn: reduce the length of a paragraph
  - Crowdproof: proofread and correct errors
  - The human macro: A natural language interface to making changes to a document

New Programming Languages Concepts



New Programming Languages Concepts

```
ideas = []
for (var i = 0; i < 5; i++) {
    idea = mturk.prompt(
        "What's fun to see in New York City?
         Ideas so far: " + ideas.join(", "))
    ideas.push(idea)
}

ideas.sort(function (a, b) {
    v = mturk.vote("Which is better?", [a, b])
    return v == a ? -1 : 1
})
```

New Programming Languages Concepts

- Latency
- Cost
- Parallelization
- Non-determinism
- Iterative improvement

- Please transcribe as many words as you can.
- Put a * in front of words you are unsure about.

If	a	*festival			*two	*me		.	*but		*is

	If		.		*two		If				

*festival		.								*festival	.

Submit

Study Markets Themselves

- What predictions of economics hold true on MTurk?
- What incentives can we give to increase throughput, quality, worker retention?
- What is the cost-optimal solution to a problem?

What will we cover in this class (and should you take it)?

Topics

- Taxonomy of crowdsourcing and human computation
- Crowdsourcing platforms like Mechanical Turk and CrowdFlower
- Programming concepts for human computation
- The economics of crowdsourcing
- Crowdsourcing and machine learning
- Applications to human computer interaction
- Crowdsourcing and social science
- Data mining from Twitter

Who should take this class

- **Students with a tolerance for disorganization**
- Anyone who wants to be on the cutting edge of this new field
- Entrepreneurial students who want to start their own companies
- Students from the business school who want to experiment with markets
    - Wharton students will have to fulfill "Leadership Requirement"
- Students from the social sciences who want to conduct large-scale students with people

Course Requirements

Weekly assignments	Writing and Coding
Video presentations	Company profile, project pitch
Final project	Self-designed, groups of 3-4
Final presentation	Show off your work

How much programming is required?

- Programming assignments are in Python
- We provide code that you modify
- We want everyone to be able to participate, regardless of programming experience
- For most assignments, you can work with a partner (turn in only one assignment - you'll both get the same grade)

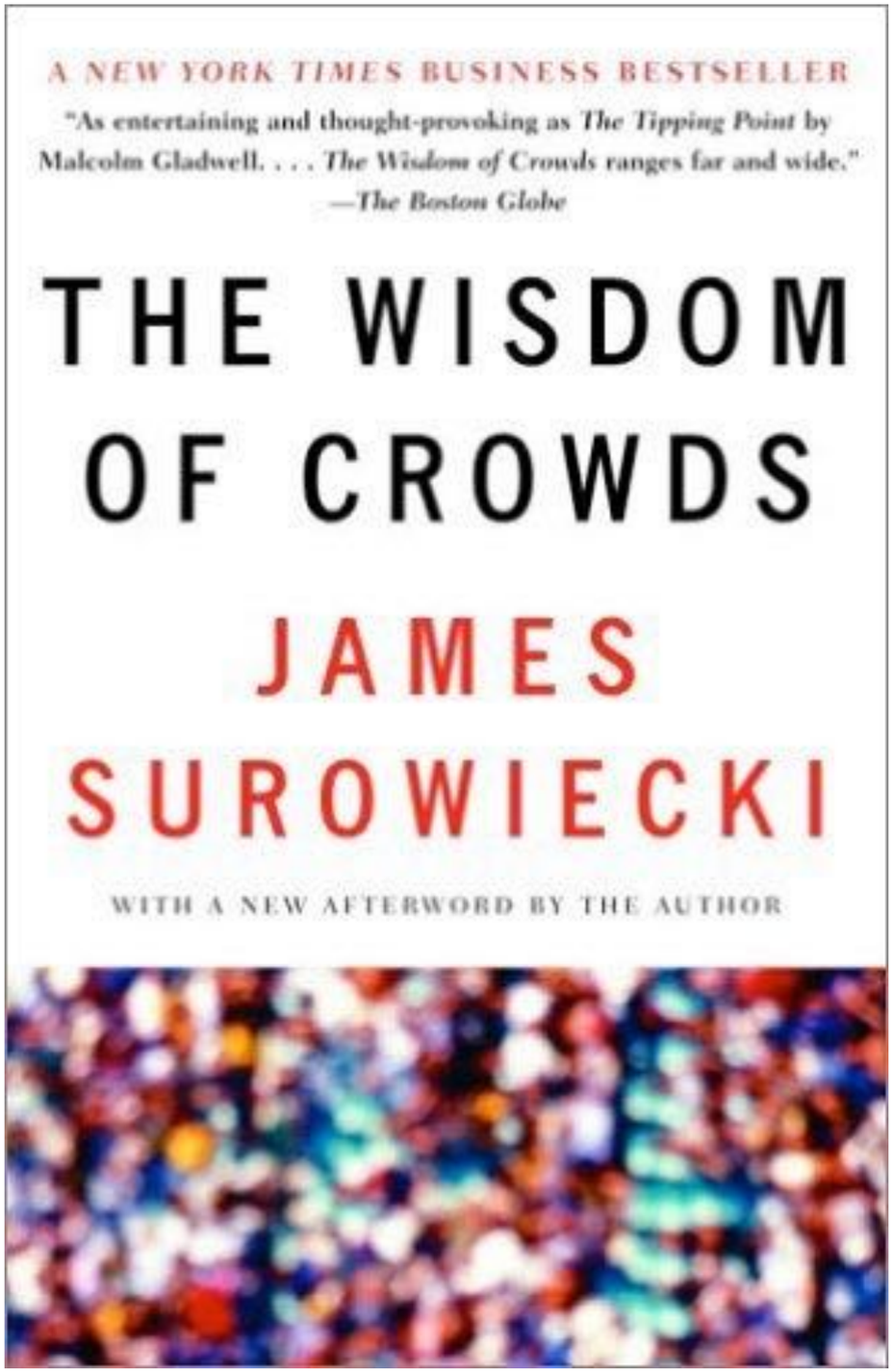
Example programming assignments from Last Year: Twitter sentiment analyzer

- The programming assignments form a sequence
  - Harvest Tweets that mention a company or multiple companies
  - Design a MTurk HIT to have Turkers categorize the sentiment (neutral/+/-)
  - Automatically grade the Turkers and analyze their quality / trustworthiness
  - Train a machine learning classifier based on the data that you collected

Written assignments

- Become a Crowd Worker and analyze your experience
- Write a company profile for a company that uses crowdsourcing
- Analyze the text of the gun violence articles to see if there is a difference between how different types of shootings are described

Reading assignments



We will be using The Wisdom of Crowds as the course reader, and supplementing it with readings from academic papers.

You will have to replicate one academic paper.

Filters

All Challenge Sources

- Premium
- Grand Challenge

All Challenge Disciplines

- Business & Entrepreneurship
- Chemistry
- Computer/Info. Technology
- Engineering/Design
- Food/Agriculture
- Life Sciences
- Math/Statistics
- Physical Sciences
- Requests for Partners

All Pavilions

- AARP Foundation | visit »
- Cleveland Clinic | visit »
- Lumina | visit »
- NASA | visit »
- Nature | visit »
- Scientific American | visit »
- Tec^Edge (Air Force) | visit »
- The Economist | visit »
- UnitedHealth Group | visit »
- Clean Tech | visit »
- Developing Countries | visit »
- Emergency Response | visit »
- Environment | visit »
- Global Health | visit »

InnoCentive Challenges

Save Settings

Show: 50 1 2 3 4 5 .. 13 Next »

You Are Viewing: All

Show Challenge Types: All | Ideation | Theoretical | RTP | eRFP

+	Title	Posted	Deadline	Award	Solvers
	Enabling Local Government to Communicate Compelling Messages TAGS: Business/Entrepreneurship, Computer Science/Information Technology, Food/Agriculture, Math/Statistics, Requests for Partners and Suppliers, Ideation + View More	8/22/13	9/22/13	$7,500 USD	76
	PREMIUM CHALLENGE			Team	Share
	General Method for Determining Interactions between Molecules in a Crystal Lattice TAGS: Chemistry, Computer Science/Information Technology, Physical Sciences, Theoretical-IP Transfer + View More	8/22/13	10/19/13	$15,000 USD	45
	PREMIUM CHALLENGE			Team	Share
	Supporting the EU App Economy – Addressing EU Market Conditions TAGS: Business/Entrepreneurship, Computer Science/Information Technology, Engineering/Design,	8/22/13	9/27/13	$5,000 USD	29

Other Companies

- Platform providers: Amazon Mechanical Turk, oDesk, Crowdflower
- Creativity: Threadless, iStockPhoto, 99Designs, Kickstarter, quirky
- Reviews: Yelp, RottenTomatoes, Netflix, Amazon
- Politics / finance: in-trade, Ushahiti, Kiva
- Marketplace disruptors: Uber, Lyft, AirBnB, Thumbtack

What will you get out of this class?

- Understanding of an emerging field of CS
- Basic python and machine learning skills
- Ideas that you could transform into a startup company or academic research
- A new way of thinking about collective decision making by companies and countries
- Summer internships?
- $10,000?

Sign up to be a Mechanical Turk Worker

Read “Wisdom of Crowds” Intro plus Chapter 1

Amazon Mechanical Turk

- Online marketplace for work
- Turkers = Workers
- Requesters = Employers
- HITs = Human Intelligence Tasks
- Qualification tests
- Approval / rejection / block
- Reputation system

Next week...

- Discuss your experience as a Turker
  - How much money did you make?
  - What was your hourly wage?
  - Did you find tasks that are fun?
- Lecture on Demographics of MTurk and the economics of the MTurk marketplace