

# Crowdsourcing



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# Overview

- Crowdsourcing = Crowd + Outsourcing
  - Incented cooperation
    - Paid tasks
    - Competitions
  - Forced cooperation
  - Volunteer cooperation

# Paid crowdsourcing

amazonmechanical turk  
beta Artificial Intelligence

text

Your Account

HITs

Qualifications

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.

**417,411 HITs** available. [View them now.](#)

**Make Money**  
by working on HITs

**Get Results**  
from Mechanical Turk Workers

CrowdFlower

Why CrowdFlower?

Products

Solutions

Customers

About

Blog

The world's largest enterprise  
crowdsourcing platform.

With access to more than 1.5 Million Contributors worldwide, our technology platform offers quality-assured crowdsourcing at unprecedented scale.

PICK A SOLUTION ▼

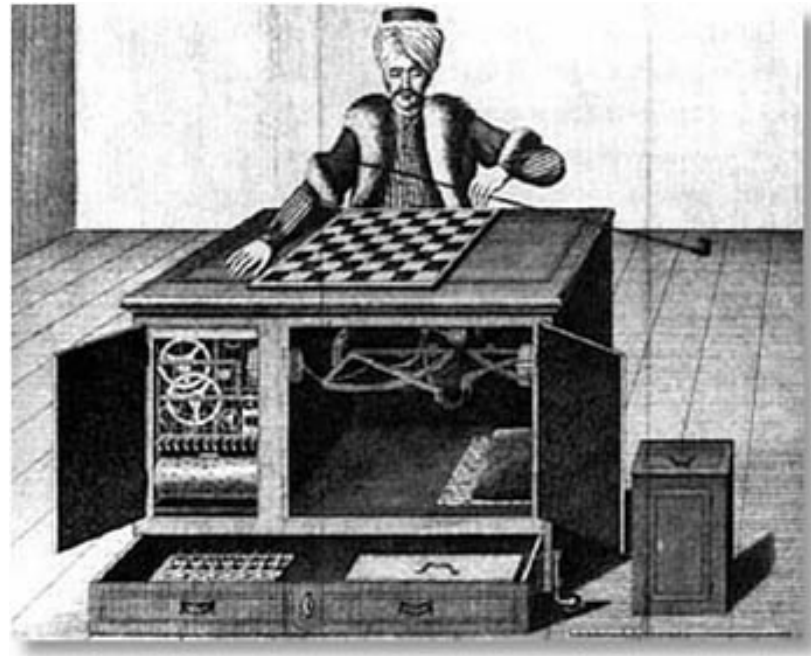


# Amazon Mechanical Turk

- Human Intelligence Task (HIT)
  - Workers and requestors
  - Web-based
    - HTML + JavaScript if hosted entirely on MTurk
  - Price per HIT
  - # of workers per HIT
  - Qualifications for workers
  - Accept/reject work


<http://www.behind-the-enemy-lines.com/2010/03/new-demographics-of-mechanical-turk.html>

[http://waxy.org/2008/11/the\\_faces\\_of\\_mechanical\\_turk/](http://waxy.org/2008/11/the_faces_of_mechanical_turk/)



# Specialty paid markets

**Bold, Playful Logo Design by Goh**



**Bold, Playful Logo Design by Goh**

Absolve Consulting Bt, a company based in Hungary, were looking for a Bold, Playful logo design.

For just \$400, Absolve Consulting Bt received 402 logo designs from 129 designers.


402 Designs    129 Designers    \$400 Paid

View all the Logo Design Contest Entries  
View the Logo Design Brief

Absolve Consulting Bt chose this winning logo design by Goh

Goh is a Logo designer from Indonesia. Goh has submitted Logo designs and has a rating of 95%.

Rating: ★★★★★



**INNOCENTIVE** 1-855-CROWDN

My IC    Products/Services    For Solvers    Challenge Center    Resources    Abc



## Intravenous Sustained Release Drug Delivery Technology

TAGS: Requests for Partners and Suppliers, Chemistry, Nature, Life Sciences, Theoretical-IP Transfer

AWARD: **\$30,000 USD** | DEADLINE: 3/21/15 | ACTIVE SOLVERS: 139 | POSTED: 2/13/15

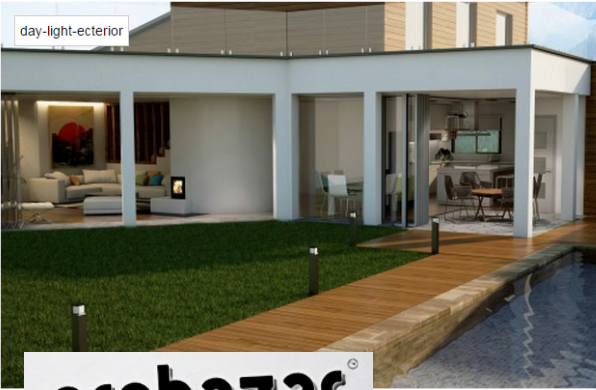
Intravenous delivery allows for the rapid distribution of injected drugs from the veins throughout the entire body. Oftentimes, these drugs are quickly metabolized and excreted resulting in short durations of clinical efficacy. Certain therapies may benefit from a bolus followed by sustained release. The Seeker wishes to identify a technology to sustain the delivery of a human high dose intravenous drug from a single injection administered over a period of 15 to 30 minutes.

BY COMPETITIONS    **BY DESIGNS**

**Modern style family house**  
1st Prize: 3dlook.bg, Bulgaria


Remodeling  
Interior Design  
Residential Design  
Public/Commercial  
Landscape Design

day-light-exterior



Search by keyword

HAVE A PROJECT?  
USE OUR COST  
CALCULATOR




**Preschool TV Theme** Client: NeedaJingle Agency  
Category: TV Programs  
Status: Closed [Winner Awarded]  
License: Perpetuity / Exclusive  
Prize: 1 x \$2,000

Enter Contest

Submissions (8)    Brief    Inspiration    Discussion

Play	#	Title	Artist	Rating	Support	Share
	4	Robot Funk	junglesonic	WINNER	♥ (6)	



# Crowdsourcing for prizes

- 2009 DARPA network challenge
  - Defense Advanced Research Projects Agency
  - 40<sup>th</sup> anniversary of the Internet
  - \$40,000 first team to locate
    - 10 moored, 8 foot, red, weather balloons
    - 10 previously undisclosed locations
  - 4,000 teams competed





# MIT team's strategy

- Multi-level marketing
  - \$2000: whoever sends correct coordinates
  - \$1000: whoever invited them
  - \$500: whoever invited person who invited them
  - \$250: ...
- Mobilizing people requires right incentive
- Georgia Tech
  - Promised to donate proceeds to charity
  - 2<sup>nd</sup> place



# Netflix prize

- \$1M prize
- Predict ratings given past ratings
  - Goal: 10% improvement over Netflix's algorithm
  - Started Oct. 2006, won in Sept. 2009
- Data:
  - Training: 100M ratings, 480K users, 18K movies
    - user, movie, date of grade, grade
  - Quiz set (1.4M), Test set (1.4M)
  - BellKor's Pragmatic Chaos
    - 10.06% improvement



# Forced crowdsourcing



- CAPTCHA

- Completely Automated Public Turing test to tell Computer and Humans Apart
- Challenge response test to prevent bots

- reCAPTCHA

- Originally CMU project, acquired by Google
- Helps digitize books, newspapers, old time radio
- 200 million CAPTCHAs / day



Submit

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# Problems: CAPTCHA

- Accessibility
  - Audio versions
- Defeating CAPTCHA
  - Use vision/machine learning
  - Replay to humans to solve
    - Sweat shop: solve for \$4/day
  - Replay on high volume site



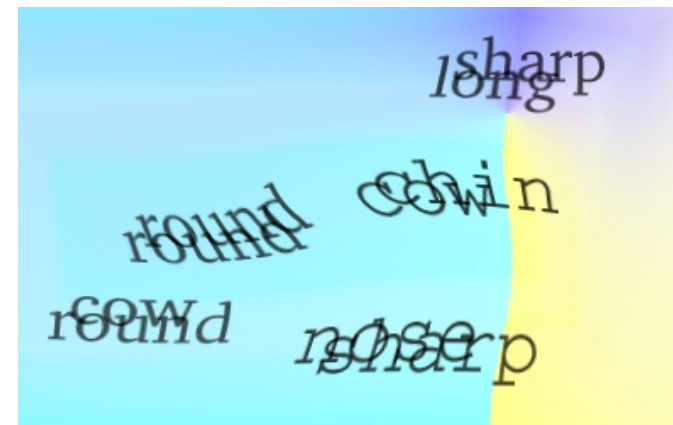
Enter the word as it is shown in the box below.




Not sure what it says? [Try another](#)



Type both words separated by a space



# Volunteer crowdsourcing



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The Free Encyclopedia

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## Wikipedia

From Wikipedia, the free encyclopedia



*For Wikipedia's non-encyclopedic visitor introduction, see [Wikipedia:About](#).*

*For Wikipedia's formal organizational structure, see [Wikipedia:Formal organization](#).*

**Wikipedia** (/wɪˈpiːdiə/ or /wɪˈpiːdiə *WIK-i-PEE-dee-ə*) is a **free**, **collaborative**, **multilingual Internet encyclopedia** supported by the non-profit **Wikimedia Foundation**. Its 20 million articles (**over 3.8 million** in **English** alone) have been written collaboratively by **volunteers** around the world. Almost all of its articles can be

### Wikipedia



## Wiktionary, the **free** dictionary

**3,966,536** entries with English definitions from over **1500** languages

**Browse:** [All languages](#) • [Topical index](#)

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**Look up**

Welcome to the English-language Wiktionary, a collaborative project to produce a free-content multilingual dictionary. It aims to describe all words of all languages using definitions and descriptions in English.



**Word of the day** for February 25

[edit](#), [refresh](#)

**king's ransom** *n*

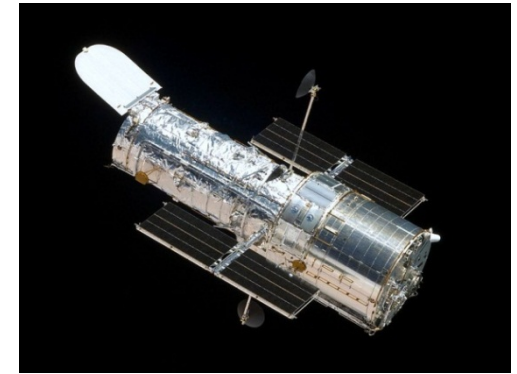
1. (*idiomatic*) A very large sum of money.

- Online astronomy project
  - Citizen science: volunteers classify galaxies
- Original version(2007)
  - Sloan Digital Sky Survey, 1M image galaxies
  - Classify: elliptical/spiral, clockwise/anti-clockwise
    - 24 hours after launch: 70,000 classification/hour
    - 50M classifications/year from 150K people
    - Multiple volunteers = good as professional astronomers



- Galaxy Zoo 2

- 250K brightest galaxies from Galaxy Zoo
- More detailed classification:
  - Shape/intensity, oddities
- 60M classifications



- Galaxy Zoo Hubble

- Images from NASA Hubble telescope
- Many more questions
  - Is it smooth with no sign of a disk?
  - How rounded is it?
  - Could this be a disk viewed edge-on?



# Crowdsourced games

- ESP game

- Pairs of players try and guess same word for image
- “Labeling Images with a Computer Game”
  - Luis von Ahn and Laura Dabbish, CHI 2004



Player 1 guesses: purse  
Player 1 guesses: bag  
Player 1 guesses: brown

Success! Agreement on “purse”



Player 2 guesses: handbag

Player 2 guesses: purse  
Success! Agreement on “purse”

**Figure 1. Partners agreeing on an image. Neither of them can see the other’s guesses.**



**Figure 2. The ESP Game. Players try to “agree” on as many images as they can in 2.5 minutes. The thermometer at the bottom measures how many images partners have agreed on.**

# Crowdsourced games

- Foldit
- EteRNA



– Games related to folding of RNA molecules

Shake sidechains to improve the protein.  
Hotkey: S

Shake Sidechains Wiggle Backbone Clear Locks and Bands Reset Puzzle Mouse Help

▲ Actions ▶ History ▶ View ▶ File

Rank: 17 Score: 9092  
48: Pro Peptide

▼ Group Competition

#	Group Name	Score
1	The Lone Folder	9388
2	Street Smarts	9367
3	Illinois	9303
4	Berkeley	9255

▼ Player Competition

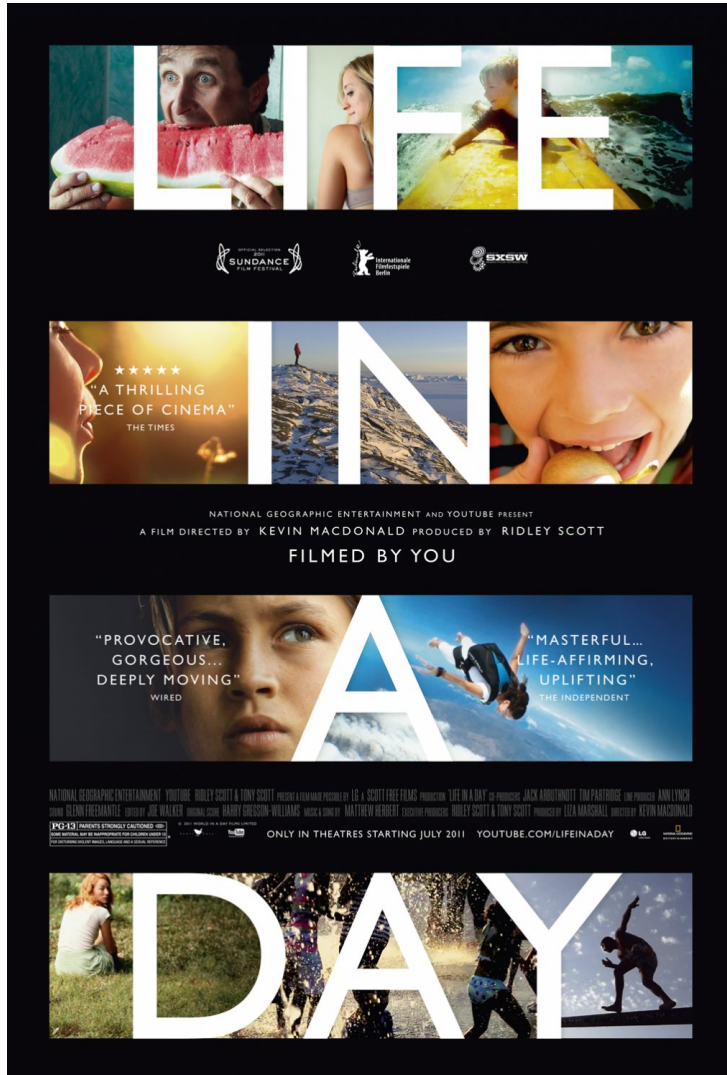
16	psen	-	9098
17	kathleen	9092	9092
18	versat82	-	9091
19	darktorres	-	9081
20	ccarrico	9032	9066
21	mbjorkegren	-	9048
22	sslickerson	-	9038

▶ Chat

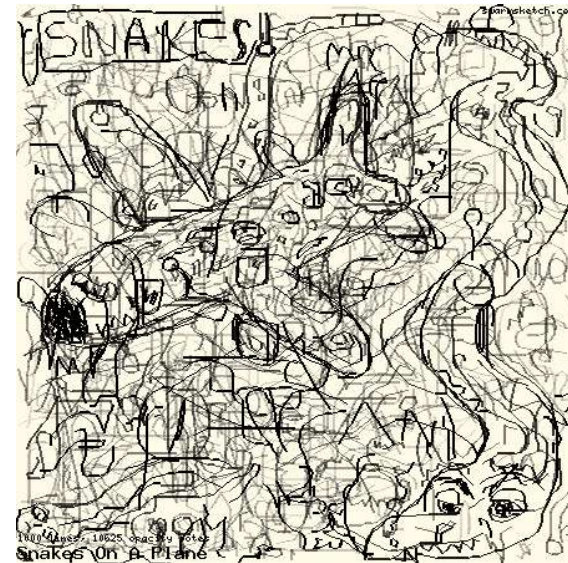
Pull Tool



# Crowdsourcing art



[https://www.youtube.com/watch?v=JaFVr\\_cJJIY](https://www.youtube.com/watch?v=JaFVr_cJJIY)



<http://swarmsketch.com/view/snakes-on-a-plane>



<http://www.thejohnnycashproject.com/>