Steve has posted extra audio office hours
(T 4-5pm for Maneesh; W 1-2pm; F 10:30-11:30am)

Section this week: Preparing for presentations, posters and demos (templates online, submit by Monday)

May 7, 2-5pm:
  90mins presentations (3 mins per team!)
  90 mins posters+demos
  open to public
  Judges recruited will judge best project, best visual design, most creative use of sound.
ADMINISTRIVIA

Next Monday: Practice Talks with instant feedback
Presentation order is on the wiki.
CROWDS OF PEOPLE, COMPUTING
Francis Galton
If you guess the right number of jellybeans, you may win a prize.
Requirements for “Wise” Crowds

Diversity of Opinion
Independence
Decentralization
Aggregation
NASA Clickworkers (2000)

Instructions: Click on four points around the crater. Show the craters I’ve marked.

Select which one of the following three classes (Fresh crater, Degraded crater, “Ghost” crater) best describes that crater. Then press Send when ready.

- **Fresh crater**
  
  Displays a sharp rim, distinctive ejecta blanket, and well-preserved interior features (if any). Central peaks (point or areolar features) are still present.

- **Degraded crater**
  
  Surrounding ejecta blanket is gone. Interior features are largely or totally obscured. Rim is rounded or eroded.

- **“Ghost” crater**
  
  Creater is barely visible through overlaying processes.
New forms of information production:

Micro-task markets
Communitysourcing
Innovation Tournaments
(Winner-takes-all competitions)
Dimensions

Free or paid?
Friends, community or strangers?
Anyone (worldwide) or experts only?
Work product open or closed?
Simple or complex tasks?
MICROTASK MARKETS
<table>
<thead>
<tr>
<th>Requester</th>
<th>HIT Expiration Date</th>
<th>Reward</th>
<th>HITs Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dolores Labs</td>
<td>Jan 31, 2011 (6 days 23 hours)</td>
<td>$0.02</td>
<td>9763</td>
</tr>
<tr>
<td>Oscar Smith</td>
<td>Jan 24, 2011 (1 hour 59 minutes)</td>
<td>$0.02</td>
<td>77</td>
</tr>
<tr>
<td>Oscar Smith</td>
<td>Jan 24, 2011 (1 hour 59 minutes)</td>
<td>$0.02</td>
<td>34</td>
</tr>
<tr>
<td>nimrod shoam</td>
<td>Jan 27, 2011 (2 days 23 hours)</td>
<td>$0.10</td>
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</tr>
<tr>
<td>Andy Guy</td>
<td>Feb 3, 2011 (1 week 2 days)</td>
<td>$2.10</td>
<td>1</td>
</tr>
<tr>
<td>techlist</td>
<td>Jan 24, 2011 (2 hours 45 minutes)</td>
<td>$0.01</td>
<td></td>
</tr>
</tbody>
</table>
Search for Steve Fosset (2007)
Business Cards Solved

step 1
point & capture

step 2
real people

step 3
contact done

GET STARTED

Simple
Accurate
Reliable
CashAudit Event Report For Store #2438

ReTel
July 19, 2010
Generated by ReTel Technologies

CashAudit Alert!

Date/Time: July 18, 2010 at 11:44 PM
ALERT: Cash On Counter (Code 3)
View Video

Date/Time: July 18, 2010 at 11:46 PM
ALERT: Cash Not Put In POS (Code 4)
View Video

This email automatically generated by ReTel Technologies and sent to mgr_2438@__________.com
To change your email settings and distribution lists, please click here.
1. You send Samasource a project.
2. Samasource breaks it down into microwork.
3. Work is allocated to our service partners.
4. Women, youth, and refugees complete work.
5. Samasource compiles work and assures quality.
6. Your project gets delivered and helps reduce poverty.

Samasource.org
Microtask Markets

Examples: Mechanical Turk, Crowdflower…

Recruit from large pool of unskilled workers

Safety in numbers: issue multiple assignments, aggregate the responses

$1 + 1 = ?$

$2 + 2 + 1 = 2$
Microtask Market Benefits

**Pros:**
- High Task Volume
- Quick Responses
- Support for Small Tasks

**Cons...**
Microtask Market Drawbacks

Lack of expert workers
(experts have full-time jobs)
Hard ceiling on knowledge tasks?

\[ e^{\pi} = \ ? \]
Uses of MTurk-like systems in research

- Participant pool for user studies, experiments
- Source of annotations for computer vision and NLP
- HCI: worker pools hardwired into UIs
- Research in crowd programming models, systems
- Task markets as subjects of study: Economics, demographics
VizWiz

Mobile service that aids blind users with “visual questions” in near-realtime

http://www.cs.rochester.edu/u/jbigham/vizwiz/video/
VizWiz:
Nearly Realtime Answers
to Visual Questions
“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 …”

User

“Which can is the corn?”

Local Client
Remote Services and Worker Interface

Database - Web Server - Speech Recognition - Server

quikTurkit
Humans Helping Robots See

Alex Sorokin, Willow Garage

http://www.youtube.com/watch?v=M0c3OMNYjWM
• Please transcribe as many words as you can.
• Put a * in front of words you are unsure about.

Iteration 4: TV is* *festival ____ was *two *me ____ , *but ____ *is ____ ____ TV ____ . I *two ____ tv ____ ____ ____ *festival , ____ I ________ is* ____ it ____ *festival .

Iteration 6: TV is supposed to be bad for you , but I ____ watching some TV *shows . I think some TV shows are *really *advertising , and I ____ ____ is good for the ____

Iteration 12: TV is supposed to be bad for you , but I am watching some TV shows . I think some TV shows are really entertaining , and I think it is good to be entertained .
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
})
TurKit - Crash and Rerun

Assumption: local computation is cheap & fast; Mturk calls are expensive & slow

Memoize Mturk call results across executions

Crash script on any long-latency Mturk call that has not yet completed; automatically or manually rerun

Benefits:
iterative programming
retroactive print-line debugging
## What's the craziest thing your cat has ever done?

<table>
<thead>
<tr>
<th>Requester</th>
<th>Bjoern Hartmann</th>
<th>Assignments Pending Review:</th>
<th>0</th>
</tr>
</thead>
<tbody>
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<td>HIT Expiration Date:</td>
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<tr>
<td>Reward:</td>
<td>$0.08</td>
<td>Remaining Assignments:</td>
<td>0</td>
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<tr>
<td>Assignments Requested:</td>
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<td>Remaining Time:</td>
<td>Expired</td>
</tr>
</tbody>
</table>

## Sketch a cat

<table>
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<th>Bjoern Hartmann</th>
<th>Assignments Pending Review:</th>
<th>0</th>
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<td>Reviewed Assignments:</td>
<td>50 Download</td>
</tr>
<tr>
<td>Reward:</td>
<td>$0.05</td>
<td>Remaining Assignments:</td>
<td>0</td>
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<tr>
<td>Assignments Requested:</td>
<td>50</td>
<td>Remaining Time:</td>
<td>Expired</td>
</tr>
</tbody>
</table>
Amazing but True Cat Stories

by Folks on the Internet
My cat has only one eye and he can open anything. He is a master at un-doing the lid to his cat food container. Anything that screws on or latches he can get open. I have tried every kind of container and within 1 day he has figured out. He can open any door. He loves to open the refrigerator and let the dog eat all she wants. He has even opened the front door for a visitor and they were shocked when the door opened and he was the only one sitting there. He can open the sliding door and any cabinet he feels the need to open.
Freelancing

Examples: Elance, oDesk…
Hire the best applicant (as judged by you)

How much graphic design experience do you have?
Your to-do's, done.
Find safe, reliable help in your neighborhood.

Email Address  Zip Code
Join for free

Outsource household errands and skilled tasks; rejoice as your to-do list disappears.

Discover opportunities to make money while helping out your neighbors.

Find candidates to staff your company's long-term and short-term projects.

Post a task  Become a TaskRabbit  Get quality candidates
COMMUNITY SOURCING
Morris, M.R., Teevan, J., and Panovich, K.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Votes</th>
<th>Answers</th>
<th>Views</th>
<th>Title</th>
<th>Tags</th>
<th>Score</th>
<th>User</th>
<th>Submitted</th>
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<tr>
<td>1</td>
<td>0</td>
<td>2</td>
<td>26</td>
<td>Help with Javascript to C# converter</td>
<td>c# javascript converter</td>
<td>6,893</td>
<td>griege</td>
<td>13m ago</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td>6</td>
<td>76</td>
<td>How to comment/uncomment in HTML code</td>
<td>html coding-style coding comment</td>
<td>1</td>
<td>Jeff Knecht</td>
<td>19m ago</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
<td>45</td>
<td>Contents of a static library</td>
<td>c++ c library gcc</td>
<td>61.3k</td>
<td>Jonathan Leffler</td>
<td>40m ago</td>
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<tr>
<td>4</td>
<td>1</td>
<td>2</td>
<td>24</td>
<td>Most Efficient way to 'look up' Keywords</td>
<td>c++ search efficiency lexer</td>
<td>3,567</td>
<td>ergosys</td>
<td>2m ago</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>3</td>
<td>11</td>
<td>unknown css effects in moz and webkit</td>
<td>css webkit effects tips-and-tricks mozilla</td>
<td>6,317</td>
<td>Pandiya Chendur</td>
<td>2m ago</td>
</tr>
</tbody>
</table>
Principles of Community Sourcing

Coherent sub-group may have more expertise and different motivations for certain tasks.
May go beyond what’s possible with paid crowdsourcing, but community incentives are key.
Examples: Friends on social networks, students in your major, people with the same hobby, etc.
Physical Community Sourcing

I Bring the crowdsourcing to the crowd
Place a work kiosk where communities of these experts congregate and have free time
Physical Community Sourcing

1. Bring the crowdsourcing to the crowd
2. Pay them in what they value

Provide rewards that fit the users and their context, not just small change
Task: Grade CS Exams

Community: Computer Science students
Task: Grade CS Exams

Community: Computer Science students

Location: Outside Main CS lecture hall
Task: Grade CS Exams

Community:
Computer Science students

Location:
Outside Main CS lecture hall

Reward:
(Unhealthy) Food.
Row-Column Matrix of Vend Motors

Touch Screen (DisplayLink over USB)

Card Reader (USB)

Motor Ctrl

Arduino

Laptop
The following program compiles. What does the main program (in D) print?

class A {
    int z = 2;
    void f() { this.g(); }
    void g() { System.out.println('A: %d\n', z); }
    int h() { return z; }
}

class B extends A {
    int z = 15;
    void g() { System.out.println('h: %d\n', z); }
}

A: 2
A: 2
h: 2 z: 15
h: 2 z: 15

Grading Slider

Answer Key

Student Answer

A: 2
A: 2
h: 2 z: 15
h: 2 z: 15

Submit
Rewards (in Umati credits)

10 – Small granola bar
20 – Normal candy
30 – Energy bar
1 Week
300+ Unique Users
7500+ Answers Graded

$200 of Candy
Results

![Graph showing agreement with experts across different numbers of raters.

- Experts
- Umati
- Turk
- Turk w/Spam Filtering

The graph demonstrates the percentage agreement with experts as the number of raters increases. Agreement with experts is highest for Experts, followed by Turk w/Spam Filtering, Turk, and Umati, respectively. As the number of raters increases, the agreement with experts generally increases for all categories, with Experts showing a consistently high agreement rate.
Results

78.3%
Results

![Graph showing agreement with experts over the number of raters.](image)

Agreement with Experts

- Experts: 78.3%
- Turk: 78.9%

Number of Raters
The Johnny Cash Project

http://vimeo.com/15416762
INNOVATION TOURNAMENTS
Innovation Contests

Examples: 99Designs, InnoCentive, TopCoder…
Ask a set of experts a question
Take the best response (as judged by you)

Design a new logo.
Craft Brewery Start-up Needs Your Help!!

Entries

most recent list
Top entries

Design brief

Organization name
ExCAPE

Description of business
The goal of ExCAPE is to transform the way programmers develop software by advancing the theory and practice of software synthesis. In the proposed paradigm, a programmer can express insights through a variety of forms such as incomplete programs, example behaviors, and high-level requirements, and the synthesis tool generates the implementation relying on powerful analysis algorithms and programmer collaboration. The ExCAPE plan is to produce a range of design tools that let end users program robots by demonstrating example behaviors, and that provide smart assistance for expert programmers to meet challenges in multicore programming.

Organization industry
Technology

Description
None specified

Further requirements
https://excape.cis.upenn.edu/

Read full brief

<table>
<thead>
<tr>
<th>Idea Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>App-enabled Submarine toy</td>
<td>A submarine toy which is controlled by app and has a camera which sends videos from underwater to smartphone.</td>
</tr>
<tr>
<td>Smarter Aros, sleepconditioner</td>
<td>By monitoring your sleep cycle, smarter Aros turns your AC on just when you need during a hot summer night!</td>
</tr>
<tr>
<td>Pet Door for Sliding Doors</td>
<td>Install easily to any sliding door. Portable or install permanently. No tools needed. Control Remotely.</td>
</tr>
<tr>
<td>&quot;RADIO SHACK&quot; INVENT CHALLENGE</td>
<td>&quot;KIDS CARTOON CAMERA&quot; Real camera for kids that automatically turns the photos they take into a cartoon image.</td>
</tr>
<tr>
<td>SinglePet, Smart Remote PetCare</td>
<td>Stay in touch with your pet &amp; control feeding through our app-enabled SinglePet, anytime anywhere!</td>
</tr>
<tr>
<td>HITCHHIKER ... 3RD WHEEL!</td>
<td>HITCHHIKER 3RD WHEEL is a FOOT STAND with HANDLEBAR. Change into SEAT-FOOTREST. Add On CUSTOM.</td>
</tr>
<tr>
<td>Hide &amp; Seek Bands #RadioShack</td>
<td>Bring A Modern Twist To A Classic Game! (See Designs &amp; Diagrams For Details)</td>
</tr>
<tr>
<td>Kid's Klock</td>
<td>Nimbus inspired. Parent controlled. Kid's get realtime feedback on daily activities. Set goals and rewards.</td>
</tr>
<tr>
<td>THE POWER CLIP</td>
<td>Clip power everywhere. Fun, nice, easy. New try.</td>
</tr>
</tbody>
</table>
Innovation Contests

**Pros:**
Expert, high quality work
Supports large, complex tasks

**Cons:**
Short tasks don’t work
Low volume
The role(s) of HCI in Crowdsourcing

Create appropriate user interfaces for participants

Create novel ways of structuring interactions so crowds produce useful knowledge or work (workflow design)
The Dark Side of Crowdsourcing
(after J. Zittrain)

Surveillance
Alienation & Deskilling
Moral Valence
Race to the Bottom

We should be careful to create a world we actually want to live in. (Stu Card)
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 [...] 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.
Virtual Stake Outs - Live Border Cameras

Camera 1
This is a known drug traffic area. If you see people crossing from the left to right over these tracks please report this activity.

Camera 2
This area is known of illegal drug activity. If you see people moving in this area please report activity.

Camera 3
This area is a high crime area. If you see suspicious activity in this area please report. When focused on the river, please report subjects crossing via raft or swimming. If focused on land, look for subjects on foot moving towards right and may approach a vehicle parked along this area please report it immediately.

Camera 4
If you see people along river and or subjects in the water please report this activity. If camera focused on land you are looking for individuals in the thick
Should Reddit Be Blamed for the Spreading of a Smear?

When a picture of Sunil Tripathi (right) was posted on Reddit alongside an image of Suspect No. 2 in the aftermath of the Boston Marathon bombings, it fueled speculation that they were the same person.

By JAY CASPIAN KANG
Published: July 25, 2013 | 123 Comments

On an overcast day in early May, I traveled to suburban Philadelphia to visit the family of Sunil Tripathi, the deceased 22-year-old Brown University student who, for about four hours on the morning of April 19, was mistakenly identified as Suspect No. 2 in the Boston Marathon bombings. The Tripathis had just arrived home after nearly two months spent in Providence, R.I., where they went to organize the search for Sunil, who disappeared on March 16. When I entered the house, Judy Tripathi, Sunil’s mother, asked me for a hug. In a shattered voice, she said, “I need hugs these days.” We sat at the kitchen table and talked, and at one point Judy handed me a photo of a young, smiling Sunil, caught in the motion of throwing a ball. “Look how happy he looks,” she said. For the next two hours, she and her husband, Akhil, and their daughter, Sangeeta, described what happened to them in the early-morning hours of April 19, and how the false identification of their son derailed their ongoing search for him and further traumatized their lives.
Mechanical Serfdom Is Just That
I spent a day crowdsourcing for Amazon's Mechanical Turk and all I have to show for eight hours in an online work marketplace is a measly $4.38

By Rachael King

It's 8 a.m. on a Saturday morning and I'm ready to make some money. The coffee's kicking in and I've logged on to Amazon.com's (AMZN) Mechanical Turk. It's an online marketplace that matches workers with employers willing to pay on a per-piece basis for such tasks as verifying addresses, transcribing interviews, and translating text.

I'm no stranger to grunt work. I worked my way through college. Early in my subsequent career, I held stints as an editorial assistant—which meant a lot of typing, photocopying, and schlepping lattes for editors in exchange for the occasional byline.
Cal students as workers on Mturk:

“This was so much worse than I had anticipated”
“Doing MTurk full time sounds soul-sucking in the worst way”
“it's brutal to sit and do a lot of these tasks at once.”
“I was amazed at how much work I had to do for so little money.”
“much more time consuming than I would have thought”
“most HITs had confusing directions”
“I found many spam and advertisement HITs”
“it's destined to be swept away by competing systems or private clouds”
“I invested a good deal of time here, and I'd be upset if I weren't compensated.”
Crowdsourcing is quickly becoming an important area for Human-Computer Interaction. There are different types of crowdsourcing, with different incentives and worker pools – each needs unique interfaces. HCI researchers work both on the visible user interfaces and on algorithms behind crowd-powered interfaces.