Purdue Fall 2018

CS59000-CSC: Crowdsourcing and Social Computing

http://mingyin.org/CS590/Fall2018/index.html

Class 4: Requesters in Crowdsourcing Markets

2018.8.29

Ming Yin

Administrative Notes

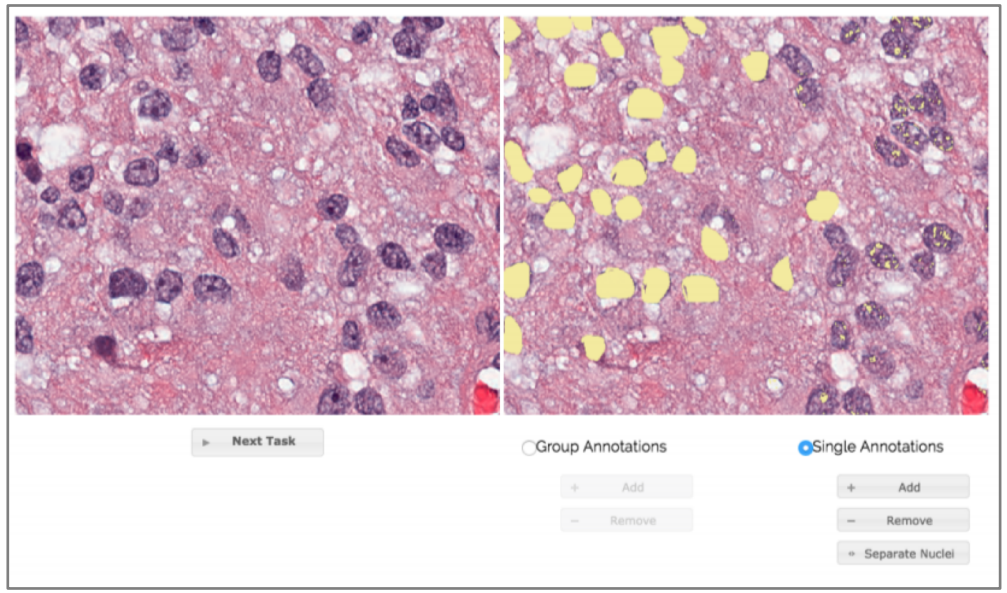
- Pick presentation topics: https://doodle.com/poll/qmbfnp8e2pmr5dw8
  - Please indicate **2 topics** you are interested in presenting
  - Topics will be assigned in a first-come, first-served manner (so sign up to topics that you are interested in presenting as early as possible!)
  - **Due 11:59pm, Aug 31**

- Assignment 2 is out! Check the course website for it
  - Due time is 11:59pm, Sep 14.

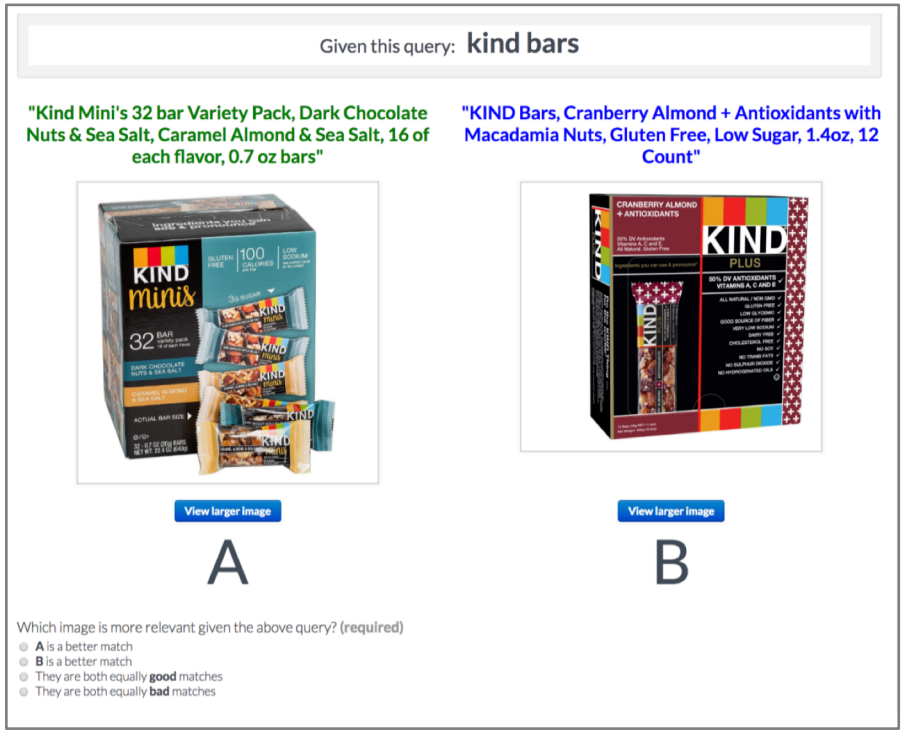
Be an MTurk Requester

- Publish a HIT using a template
- Publish a HIT using API

Brief Intro to Experimental Design



Zoom in / out?

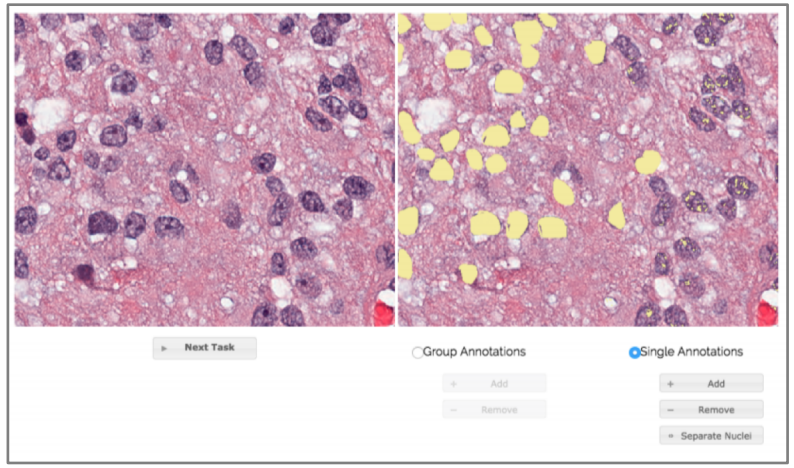


Links to product detail?

Hypothesis: Including a magnifier in the task improves worker's accuracy in annotating the nucleus of cells.

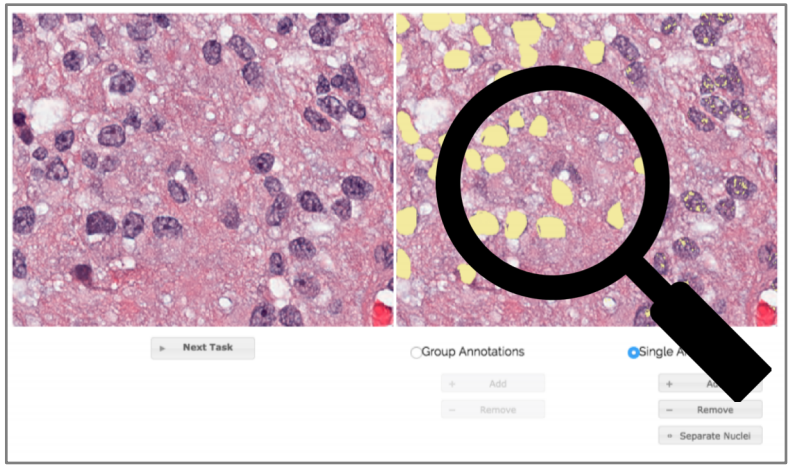
How to Test the Effect of an Design Element?

Day 1



$0.25

Day 2



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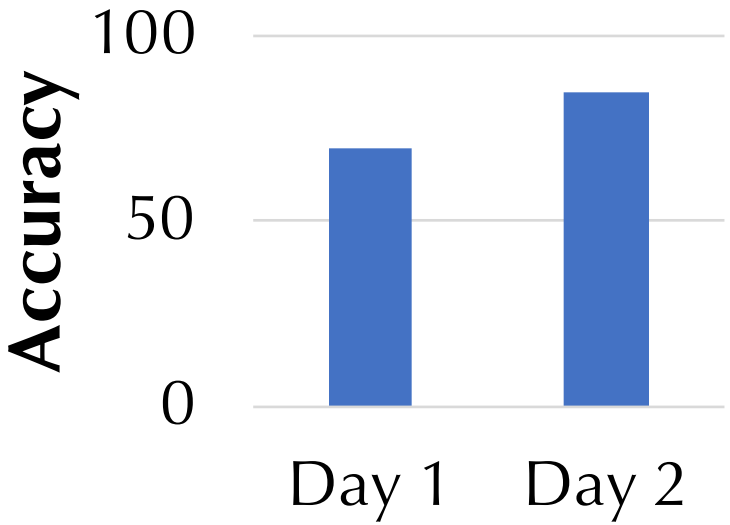

Is this the right way to infer the effect of the magnifier?

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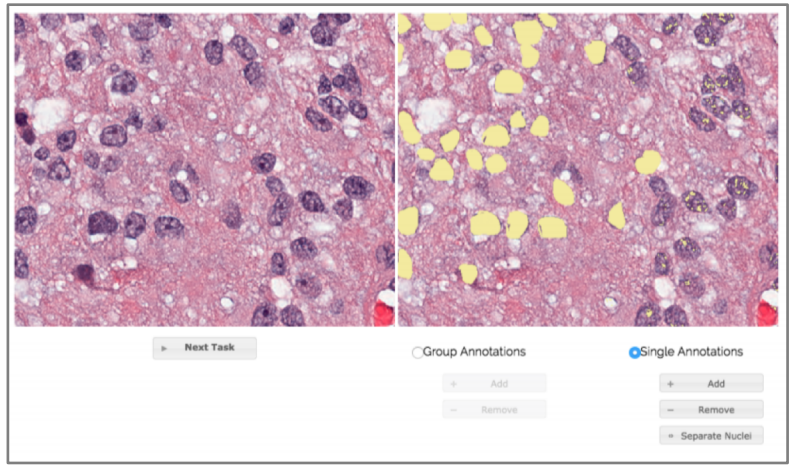

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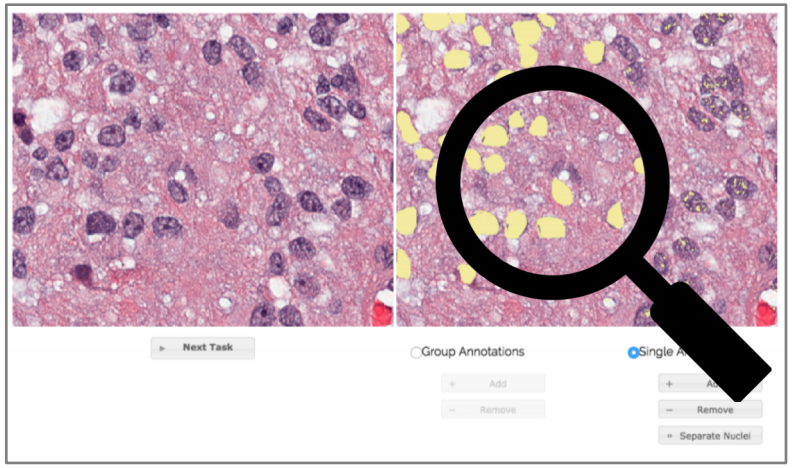
Day 2



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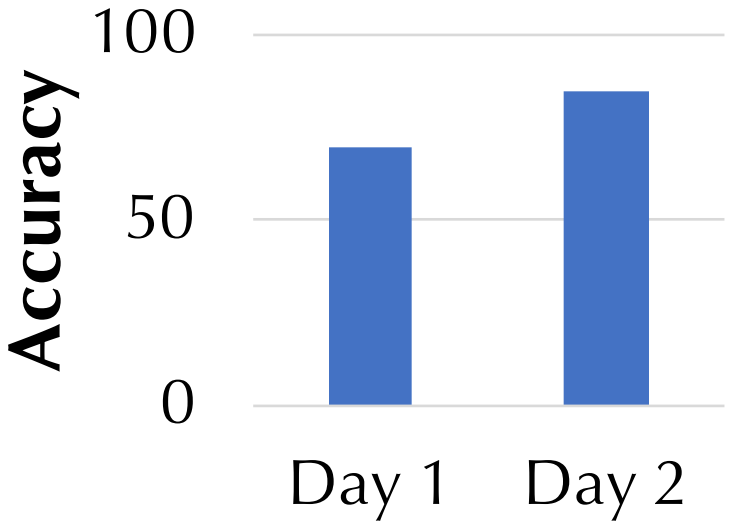
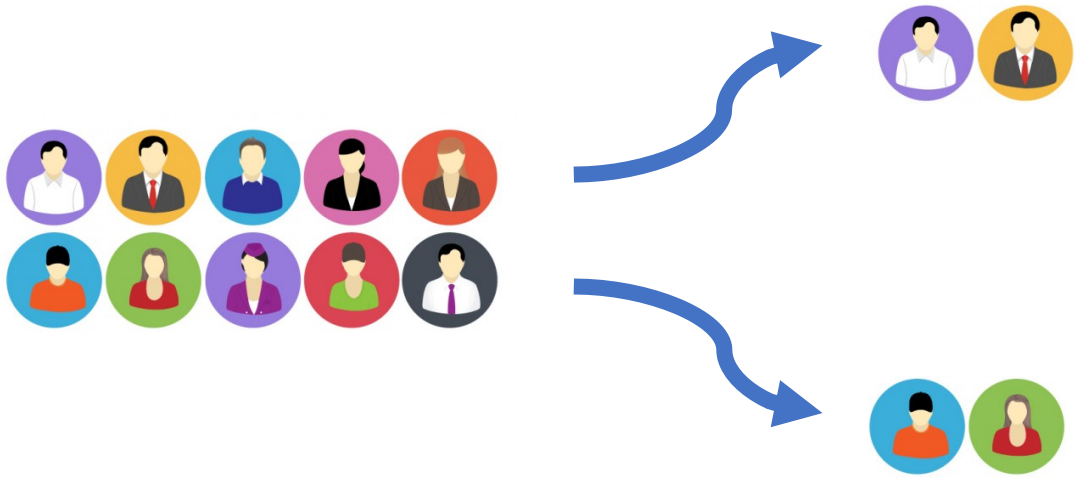
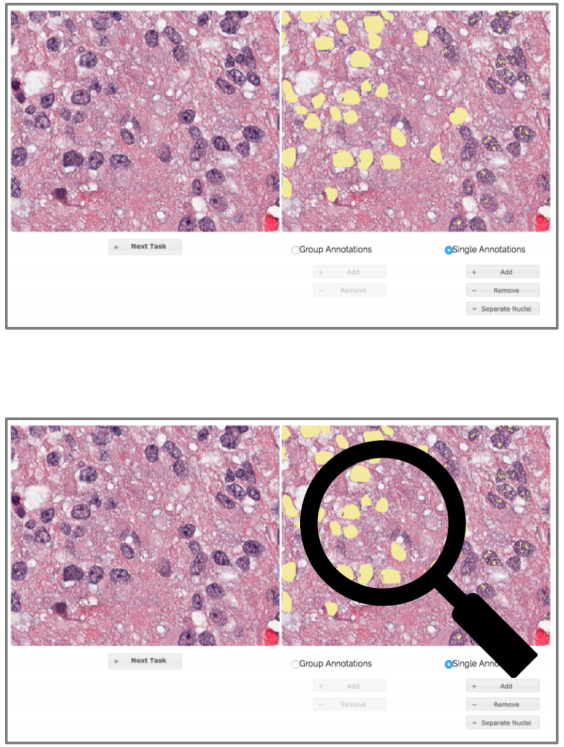


Is this the right way to infer the effect of the magnifier?

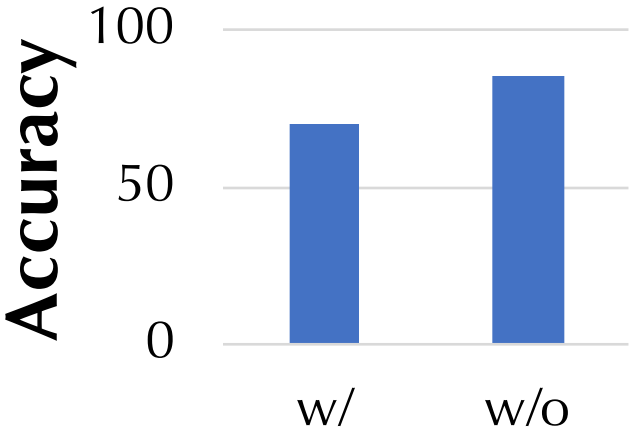
The Correct Approach: Randomized Experiment



Random Assignment



Only one change

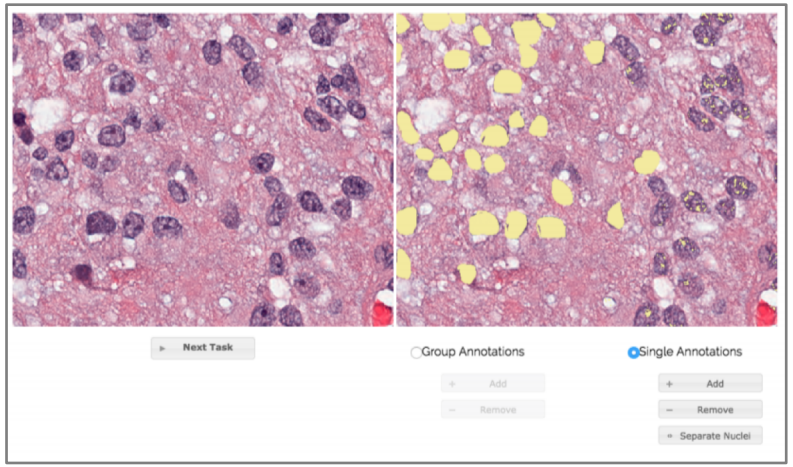


Dependent variable: worker's accuracy in the tasks

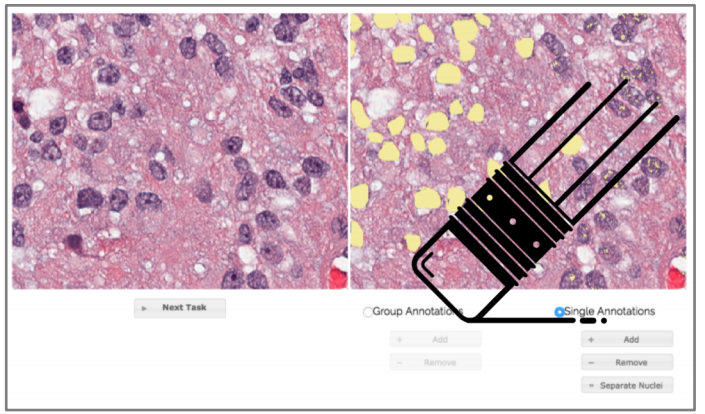
Independent variable: the existence of the magnifier

Statistical tests: t-tests, rank-sum tests, etc.

From single variable to multiple variables



Add magnifier



Add eraser

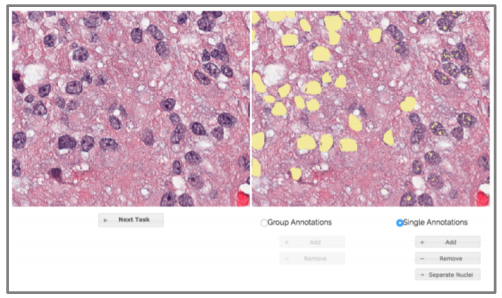
What if one would like to test the effects of more than one design elements?

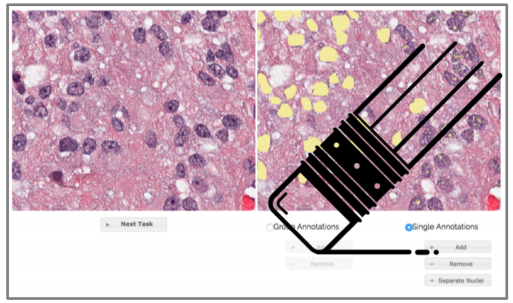
Factorial Design

- Independent variable 1 (existence of magnifier): two levels – with or without
- Independent variable 2 (existence of eraser): two levels – with or without
- Full factorial design: 4 (2×2) experimental conditions

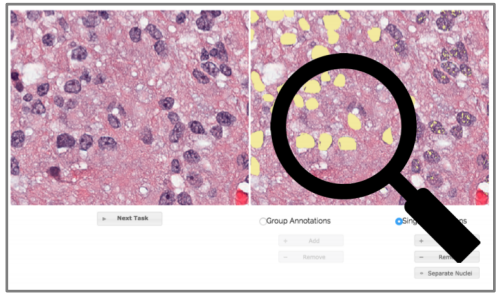
Main Effect

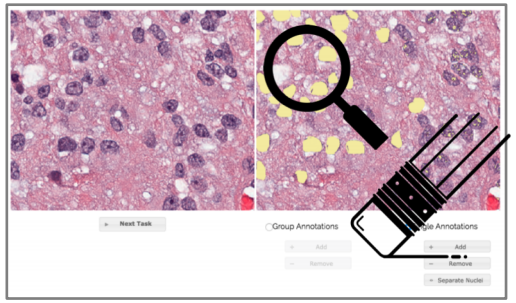
- What's the effect of including a magnifier in the task on worker's accuracy?





VS.





Main Effect

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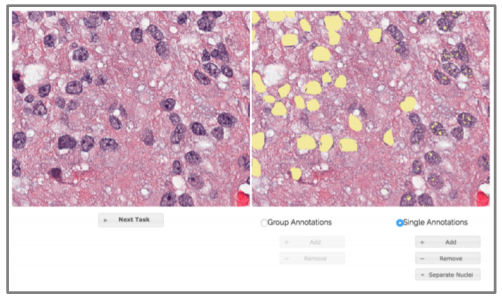

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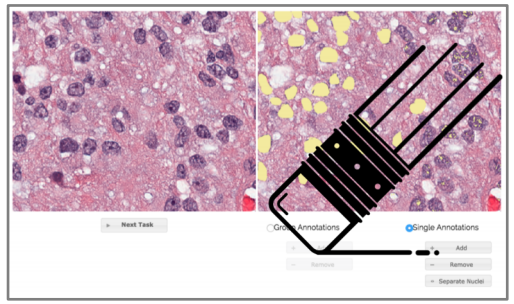
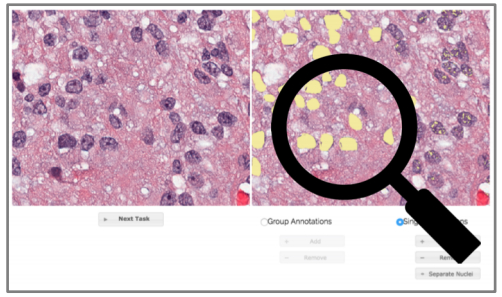
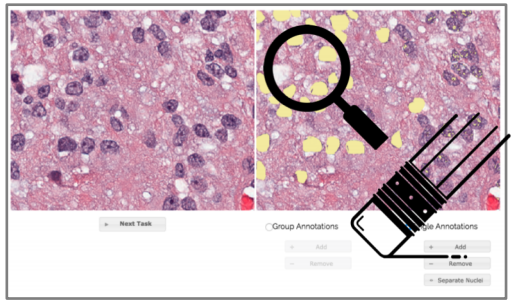
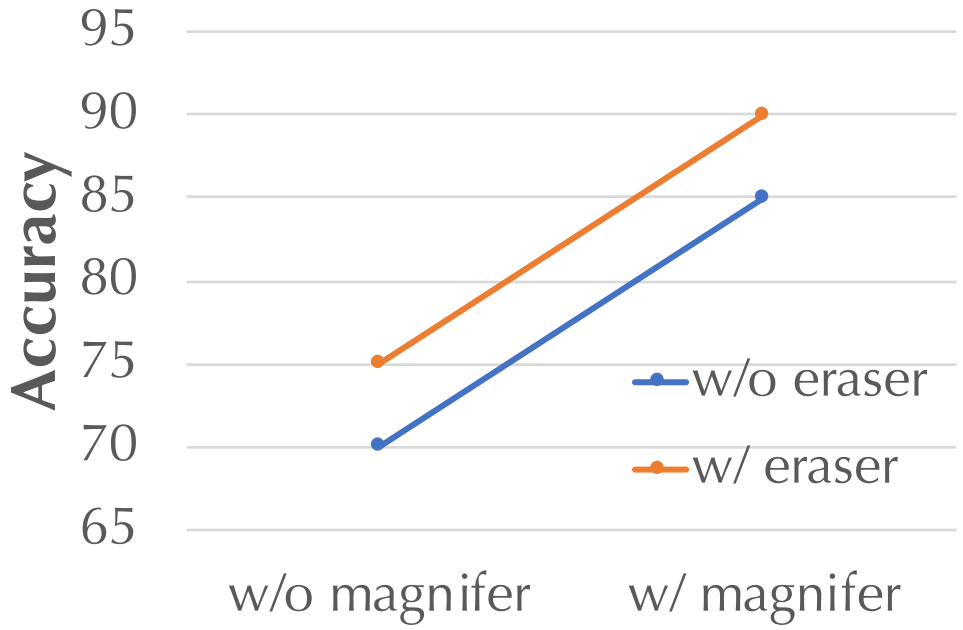


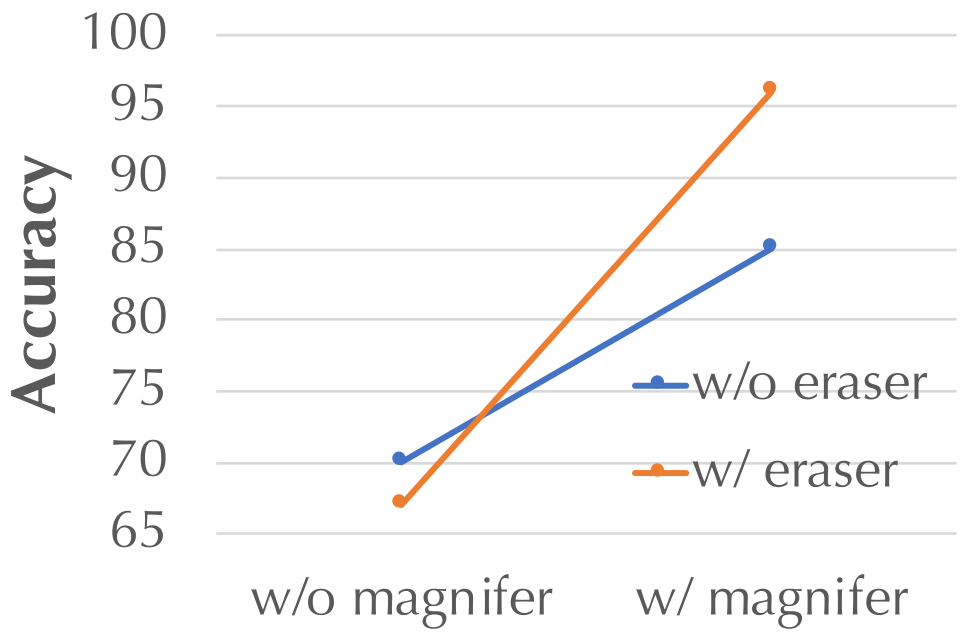




Interaction Effect

- Does the effect of including an eraser on worker's accuracy depend on whether a magnifier is included?





Formal statistical tests: e.g., two-way ANOVA

Assignment 2

- A Mini Experiment!
  - Task: Counting the number of targeted objects in images
  - Hypothesis: If workers can place and remove markers on images, they will improve their accuracy in providing the correct count numbers in the tasks.
  - Test this hypothesis through experiments!
  - Due on 11:59pm, Sept 14

Next Class

- Sep 3: No class (labor day)
- Sep 5:
  - Required: Difallah et al. The Dynamics of Micro-Task Crowdsourcing: The Case of Amazon MTurk. WWW'15
  - Optional: Gadiraju et al. A Taxonomy of Microtasks on the Web. HT'14

    Vakharia and Lease. Beyond Mechanical Turk: An Analysis of Paid Crowd Work Platforms. iConference'15

    Jain et al. Understanding Workers, Developing Effective Tasks, and Enhancing Marketplace Dynamics: A Study of a Large Crowdsourcing Marketplace. VLDB Endowment, March 2017
  - Reading questions will be out around weekend. You will get a notification about reading questions once they are out.