

CS181DT Class 14: Arguing your project & project OH

★ TURN ★

IDEAS INTO

REALITY

"motivation" on unsplash (used ironically)

Class 11 agenda

- Lecture: Motivating research projects & how to write an introduction
- Break
- Project OH for rest of class

Motivating research projects

How can we justify what we build?

- Your tool is not a research project, but we can learn from methods in HCI research on how to construct an argument for *why* we should build an interactive system
- Every step of the design process helps justify our *design decisions*
- We can learn from written academic papers how to *rhetorically* justify our tool

General HCI systems academic paper structure

- Abstract
- Introduction
- Related work
- Method/System description
- Evaluation
- Future work
- Conclusion
- A 250 word summary of the paper
- Why is your problem and solution important?
- What have other people done in this space?
- How does your tool work? How did you build it?
- How do you prove your tool is good?
- What are limitations? What would you do next?
- An abstract but reversed

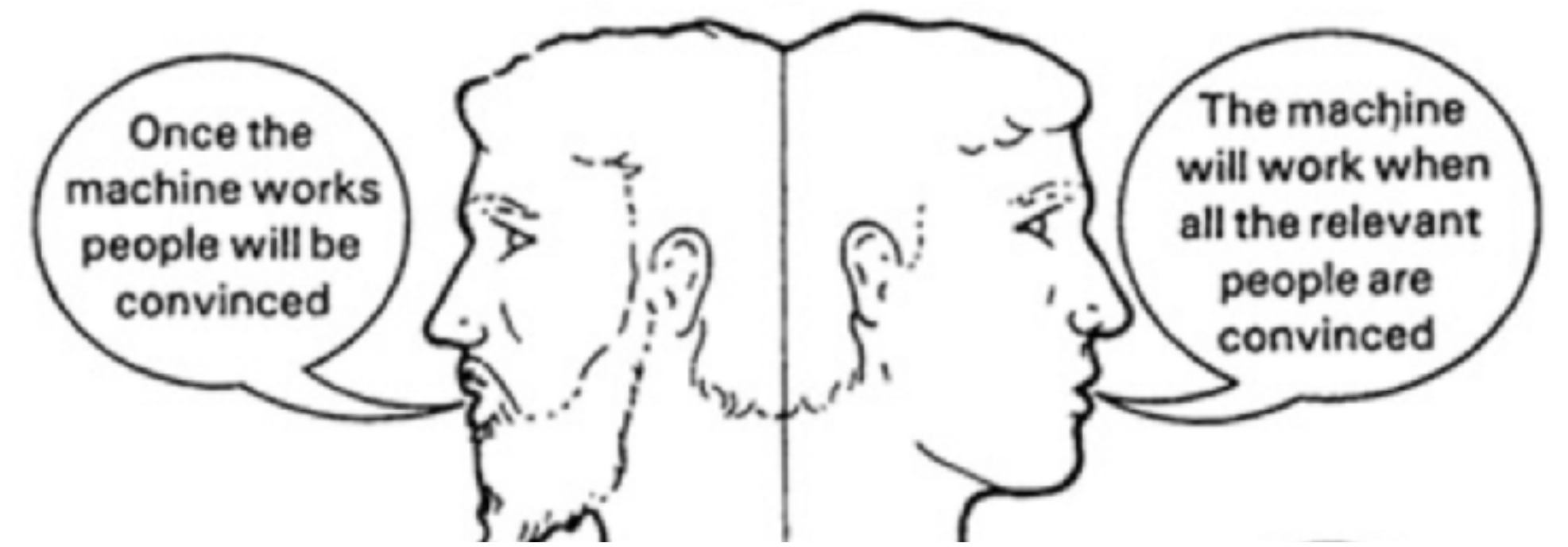
For your 4 page paper...

- Abstract By the due date
- **Introduction** (today)
- Related work (extra credit)
- Method/System description After you've built the system
- Evaluation After our in class final evaluation
- Future work
- Conclusion

What is the point of publishing?

- Disperse new knowledge that you created
- Describe how to reproduce results for other academics
- Framing: a paper is an argument more so than a report
 - A good introduction increases perceived legitimacy in the peer review process so your paper is more likely to get published
 - Your related work is less a laundry list of existing literature and more a chance to frame your work to (1) get authorial allies and (2) distinguish yourself from the pack

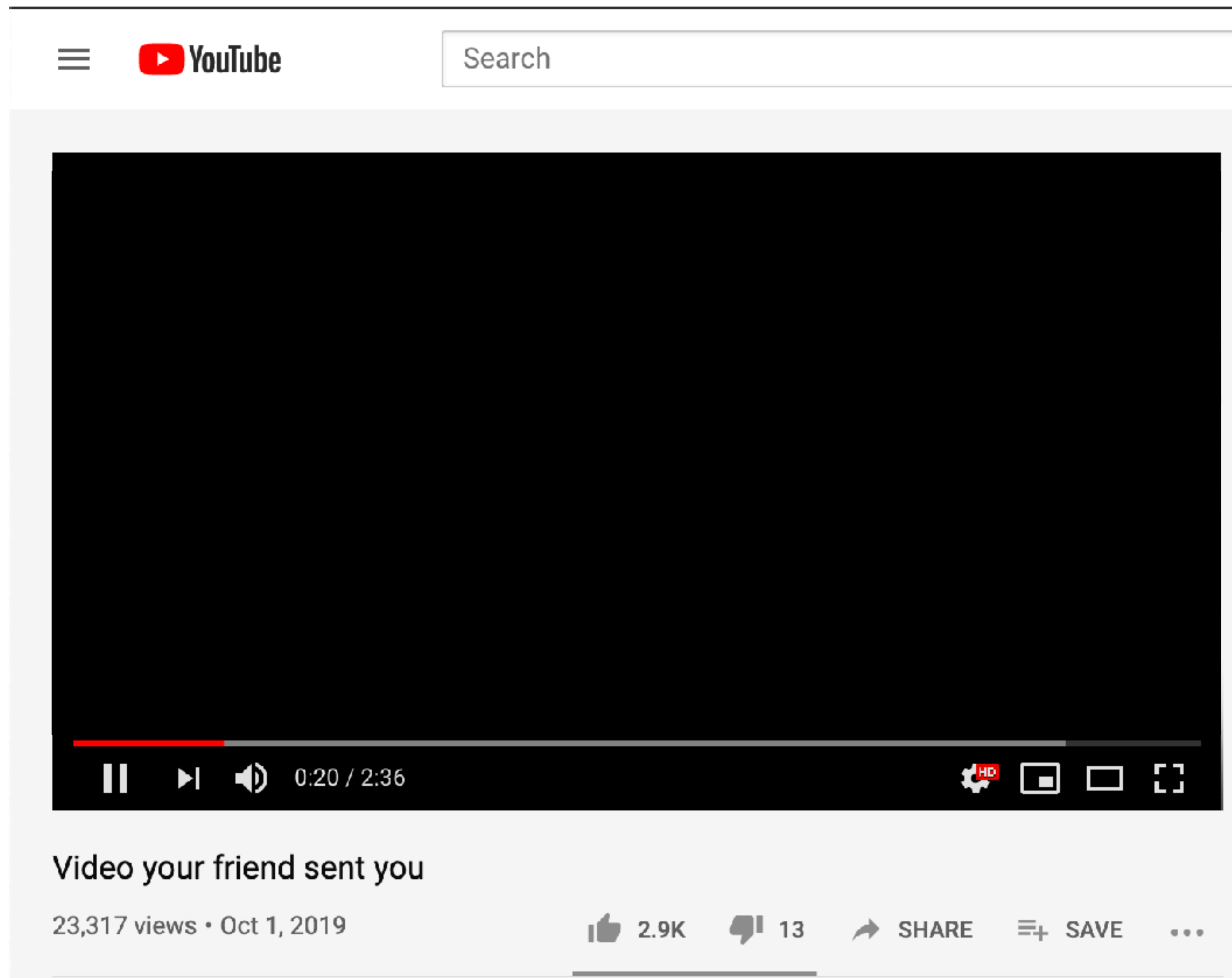
All research knowledge is social



- To get a published paper (e.g., to “create knowledge”), you only need to convince a small set of people (~5) in the community who peer review your paper
- In *Science in Action (1987)*, Bruno Latour argues it isn't what you put on your paper that's important, but *how it's interpreted and cited in the community*. Papers are black boxes and we should also look into the social relationships that shape scientific knowledge (your design documentation!)
- Doing research is a *conversation* with other researchers. By putting your work out there, you are signaling that it's important, and other people should care about it.
- That's the *introduction* of your paper: you're making an argument on why they should care.

How to write an introduction

Why write an introduction?



By this point, the video has hopefully made clear to you what it's about, and you've made a decision about whether to watch the rest of it.

Each introduction makes the case for two things:

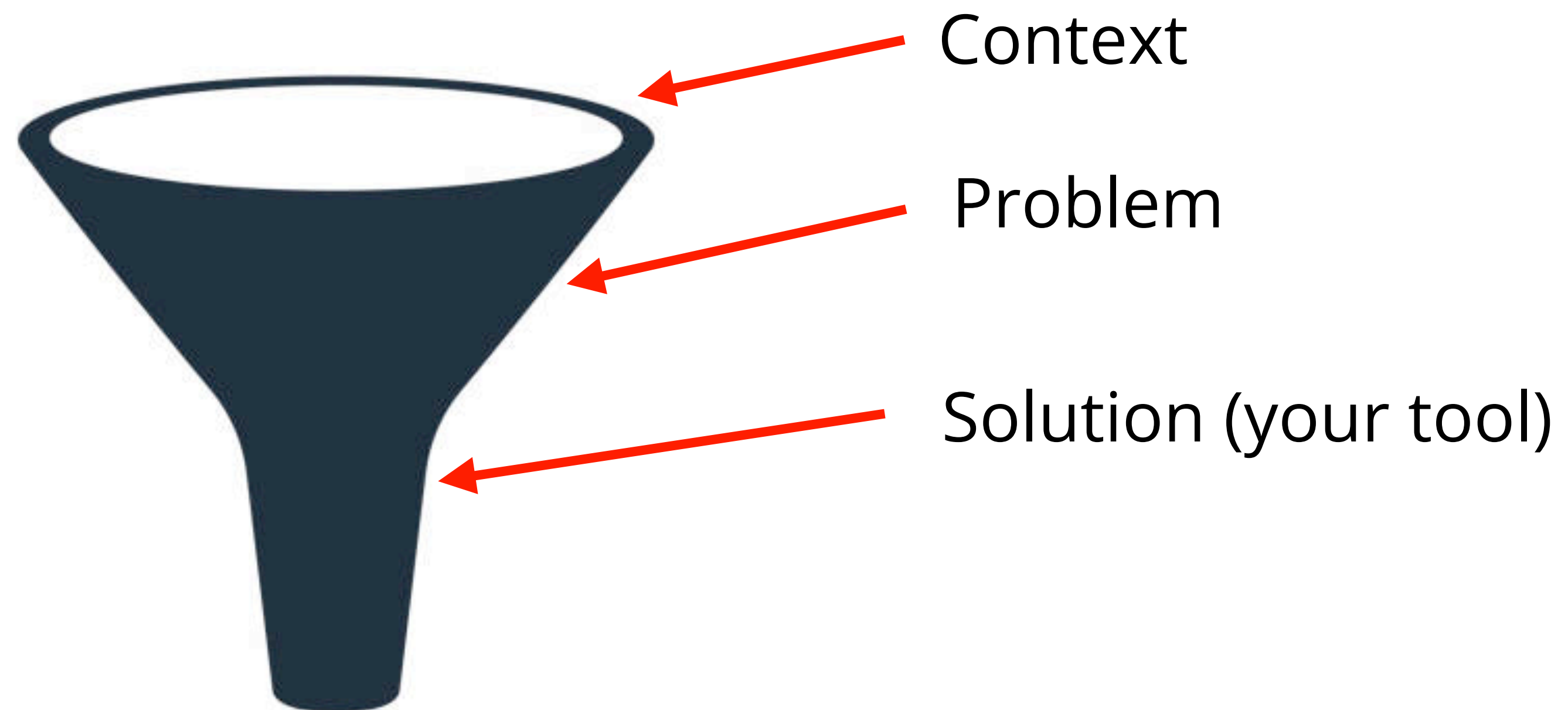
- 1) The **problem**: why do we care about the problem you're solving?
- 2) The **solution**: why is your approach creative and correct?

One way to make this case is through a 6 point outline

- 1) Context: what is the domain you're working in?
- 2) The **problem**: why do we care about the problem you're solving?
- 3) Setting up "the bit": why is the problem hard? What are assumptions in the current space that are often left unarticulated? (*Needfinding helps here!*)
- 4) The "bit flip": What's your insight? How do you invert the assumption, saying, "no, it should be this way instead?"
- 5) The **solution** that instantiates the bit flip: why is your approach creative and correct?
- 6) Evaluating the solution: How can you prove flipping the bit had the effects you intended?

Funnel

- A good introduction is like a funnel. Your first sentence should be very broad to introduce the domain of your project, and each sentence narrows it down to introducing your tool.



Example bit flips

Bit

Sketching can control motion easier than rigs, parameter sliders, or scripting, but it only works for single objects.

3D printing creates external cases and we assemble electronics in the case for an interactive device.

The geometry of 3D models isn't available to people with blindness or visual impairments unless they 3D print each iteration, which is very slow.

Flip

create new data structures

"Kinetic textures" allow for motion control of *collections* of objects by applying physical simulation to groups while maintaining a sketch interaction.

use new materials (light)

Interactive devices can be 100% printed without assembly through the use of optics

develop new workflows

Provide tangible feedback to render intermediate stages of 3D modeling on a shape display

Project

Draco

Printed optics

shapeCAD

Activity: annotating introductions

- Get into groups of 3. Individually read the paper introduction and highlight:
 - Context = Grey/brown
 - Problem & set up the bit = Red/orange
 - Flip the bit = Yellow/pink
 - Instantiate the bit flip into a solution = Green/turquoise
 - Evaluate the solution (speculative) = Blue/purple
- Talk with your group: do you all agree?
- One person should type a combined reflection on slido
 - What paper did you read
 - How closely did it follow the structure
 - Were you convinced by the argument (and how much did the structure influence that)



[slido.com #18114](https://slido.com/join/18114)
(recommend using laptop to type)

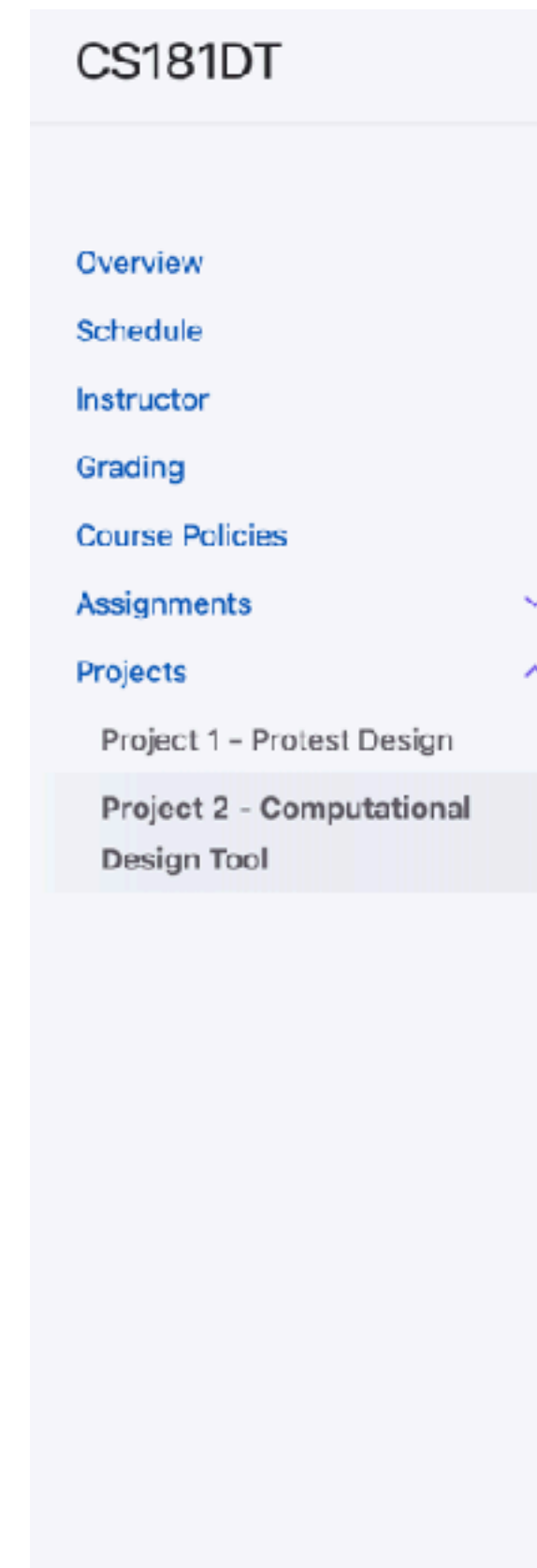


1. What paper did you annotate? 2. How did it follow or deviate from the structure we talked about in class? 3. How did the authors' arguments convince (or fail to convince) you?

Join at
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#18114

P2M2: Introductions

- Use Overleaf template
- Write a 6 point outline first
- May I suggest writing the outline as a group and then assigning individuals to turn each bullet point into a paragraph :)
- Just a draft! I'll give you feedback to iterate for your final paper



Short paper introduction

As part of your final deliverable, we will be writing parts of a short, 4 page paper in the SIGCHI research paper style describing various aspects of your tool. For this assignment, you should write a draft of the introduction section.

First, one person should make a copy of the [Overleaf template](#) and invite all other group members to collaborate via email. It's important you keep this link since you will be adding to this paper throughout the semester.

If you're not already familiar, see how to make tables (`\begin{table}`) and figures (`\begin{figure}`) in the template, as these will come in handy later.

Work together to edit the template to contain only your introduction to your tool project. As we will see in lecture on Thursday, good introductions are like a funnel: we start with broad context, then introduce our problem, then introduce our solution.

I would recommend first working on establishing a 6 topic sentence outline, and then fleshing the points in the outline into paragraphs. I am happy to take a look at the outline during OH. Let's run through an example looking at a paper I wrote about a tool that [automates the rigging process for character illustrations](#). The outline should address these 6 points:

- **Context:** What is the domain you're working in? Why should people care about this domain? If relevant, how has it evolved over time? Example topic sentence(s):

Illustrated 2D characters are prevalent across many visual applications, including storytelling, advertising, animation, and games. Recently, "mix-and-match" 2D character creation tools have emerged that make character design more accessible to a broader range of users. With mix-and-match tools, users can quickly explore a range of character designs by selecting different combinations of body and accessory layers.

<https://cs.pomona.edu/classes/cs181dt/projects/proj2/>

[#milestone-2-needfinding-and-introduction](#)

Project OH

Project OH goals

- During this time, work on your interview guide questions or writing and flipping potential bits
- I am happy to take a look and give any feedback/answer any questions
- I will also go around to each group and offer high level thoughts/guidance on the project direction

Class 14 recap

- Exit ticket: <http://tiny.cc/cs181dt-week7>
- TODOs:
 - Next Tues:
 - P2M2 - Needfinding due
 - Zipcrit from Keya
 - We'll be doing more P2 design work in class (storyboards, task analysis, competitive analysis)
 - Next Thurs
 - 1 sketchnote, seminar from Angie & David
- By 11:59pm next Fri
 - P2M2 - Intro due

