

Welcome to CS181DT!

Please take the cardstock on your table, fold it in half lengthwise, and write your name on one side. This is your **name tag** for the semester.

Your first assignment is to **decorate** your name tag by collaging cool/interesting things you find from the old issues of AI magazine. Cut them out and glue them on!

Logistics can be a bit boring, so feel free to do this throughout the class. Drop off your name tag in the wooden box before you leave.

Let's get making!

Class 1 agenda

- Course overview. What will you learn?
- Class intros
- What is design? What are tools?
- Boring but important logistics
- Personal Making 1 assignment: Hacking Zine

Course overview

Please use the class website!!!

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

CS181DT

Overview

Schedule

Instructors

Grading

Course Policies

Assignments

Search CS181DT

Canvas

CS181DT: Computational Design Tools

Fall 2024 • Pomona College

Mon/Weds 11:00am-12:15pm • Hive Studio 01 (Room 124)

Overview

What makes a good tool? How can we design good software tools, and how can we evaluate them to prove their "goodness"? What are the advantages and disadvantages of *computational* design tools, like Photoshop, compared to *analog* design tools, like a pen?

In this course, students will discuss, critique, and create their own computational tools that support art, creativity, and design. Students will work both individually on weekly making assignments and in a team to create an open-ended software "creativity support tool" through peer critique and testing sessions. This course teaches the foundations of UI/UX design and human-computer interaction (HCI) principles, as well as more advanced topics on making, critical design, and HCI research.

Prerequisites: As this course involves programming an interactive software system, CSCI 062 PO or CSCI 070 HM is required. Students will also complete projects that involve digital fabrication design, but no prior knowledge in those domains is assumed.

Course thirds

1 Making

Make things with many tools to establish proficiency at using tools

4 personal making assignments

- Maker movement
- Design activism
- Analog fabrication
- Digital fabrication
- Creative coding

2 Tools

Make a tool
(Final project, Wizard-of-Oz prototype)

- Brainstorming
- Needfinding
- Prototyping
- Software systems design
- Evaluation

3 Craft

Be critical of computational tools
(Final project implemented)

- Critical design
- Accessibility
- Materiality
- Art
- Power & politics

And three types of modules for class

1 Lecture

Like right now
(There will be interactive components, don't worry)

2 Seminar

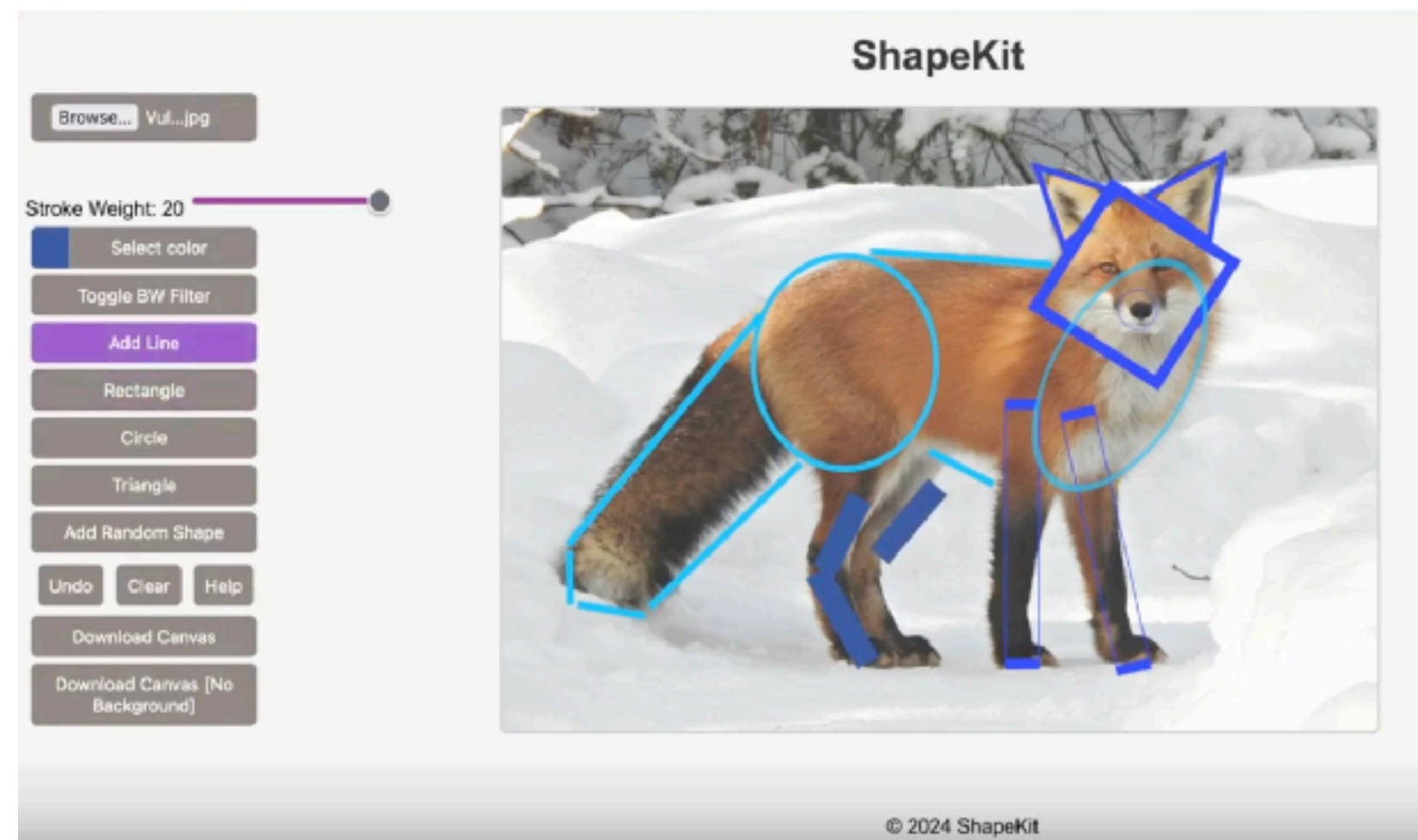
Discussing the readings: lead by a pair of students

(except for this Wednesday's, I'll lead that)

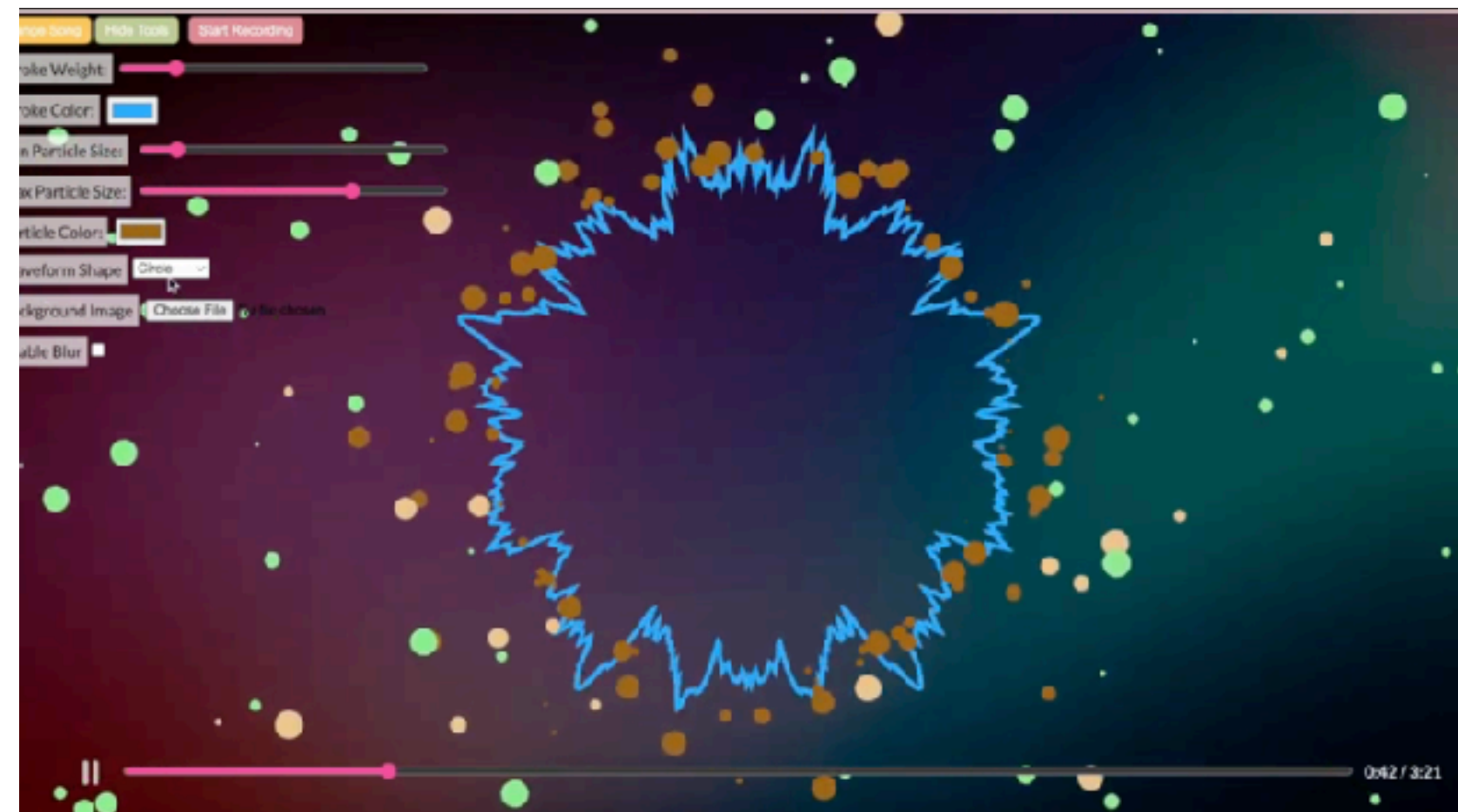
3 Studio

Other guided activities, like a workshop tutorial, project critique, project work time

Last semester's final projects



ShapeKit (decomposing photos into shapes for drawing)

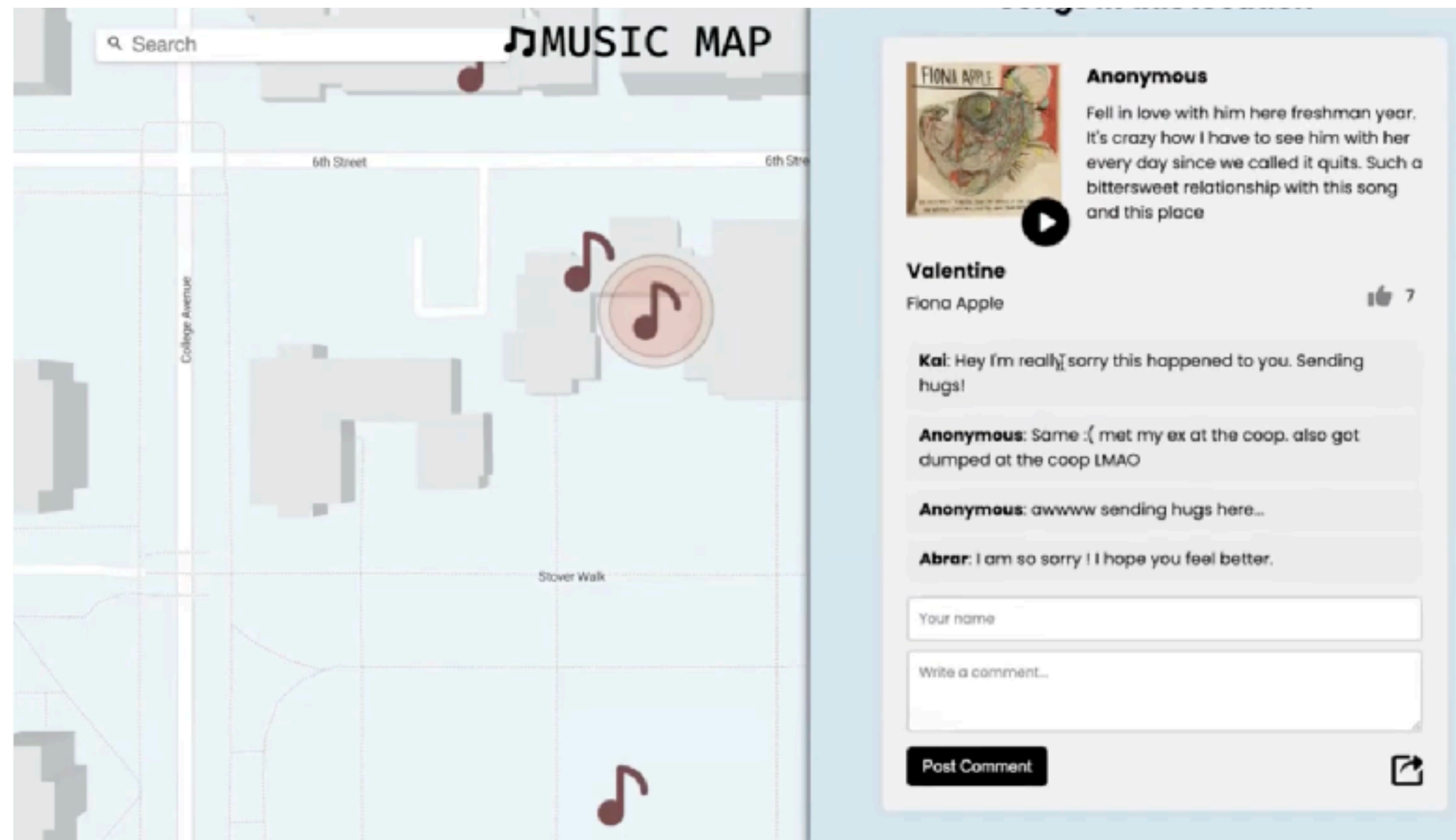


AudioViz (customizable music waveform visualizer)

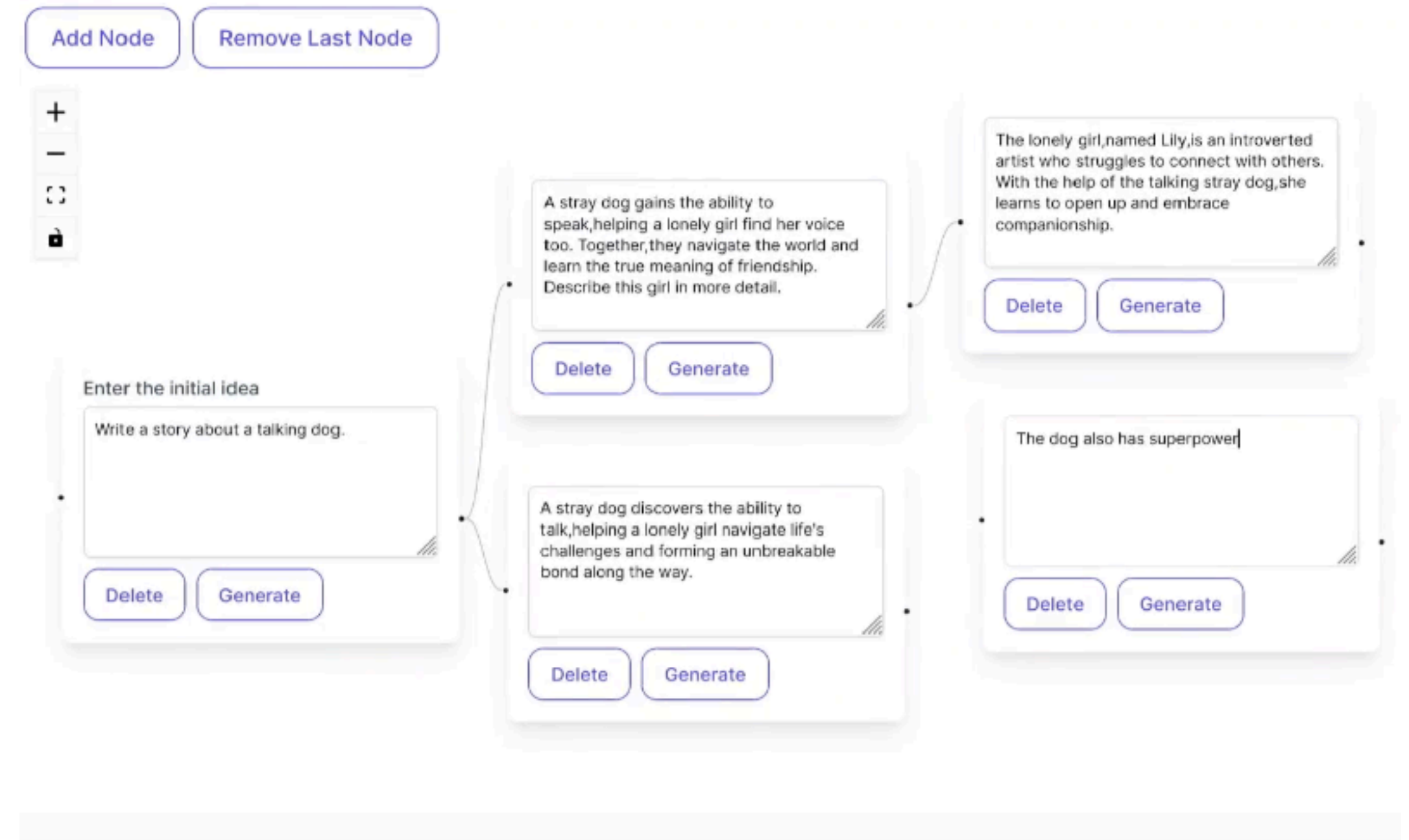


NailCrafter's Studio (digitally design & plan out your nails)

Last semester's final projects



MusicMap (location based song memories)

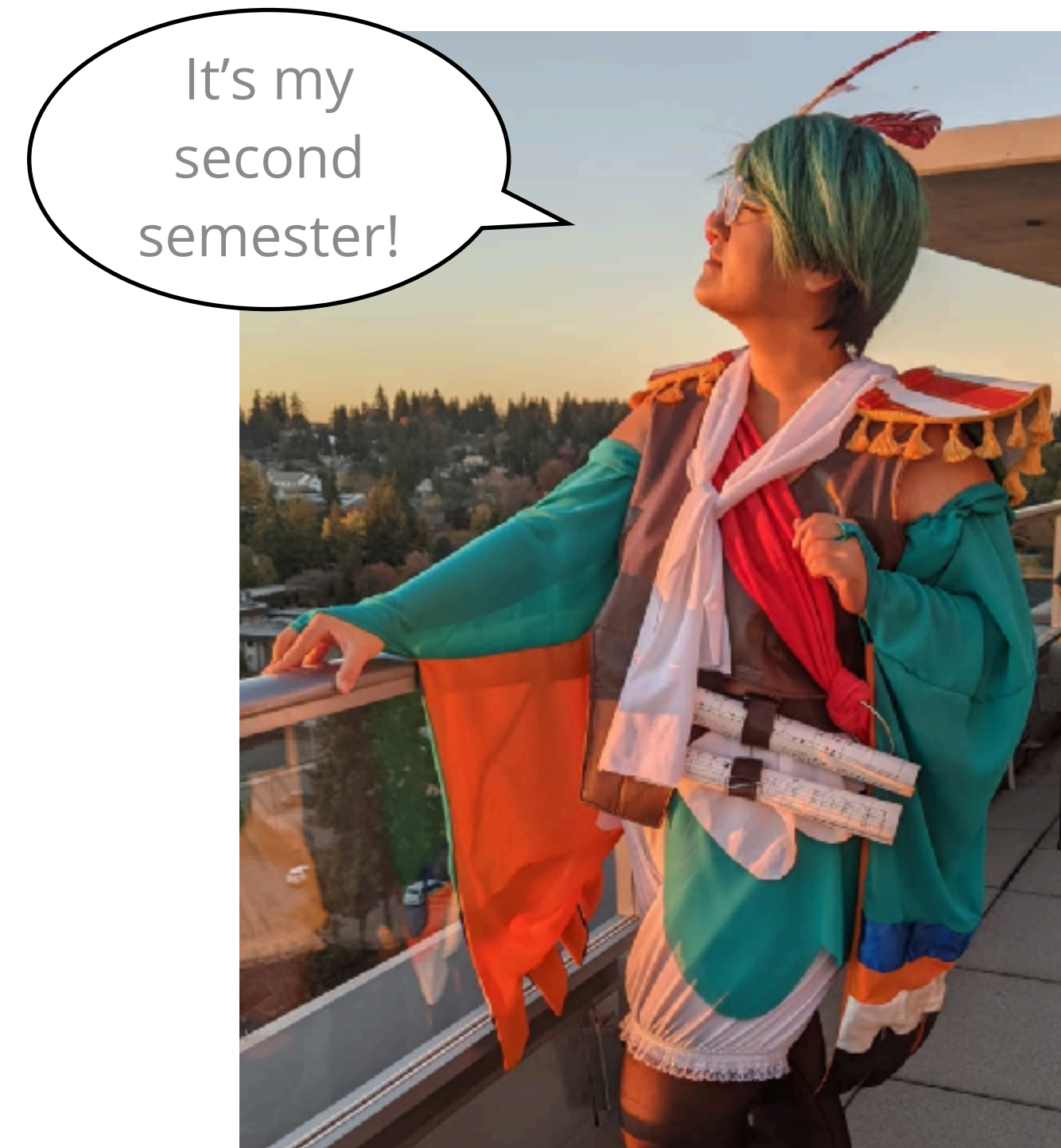


Nodea (generative AI for story plot planning)

Course intros

Prof. Li **they/them** • jingyi.li@pomona.edu • Edmunds 111 • jingyi.me

- Teaching CS51P and CS181DT
OH: Mon 4-5:30p, Tue 10:30a-12p
- Research: **human-computer interaction**, specifically in art creation tools. Join the Doodle Lab!
- Things that make me happy:
 - drawing/painting/cosplaying/sewing
 - going to concerts, interior design, reading, Pokémon
 - birding, biking, being in nature



Your turn!

- Name
- Pronouns (if you'd like)
- School & year
- 1 thing that you're looking forward to
- If you were a food, what food would you be and why



(Prof. Li: Chinese spicy fried chicken, 辣子鸡)

Computational



Design



Tools



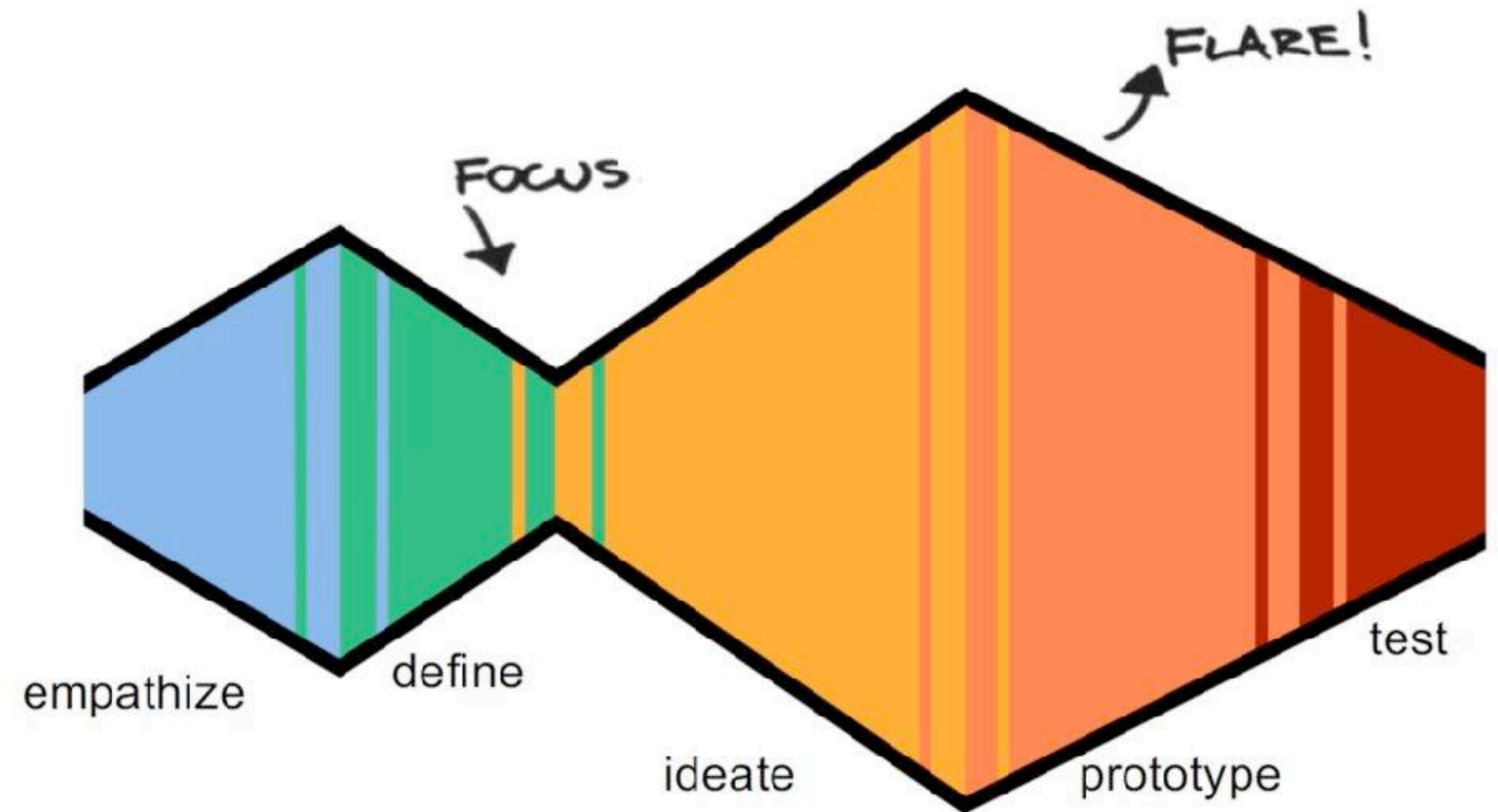
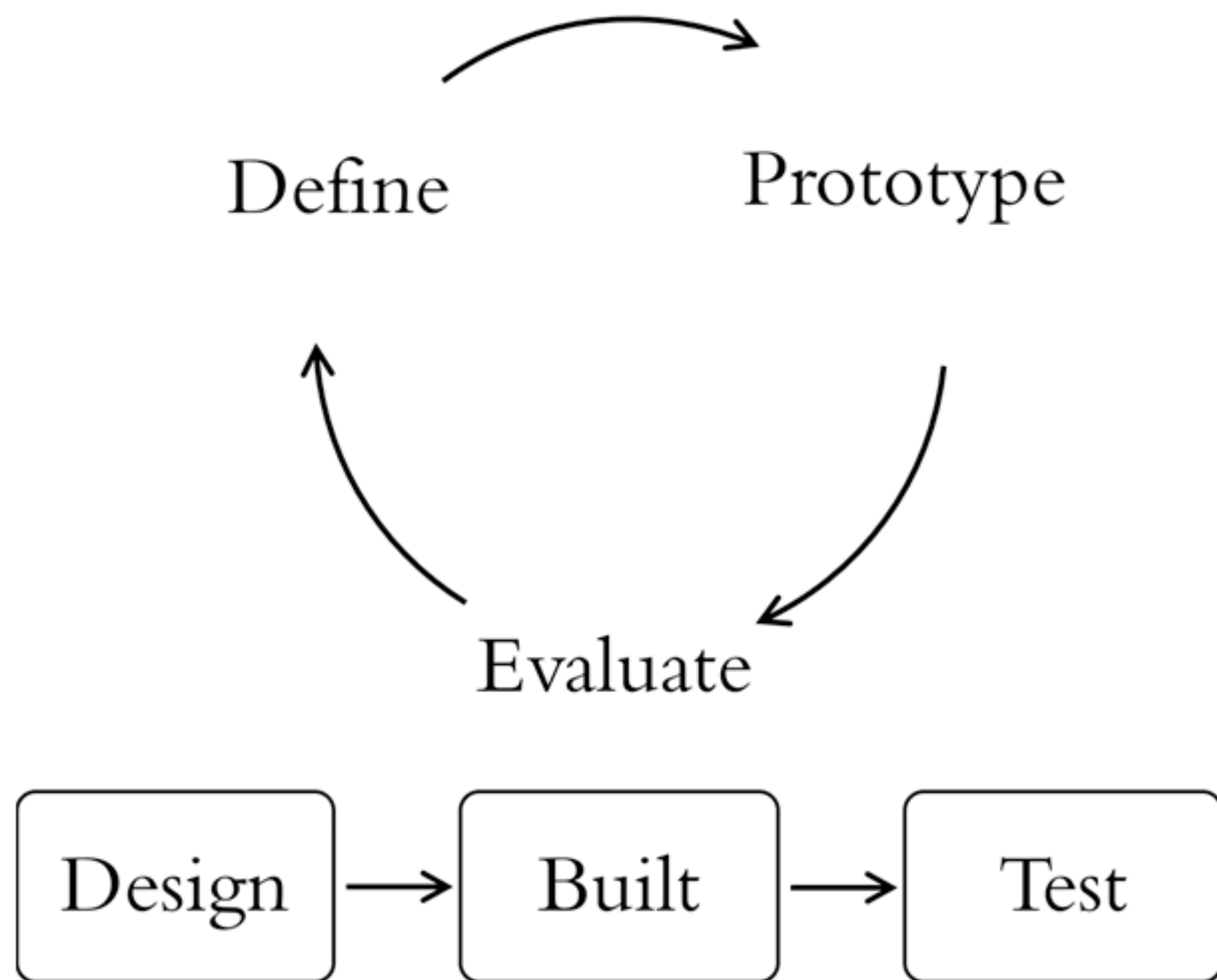
Design

What is design?

- With your table, discuss...
 - What was the last thing you designed?
 - How would you define “design”?
 - What is the difference between design and art?
- Come up with a group consensus definition and difference.
- The person wearing the most colorful outfit will share back to the class.

Human-centered design

- A *methodology* for building stuff that places the *user* at the heart of the process
- Also called user-centered design, or design thinking



Human-centered design

You will be doing...

Ideating / brainstorming

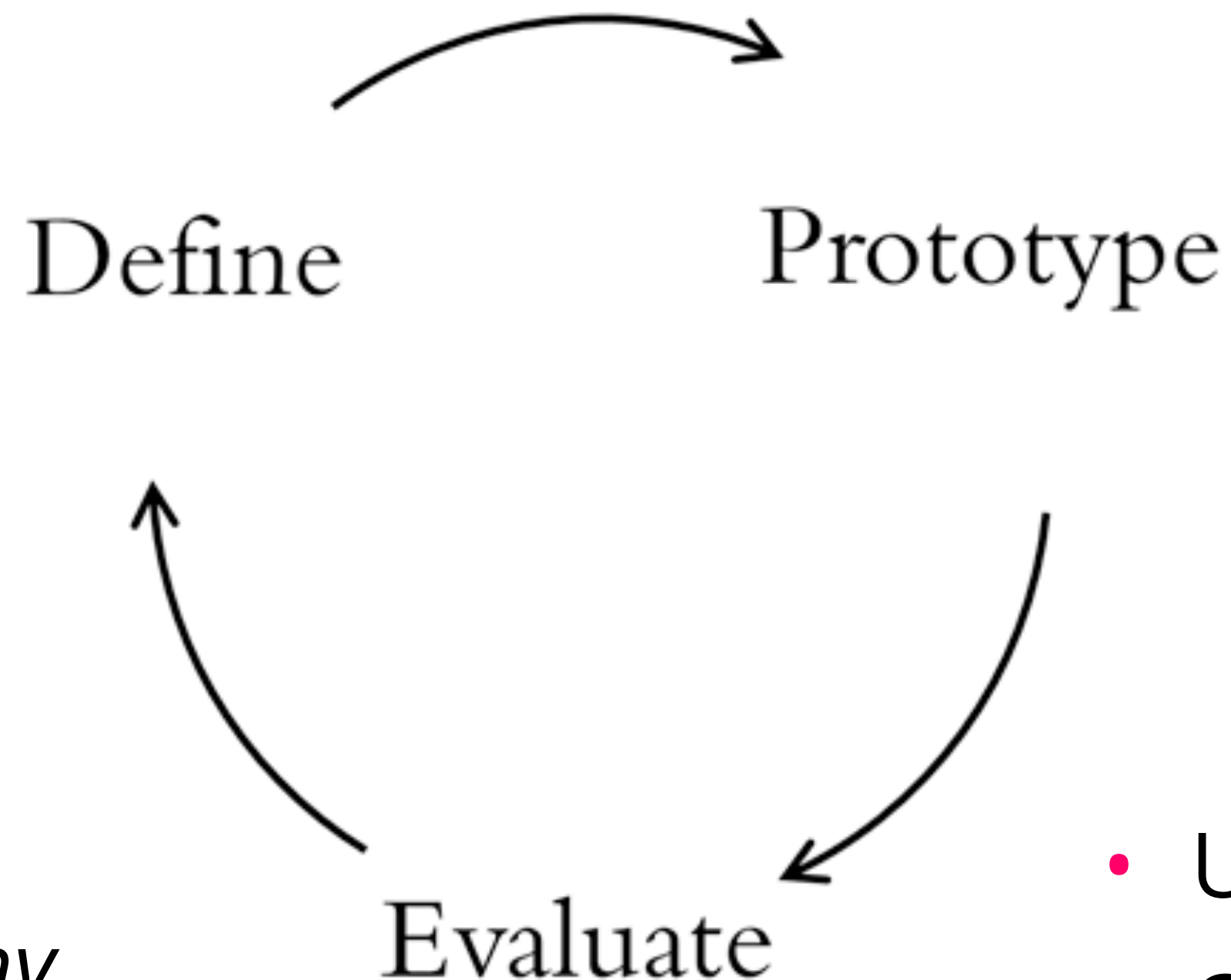
Need finding

- User interviews
- Competitive analysis

Communicating design ideas via storyboards

+ theory and rationale for why doing this process is “good”

+ academic literature on why design can be “bad” sometimes



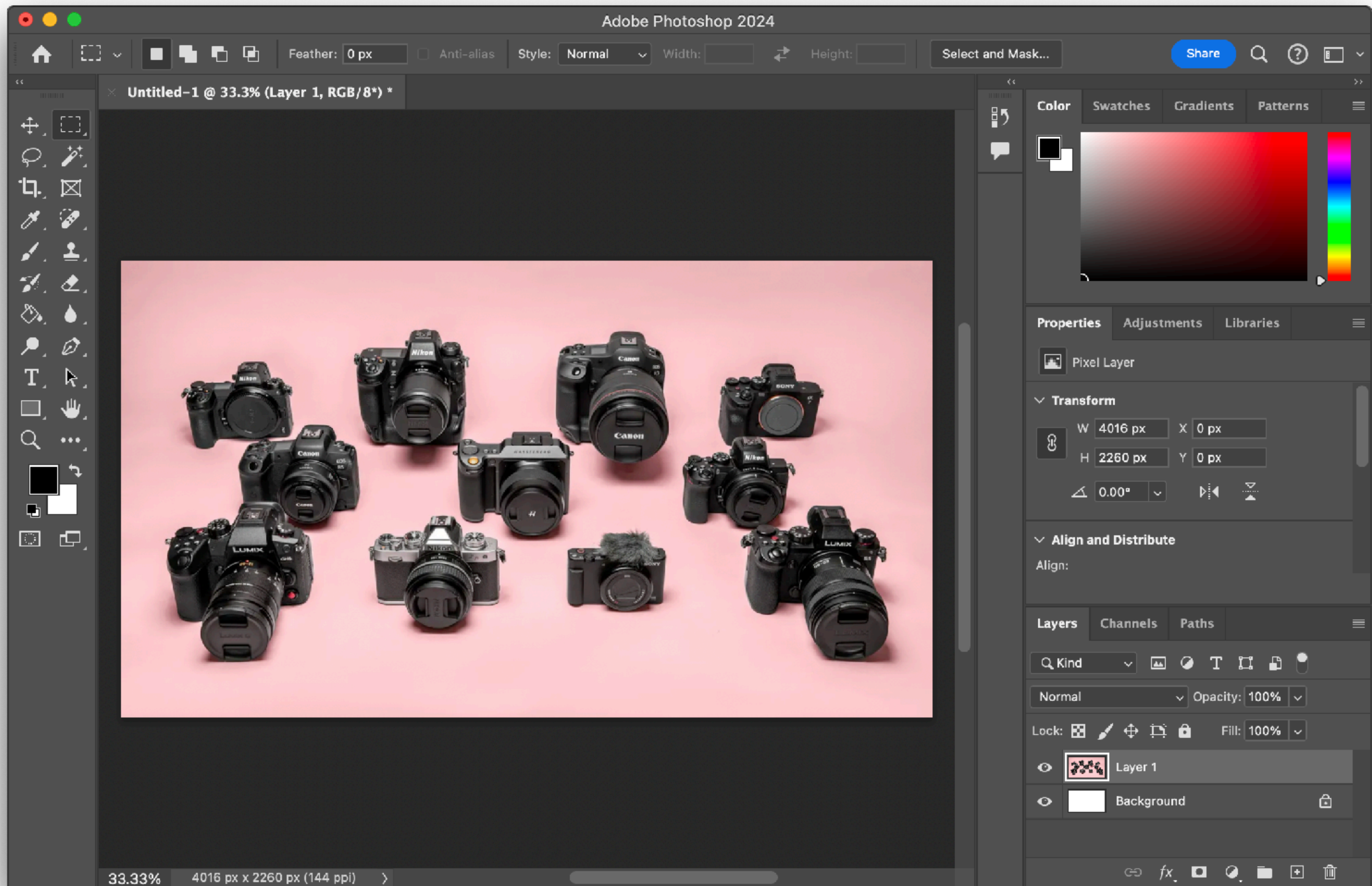
- Low-fidelity prototyping (paper)
- Interaction prototyping (video)
- High-fidelity prototyping (Figma)

- User testing
- Qualitative data (e.g., participant quotes)
- Quantitative data (e.g., speed of task completion)

Tools









Start with a detailed description

Surprise me

An Impressionist oil painting of sunflowers in a purple vase...

Generate

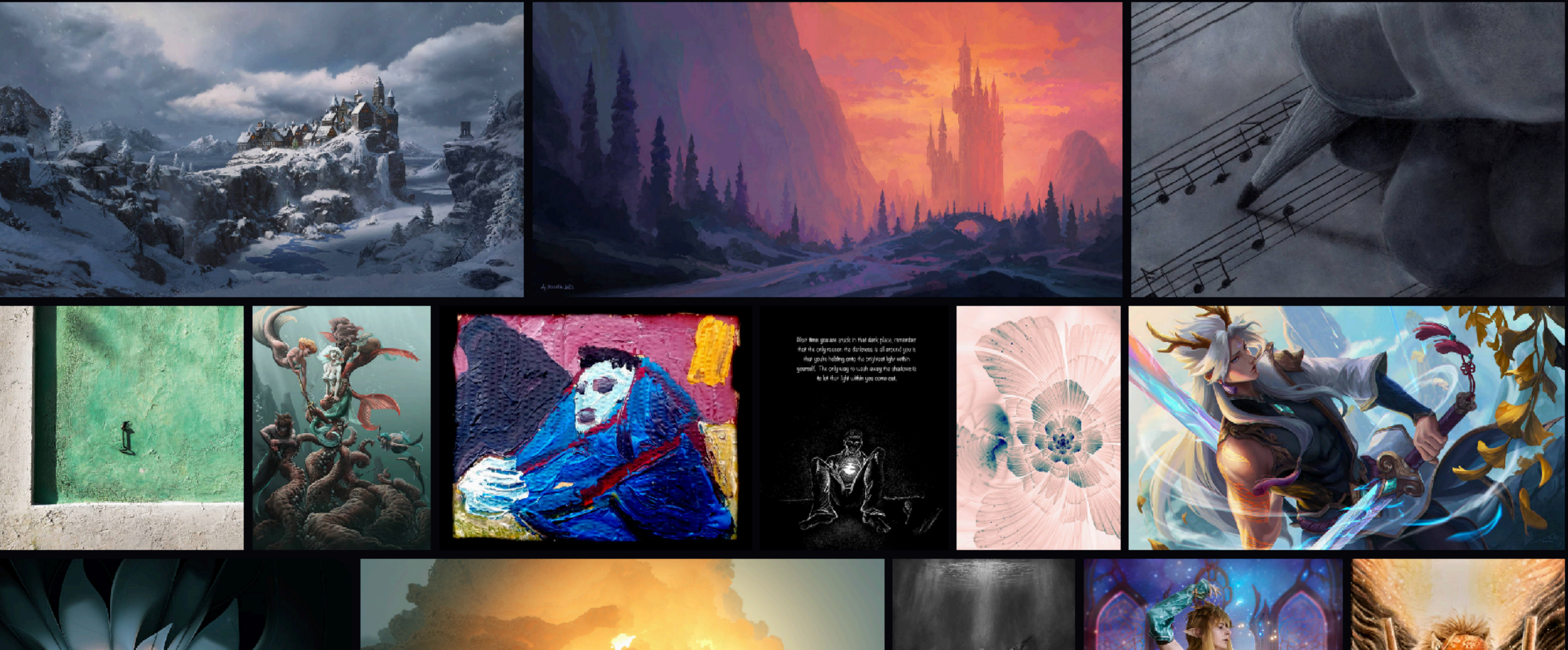
Or, upload an image to edit








- For You
- AI Art
- Digital Art
- Fan Art
- Photography
- Fantasy
- Cosplay
- Adoptables
- Character Design
- Comics
- Concept Art
- Game Art
- Science Fiction
- Superheroes
- Traditional


Treat yourself! 🎁 Core Membership is 50% off through January 15


Upgrade Now





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
✓ **Folders**


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
 Drafts **1**


 Sent Items


 Deleted Items **67**


 Junk Email **63**

 Archive


 Notes

 <3

 Conversation History

 Reference

[Create new folder](#)

 Search Folders

[Go to new Groups](#)

[illegible]

[CS-ALL] Welcome Back Colloquium- FRIDAY, August 30, 11am, Estella 1051- Argue Auditorium

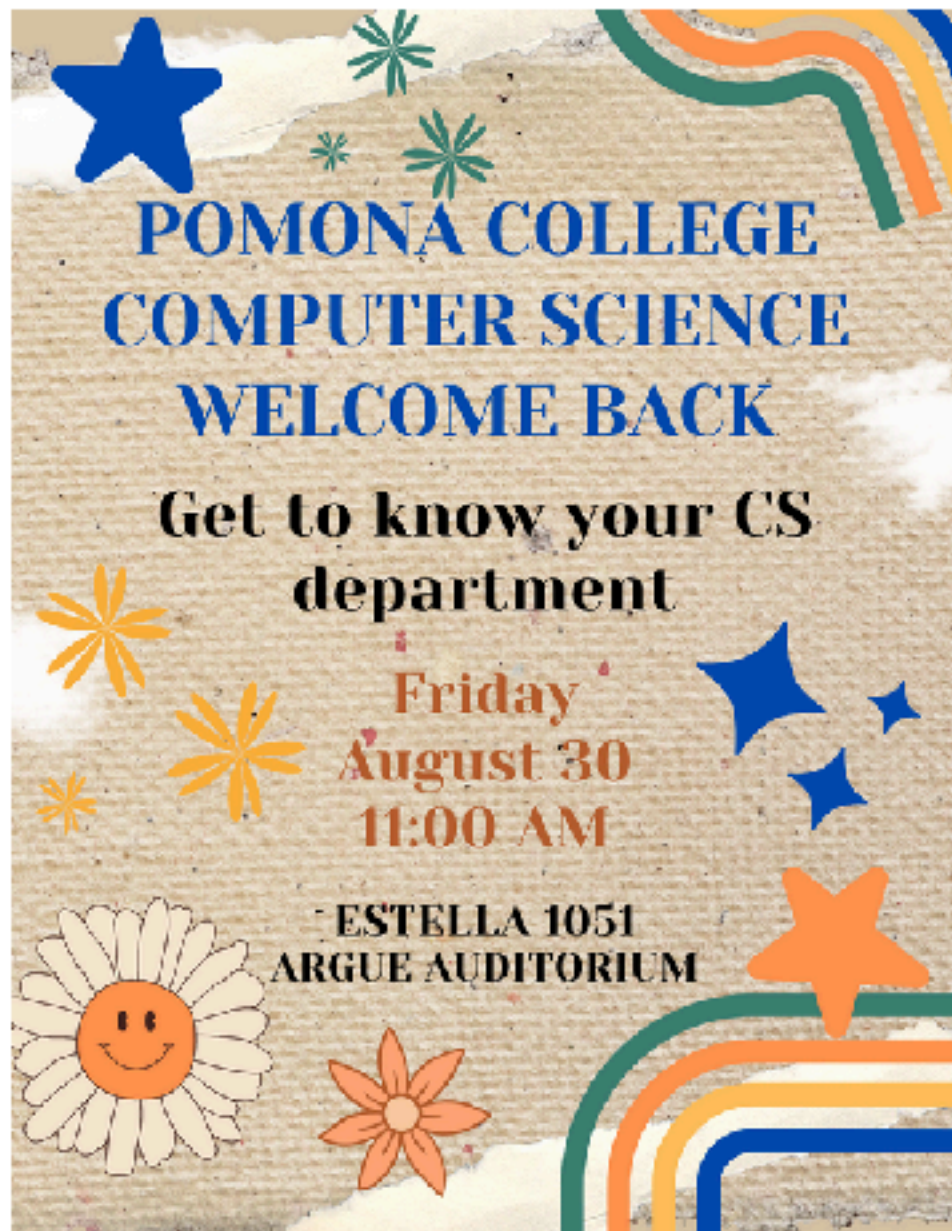
Pomona College Computer Science Welcome Back Colloquium

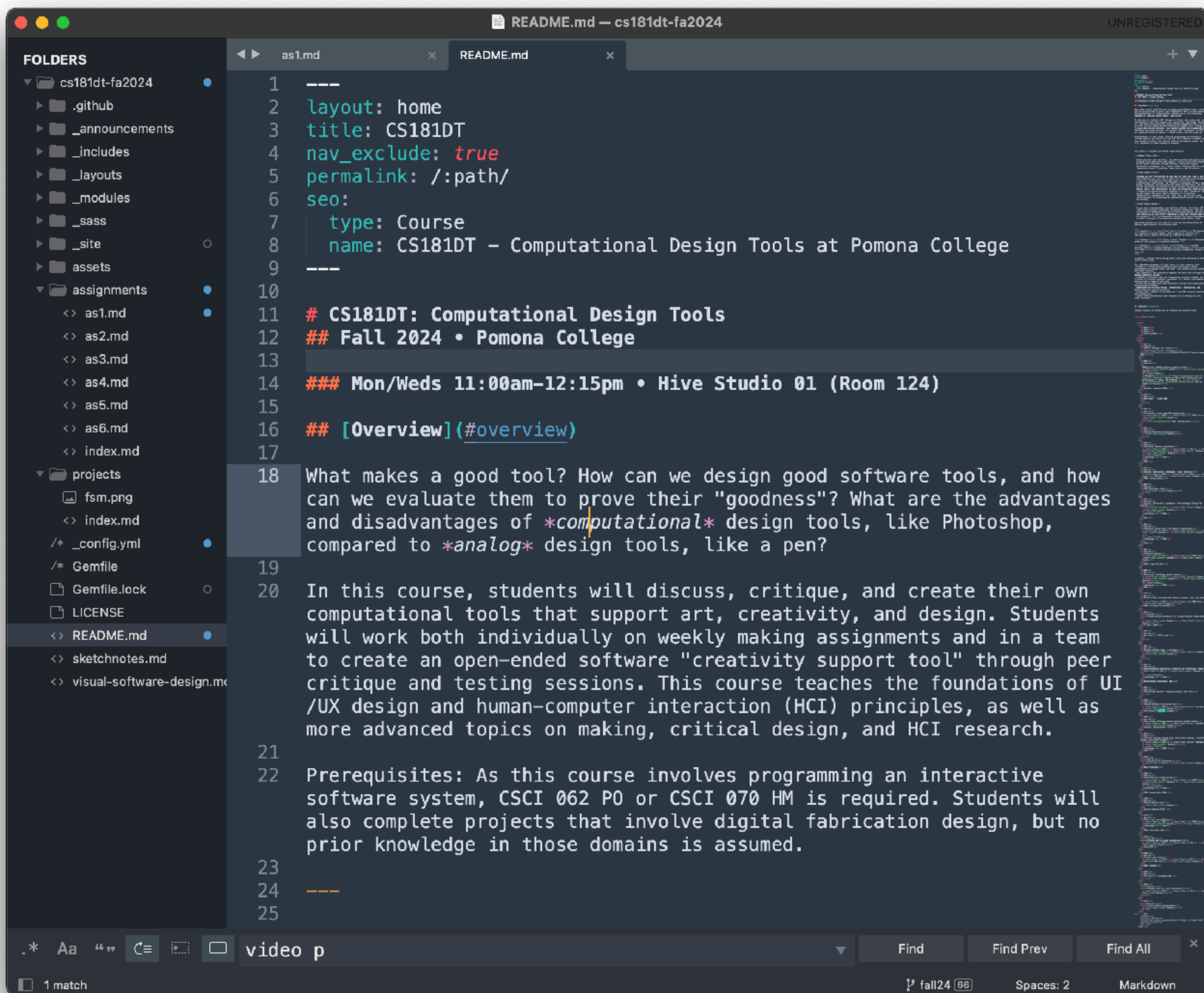
Get to know your CS department

Friday, August 30

11:00 AM

Estella 1051 Argue Auditorium





A definition of a tool

- A tool is any **external object** that increases our **physical abilities** or **cognitive skills**.

Hammer

Email

Coding

Camera

Photoshop

Dall-E

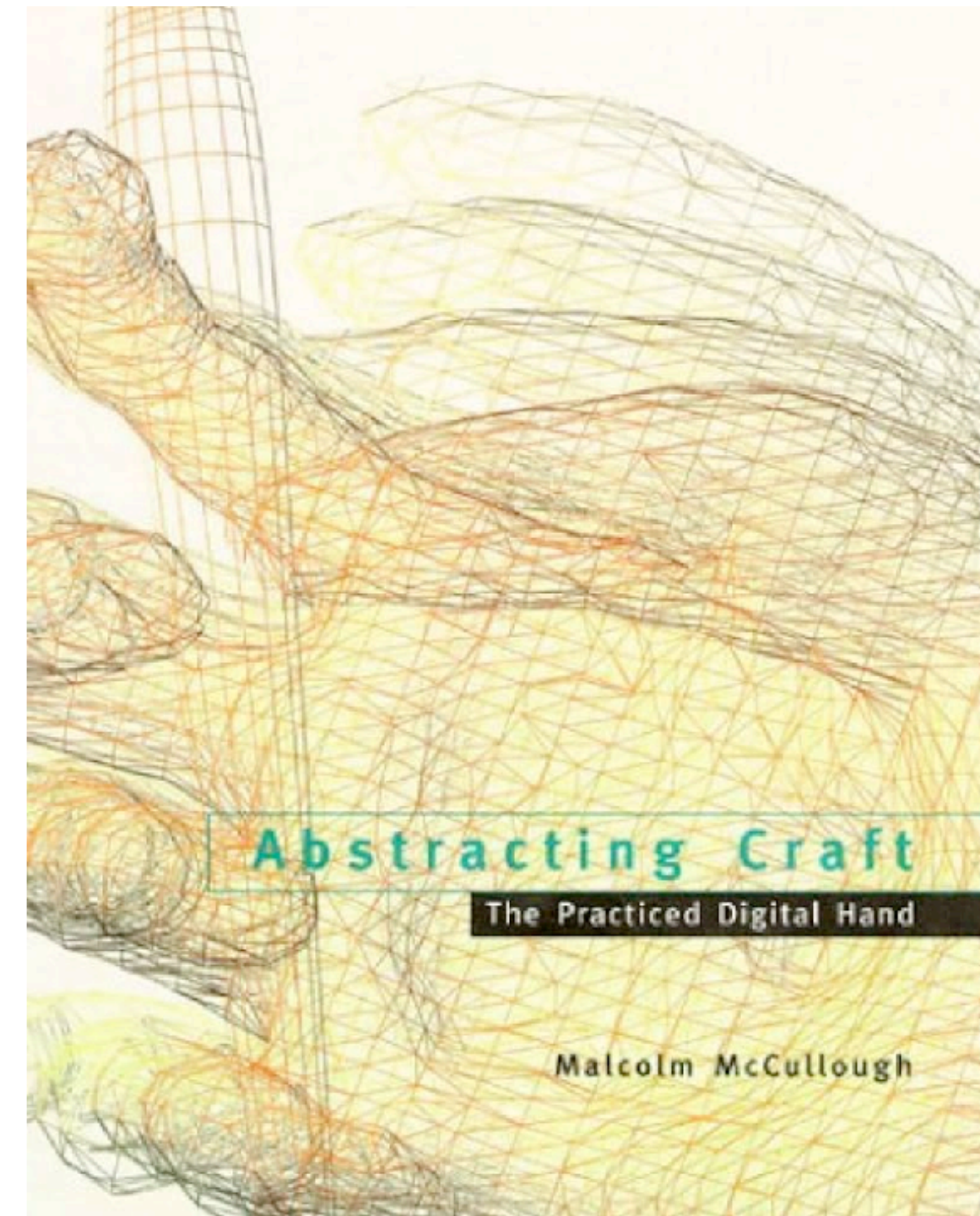
DeviantArt

Implication: tools let you **accomplish goals** that

(1) weren't possible before, or
(2) were more difficult/unpleasant to do without the tool

Another definition of a tool

- a **moving entity** whose use is initiated and actively **guided by a human being**, for whom it acts as an **extension**, toward a specific **purpose**
 - Malcom McCullough, on computational tools
- This to me implies..
 - 1. Interactivity (moving)
 - 2. Agency from humans (guided by)
 - 3. Complimenting human skills (extension)
 - 4. Existence of goals (purpose)



Course logistics

Types of assignments

- Zipcrit (I'll demonstrate Wednesday)
- Reading responses + seminar (I'll demonstrate Wednesday)
- Personal making (almost always released Monday in class, due next Monday)
- Final project (computational tool)
- Almost everything is due at 11:00am before class

Zipcrit: 5 min at the start of class

- *(From the course website)* Each student will sign up to present a "zipcrit" at the start of class. A zipcrit is a **rapid critique of a tool** (or a specific feature of a tool) of the student's choice. The presenting student has a maximum of **2 minutes and 3 slides** to introduce the tool to the class, as well as one question they would like to center the discussion around. The question should be about some aspect of "toolfulness" (interactivity, agency, goals, extension, etc.). The class will then collectively critique the artifact. Students are encouraged to use an expansive definition of "tool." It can be physical, digital, envisioned. Cute things from the depths of the internet or your personal passions are encouraged.

Last semester's ZC topics

- Procreate
- Notes app
- Cups
- Binder clips
- Spotify daylist
- When2meet
- reedsy plot generator
- Skiplagged
- Pinterest
- URL Longener
- Strava route builder
- Anki method
- Gmail filters
- A soft murmur
- Tesla steering wheel
- Airbnb's "categories" feature
- Carrd
- Library of Babel

Reading responses

- ~100 word response
- Please skim the readings for the main ideas (you'll get better and faster at this as the semester progresses)
- Lowest 4 are dropped (submit "I want to drop this" so you don't use your late days)
- Graded in 3 buckets: Good (✓ 93), superb (✓+ 100), needs work (✓- 80)
- Should feel low stakes — don't stress yourself out aiming for a ✓+
- First two reading responses due **next class** (on the "maker movement" and AI art)

Course policies

- 7 total no questions asked late days
- If you get a ✓- on something, you can resubmit it and earn all your points back if you do so within a week of receiving the grade
- You can use ChatGPT to help you write code. You cannot use ChatGPT to help you write words (reading responses, reflections, etc.)
- Please come to class whenever possible. If you have a conflict, send me an email or Slack message
- Participation grade is partially self-assessed at the end of the semester
- Prof. Li will be at a conference 10/21 & 10/23; 10/21 class is on Zoom, 10/23 will be asynchronous materials

Grading

Grading

There are no exams in this course. There are 7 individual “personal making” assignments worth 35% of your grade (5% each) and a final project. Readings and participation compose the remaining 25%.

- 40% final project
- 35% personal making assignments
- 17% readings
 - Reading responses (12%) – Your lowest 4 reading responses will be dropped (4 individual readings, not 4 days’ worth of readings)
 - Leading a seminar discussion (5%)
- 8% participation
 - Zipcrit presentation (3%)
 - Attendance and participation in critiques, seminar discussions, in class activities, etc. (5%, self-assessed at the end of the semester)

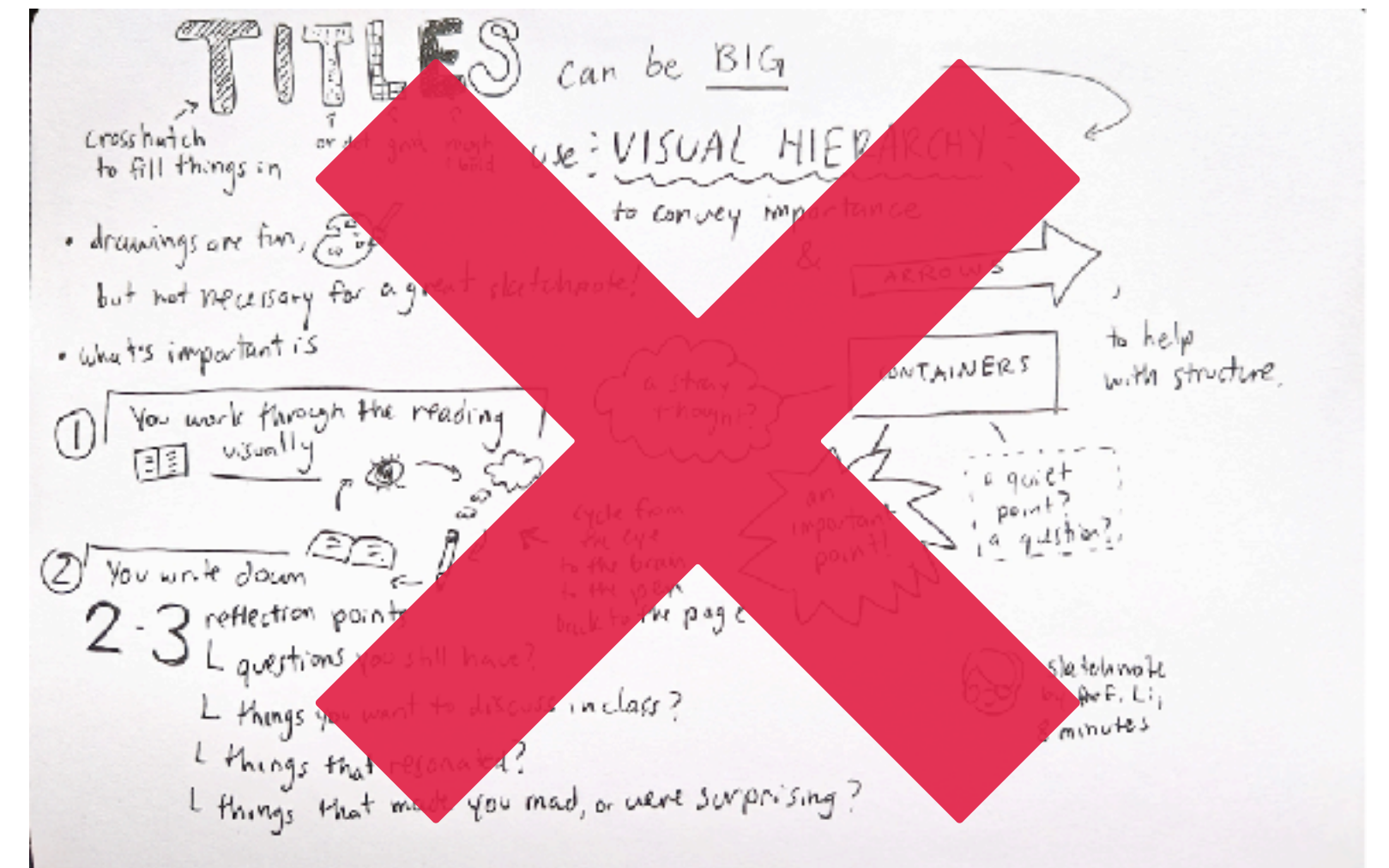
(Boring, look on the website)

This is maybe unlike other CS classes you've taken at Pomona...

- Unlike problem sets or code run on an autograder, the assignments do not have an objective right answer. They're subjective and artsy, and you get out what you put in
- My tips for success (and sanity):
 - Don't aim for a \checkmark +, aim for mastering the learning goals
 - Don't stress out yourself because you don't feel "creative enough", ask for help
 - Don't aim for creative perfectionism for every assignment, you'll burn yourself out

Changes from last semester

- Reading responses replaced sketchnotes
- Reading responses and personal making assignments almost never due the same day
- Only 1 project (replaced the first “design for protest” group project with a 3D printing for protest personal making assignment)
- Overall, less work (I hope!)
- And TA support from Abrar and Ariel!



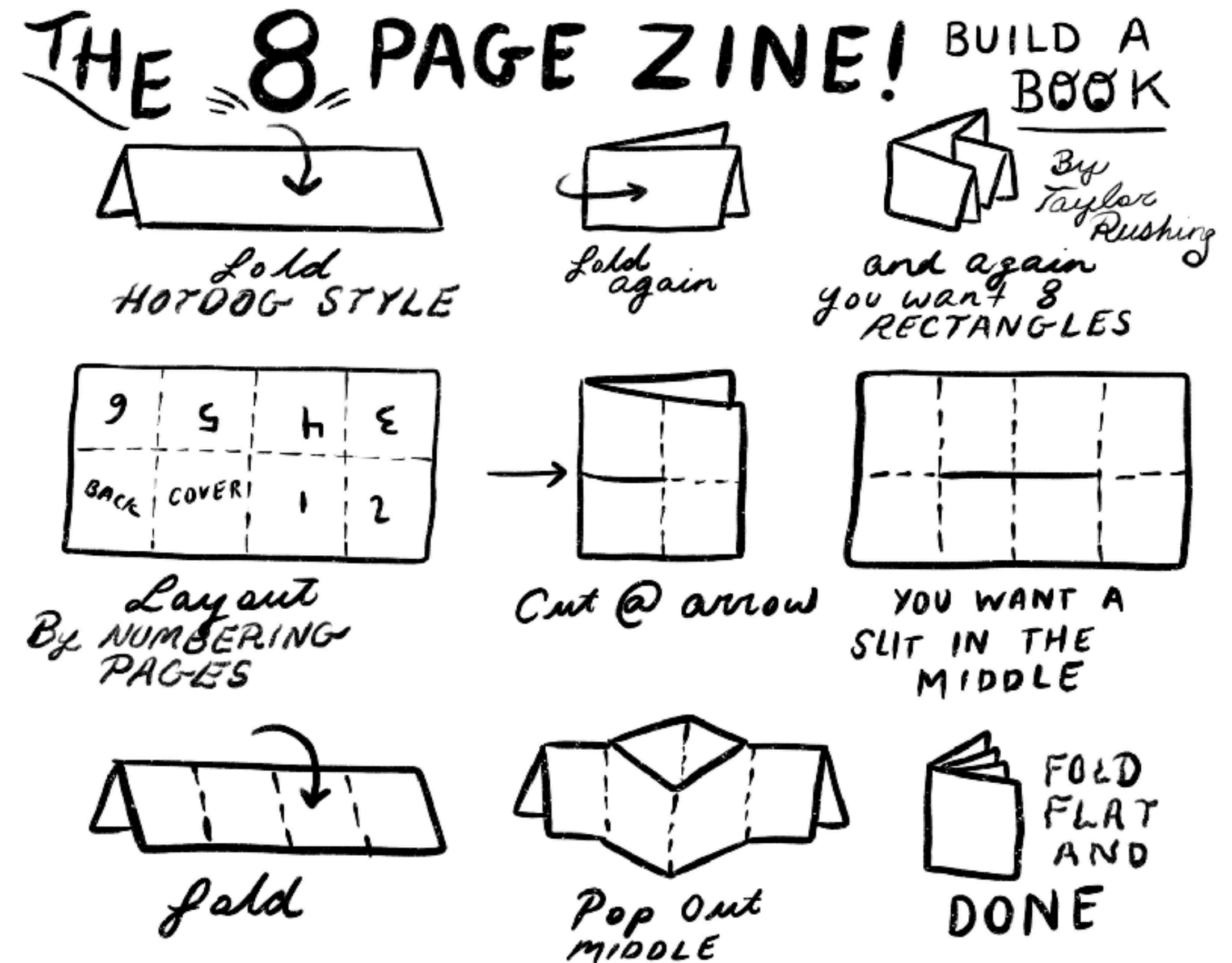
Getting help

- Doing creative assignments can be intimidating
- I am here to support you!!! But I cannot help you if you do not let me know.
- Office hours: Edmunds 111, Mon 4-5:30pm, Tue 10:30am-12:00pm (but not tomorrow, Convocation)
- You'll all be added to a course Slack before Weds. Treat it as a forum. Your classmates are here to support you, too!
- Best way to contact me is via Slack DM (or email)
- TAs will most likely hold “project parties” for personal making assignments, and definitely for the final project

PM1: Hacking Zine


<https://cs.pomona.edu/classes/cs181dt/assignments/as1/>

- First, read Making or Making Do?
- **Make a physical zine about a time you hacked something**
- Not about drawing ability!
- Detailed instructions are on the class website
- Due next Weds (9/4) 11am: turn in on Canvas & **bring to class for our first critique**



Class 1 recap

- TODOs:
 - By **EOD**: Class survey (linked on Canvas, and class website)
 - Give preferences for seminar & zipcrit days
 - If you're on the PERM list and want to take the class, mention that
 - By **Wednesday's** class: 2 100 word reading responses (Making or making do? & AI art and its impact on artists)
 - By **next Wednesday's** class: PM1 - Hacking Zine
- So 3 assignments for your first week: (1) welcome survey, (2) reading responses, (3) zine
- Bookmark the class website: <https://cs.pomona.edu/classes/cs181dt/>
- Drop off your name tag before you go!



CS181DT Welcome Survey (Fall 2024)

Please fill out this survey by EOD Monday, 8/26/24.

Jingyll@cs.stanford.edu [Switch account](#)

Not shared

* Indicates required question

Preferred name (first last) *

Your answer

Pronouns

Your answer

Email *

Your answer

Why are you interested in this class? What do you hope to learn?
This question is optional, but if you're on the PERM list, please answer it and indicate that you are trying to get off the PERM list.

Your answer