User Interface Design

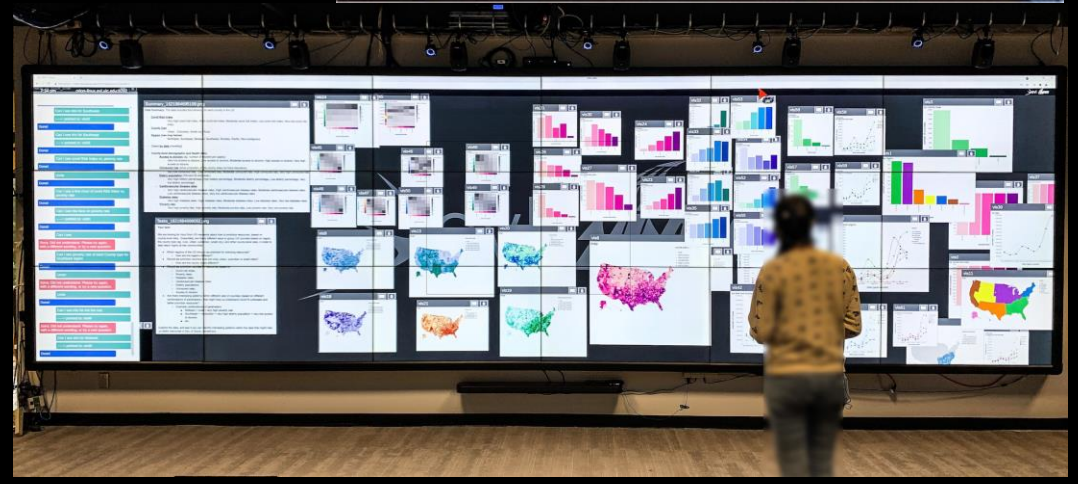
Welcome!

- Dr. Jillian Aurisano

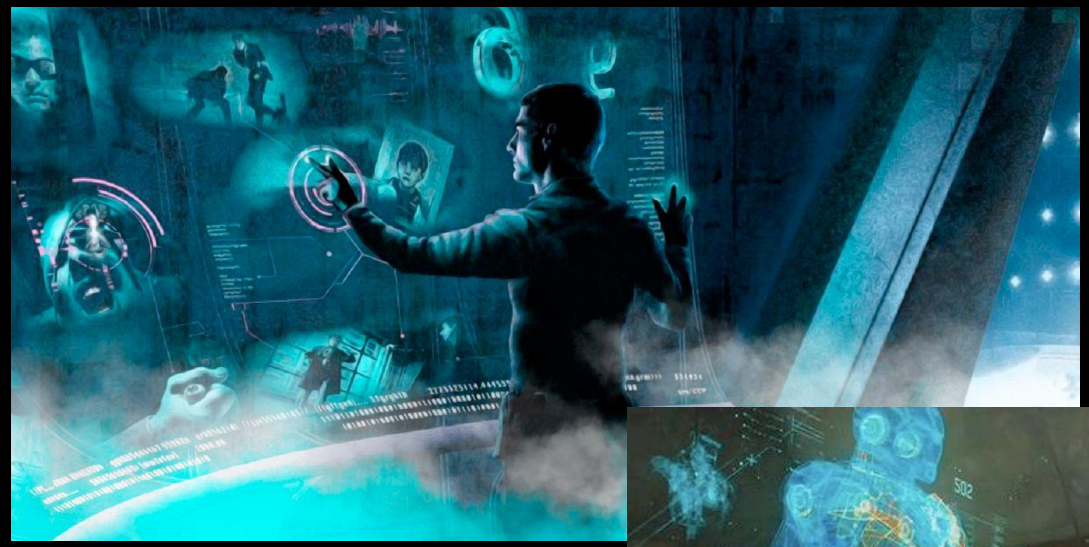
- Plan for today:
  - Introduce myself (5 min)
  - Discuss the course
  - Introduce usability
  - Do an activity

About me

- Assistant Professor in Computer Science
- Started last fall
- My research:
  - Data visualization
  - Human computer interaction
  - ‘Beyond the desktop’ environments
    - Large displays
    - VR/AR platforms/environments
    - Interaction other than mouse/keyboard



What I like to think my research is ….



Reality: Still pretty amazing (to me)

I collaborated on this with a team in my lab in grad school

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Reality: still pretty amazing (to me)

Other cool experiences in grad school

- Travel to Bangalore India, for research
- 1 month in Kenya, living at a remote ecological research center
- Lots of travel to conferences….

Outside of work

About this course

What is this course about?

Description

This course introduces the basic concepts of human computer interaction and the latest development of the technology for developing interactive systems.Major topics cover the role of computer technology, human users and human factors for designing windows-based applications, and design methodologies for building software applications - Prerequisite Definition: To take this course you must: Be enrolled in one of these Programs 20DOC, 20MAS.

What is this course about-----> Good design

Look at this picture
Does anything seem wrong?

What is this course about- ----> Good design

If it needs a sign, it’s probably bad design
Don Norman, Design of Everyday Things

What this course is about -------->Good design

- What makes a good design? What are some principals of good design?
- What practices will help us arrive at good designs?

What is this course about -------> People

Human-centered design of the interfaces between people and computing systems

Humans  Computers

What this course is about ----------> UI+CS

- How can we think about interactive interfaces as computer scientists?
- How can we enable engineers to create interactive interfaces, visual interfaces, interfaces for different devices….

What is this class about

- Understanding the principles of ”good” design’
- Understanding people
  - How people use computers, devices, interfaces
  - How people perceive, think and behave
  - What people need to do with an interface- their goals and tasks
- Employing practices to arrive at “good” designs
  - Sketching
  - Human-centered design methods
  - Prototyping
  - Evaluations
- Technical understanding/skills (web) to implement these designs.

Course philosophy

The best way to learn, is to practice

I teach portfolio style courses:

- Most of the evaluated work is in several (usually 3) substantial projects

  Solo work and group work
- Projects interesting/complex/realistic
- You will do a mix of:
  - Designing
  - Implementation
  - Communicating your work online and in a presentation

What will your portfolio look like?

- You will create a webpage to showcase your portfolio
- Each project will be documented:
  - Describing the goals
  - Describing your process
  - Describing the result
  - Sketches
  - Screen-shots
  - Link to code on github
  - A video demo

Why build a portfolio?

- Reason #1: Jobs
  - Discussion with a Google resume screener….
  - My own experience interviewing….

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  - For me, CS is about being empowered to create things + help people
  - Let’s put that into practice NOW

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- Reason #4: Fun

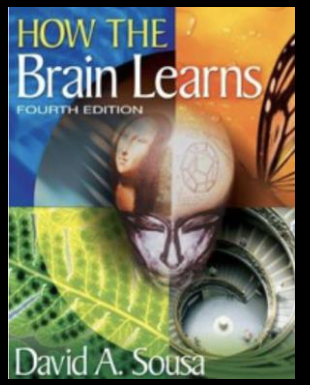
Some evidence that this is a good way to learn….

Learning strategies

Lecture
Reading
Audio-visual
Demonstration
Discussion Group
Practice by Doing
Teaching Others

There are different ways of communicating and processing information.

Which ones “work best” in terms of retaining information or skills?



Which will help you learn the most?

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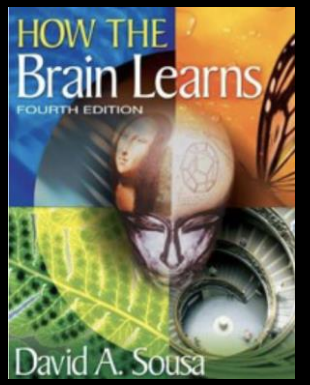
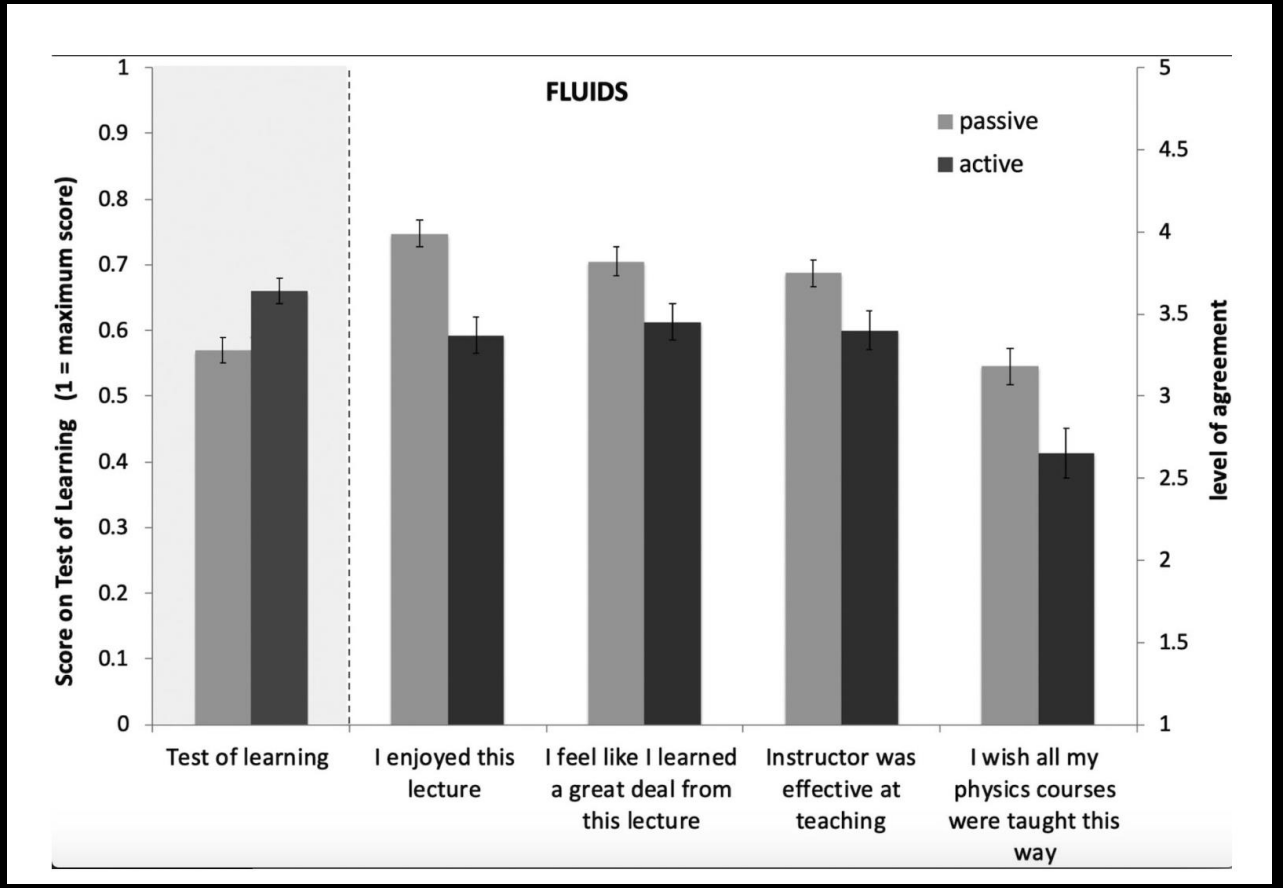


High retention learning strategies!

I’m going to try to do lots of active work in class

Students learn more with active teaching



Data from: Deslauriers et al., Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom, PNAS **116** (39), 19251-19257 (2019).

But students think they learn more from lectures

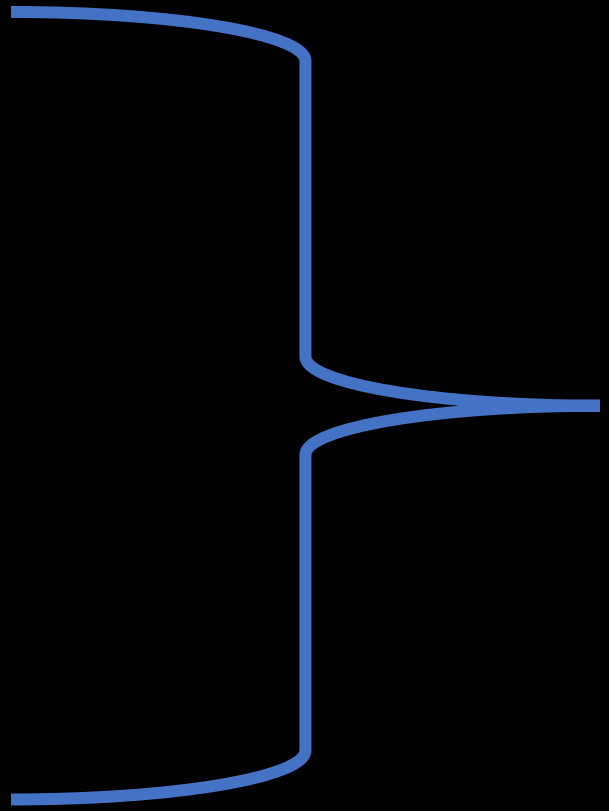
And they enjoy lecture more - less effort?

They rank the instructor as more effective in lecture course

But… I want you to learn so… active learning it is!

Project schedule- FAST!

- Project 1
  - Out: Week 2
  - Due: Week 6
- Project 2
  - Out: Week 7
  - Due: Week 10
- Project 3
  - Out: Week 11
  - Due: Week 15



Note-need to stick to the schedule

TAKE NOTE

These projects may take

A

LOT

OF

TIME!!

It takes time to create user interfaces with thoughtful designs.

It takes time to get something working- bugs will happen

If you are taking lots of implementation heavy courses, think carefully about your schedule!

Take Note

- Project lateness policy:
  - Because we need to keep the schedule, there are CATASTROPHIC penalties for turning in projects late
  - Just turn it in!!!
    - Really, I promise, it'll be ok!
- Have things going on?
  - Please let me know early, so it isn't a surprise and we can make a plan

How does this translate into grades

1) Participation and assignments: 15%
   - Attendance, turning in work done in class, Discord page
2) Projects: 75%

   (application + documentation + presentation)

   Project 1: 25%

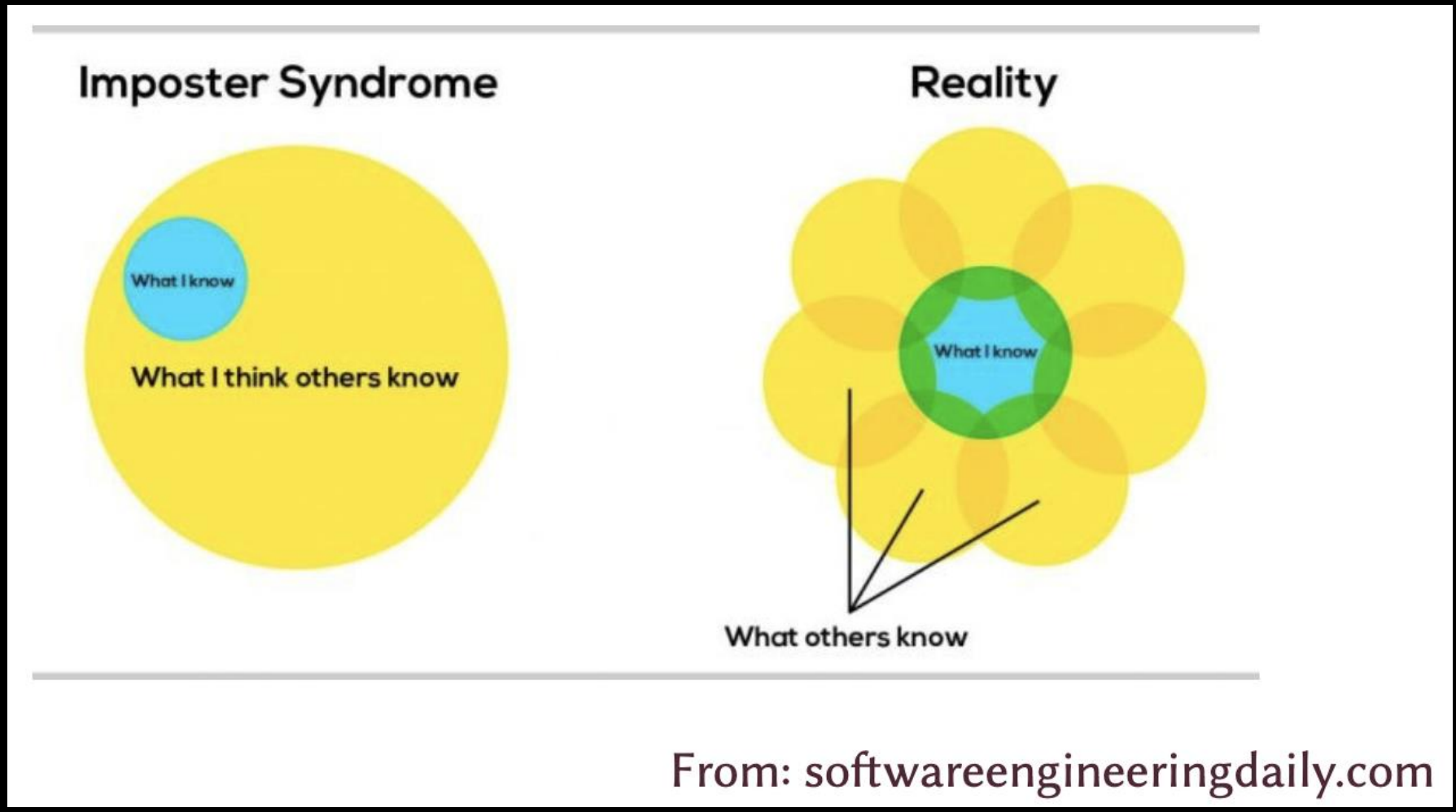
   Project 2: 25%

   Project 3: 25%
3) Final exam: 10%

Working solo, in groups, collaboration policy

- I WANT you to discuss and learn from each other
  - Discord page: ask questions, give links, code snippets- help each other!
- We need online resources, code examples
- But, your code (and your group's code) should be your own
  - Note your resources (online, peers) in your documentation
- First project: Solo
  - Why: everyone will have a common foundation
- Second and third projects: Group project
  - Why: It is a lot of work!
  - Good experience with project planning, code sharing with github
  - Your grade on these projects will be influenced by a peer/self assessment

Let’s learn from each other!
Remember- we are all learning



Not a web dev course… but

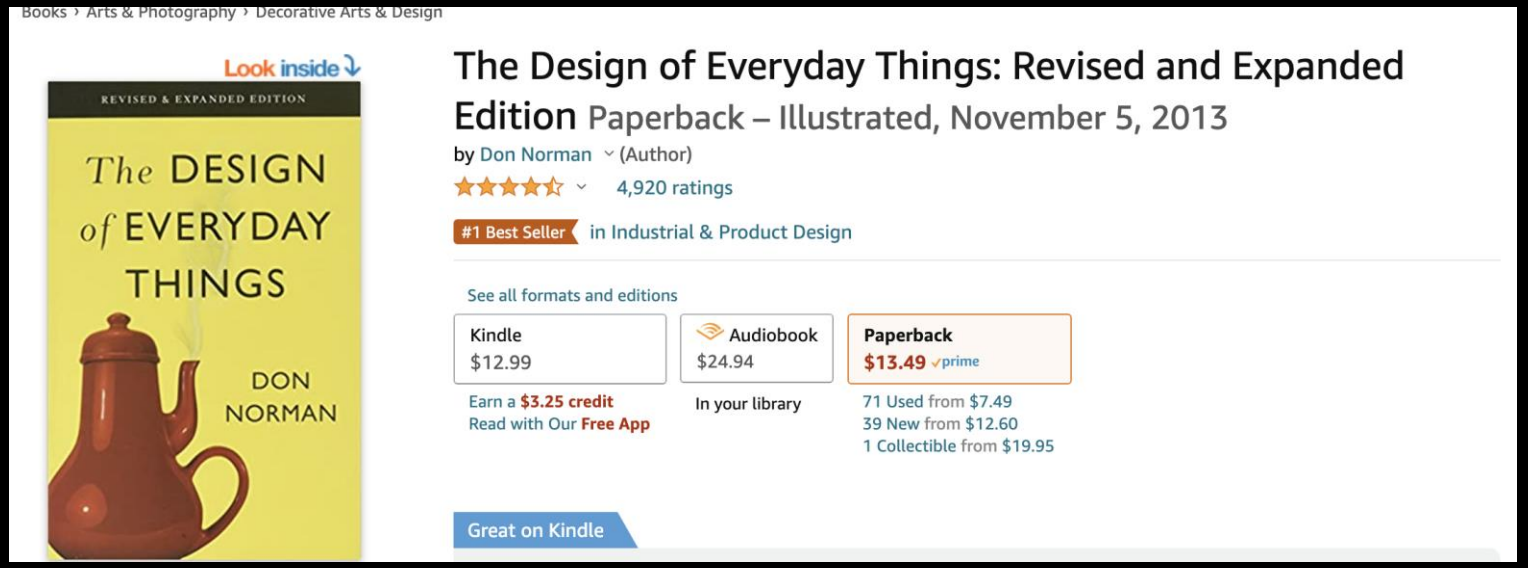
- We will cover *some* web development
- First time teaching this course: want to evaluate how we are learning, as we go
- Definitely: Html, css, javascript
- Possibly: React for project 2
- Possibly: Node.js, MongoDB for project 3

Topics

Usability
Learnability
Efficiency
Safety/Errors
Interaction
Graphical presentation- layout, composition, color
Sketching
Storyboarding
Prototyping
Accessibility

Recommended books

- I am not requiring a textbook this year…
- But you should all go read Don Norman's Design of Everyday Things
  - It is excellent
  - It is a light read
  - It is inexpensive

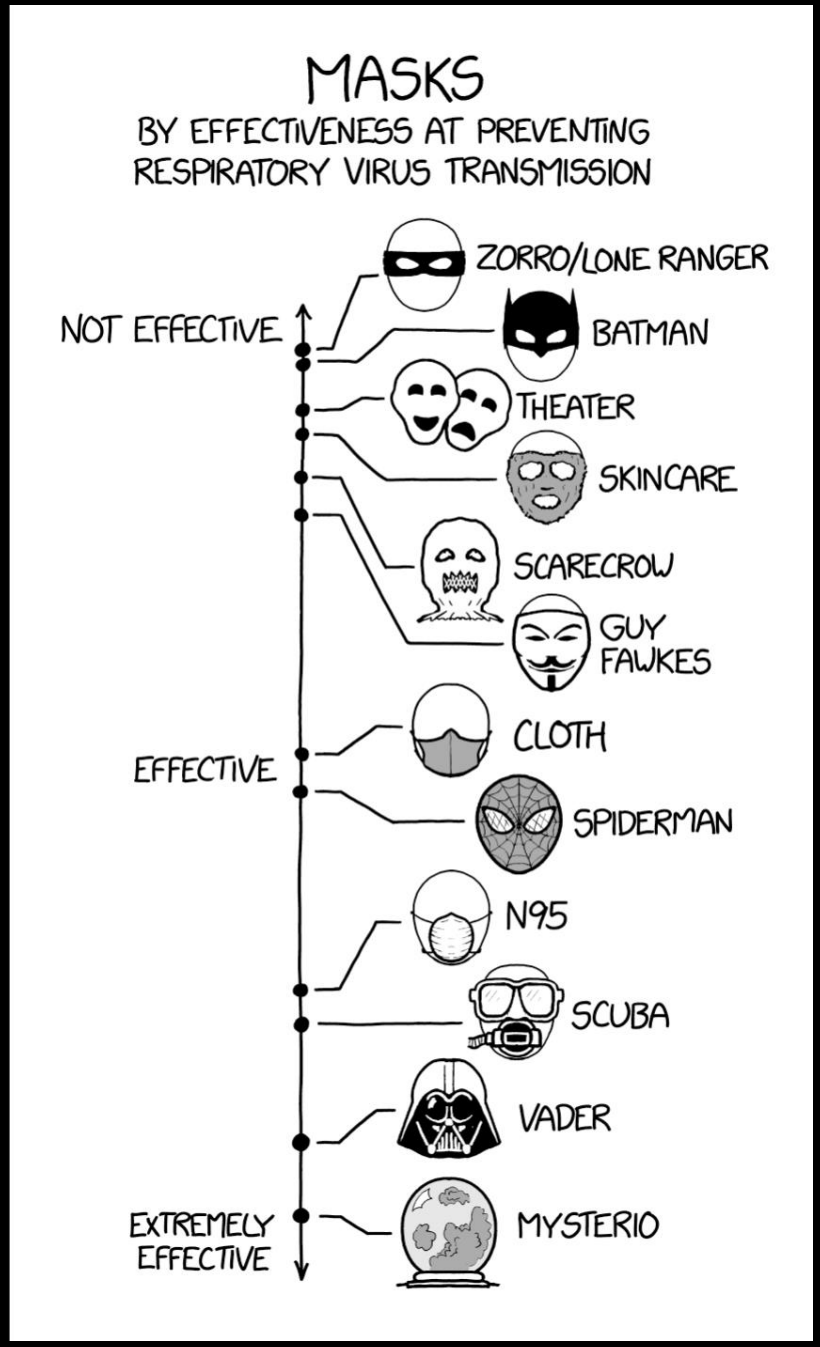


Readings

- I will post any assigned readings to Canvas

Covid safety

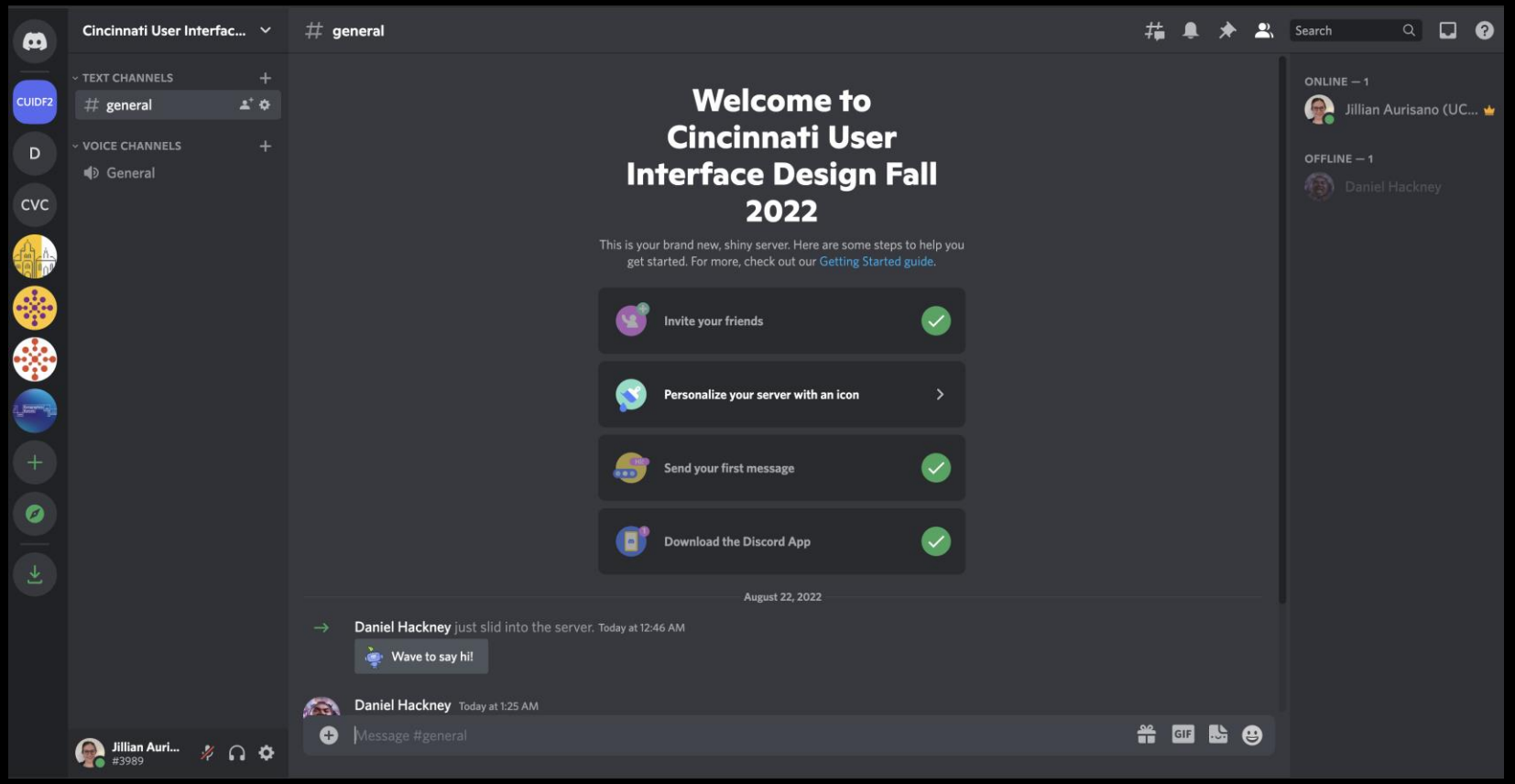
- Class is better in person- please come to class!
- Feel free to wear a mask
- If you are sick- you can join via Zoom
  - But email me first so I make sure you are able to connect



xkcd

Canvas, Discord

- Discord - communication and collaboration
  - Feel free to PM me on Discord
- I'll set up Discord channels for projects, other discussions
- I'll post content on Canvas



First assignment

- Posted to canvas
- Due next Monday midnight
  - Create a webpage for your portfolio
  - Create a github account
  - Fill out the book of faces
  - Sign on to Discord, update your nickname to your real name for this channel
  - Google forms survey on experiences with UI/web dev

Design

- Let’s talk about example designs
  - These can be designs of interfaces, apps, devices, environments…

I’ll go first


Reminder! Return for a second dose!
¡Recordatorio! ¡Regrese para la segunda dosis!
Date / Fecha
4/27/21
mm dd yy
Lleve este registro de vacunación a cada cita médica o de vacunación. Consulte con su proveedor de atención médica para asegurarse de que no le falte ninguna dosis de las vacunas recomendadas.
Para obtener más información sobre el COVID-19 y la vacuna contra el COVID-19, visite espanol.cdc.gov/coronavirus/2019-ncov/index.html.
Puede notificar las posibles reacciones adversas después de la vacunación contra el COVID-19 al Sistema de Notificación de Reacciones Adversas a las Vacunas (VAERS) vaers.hhs.gov.
MTA

Habit tracking app