

LAB 03

**USER-INTERFACE AND
USER EXPERIENCE
(UI/UX) DESIGN**

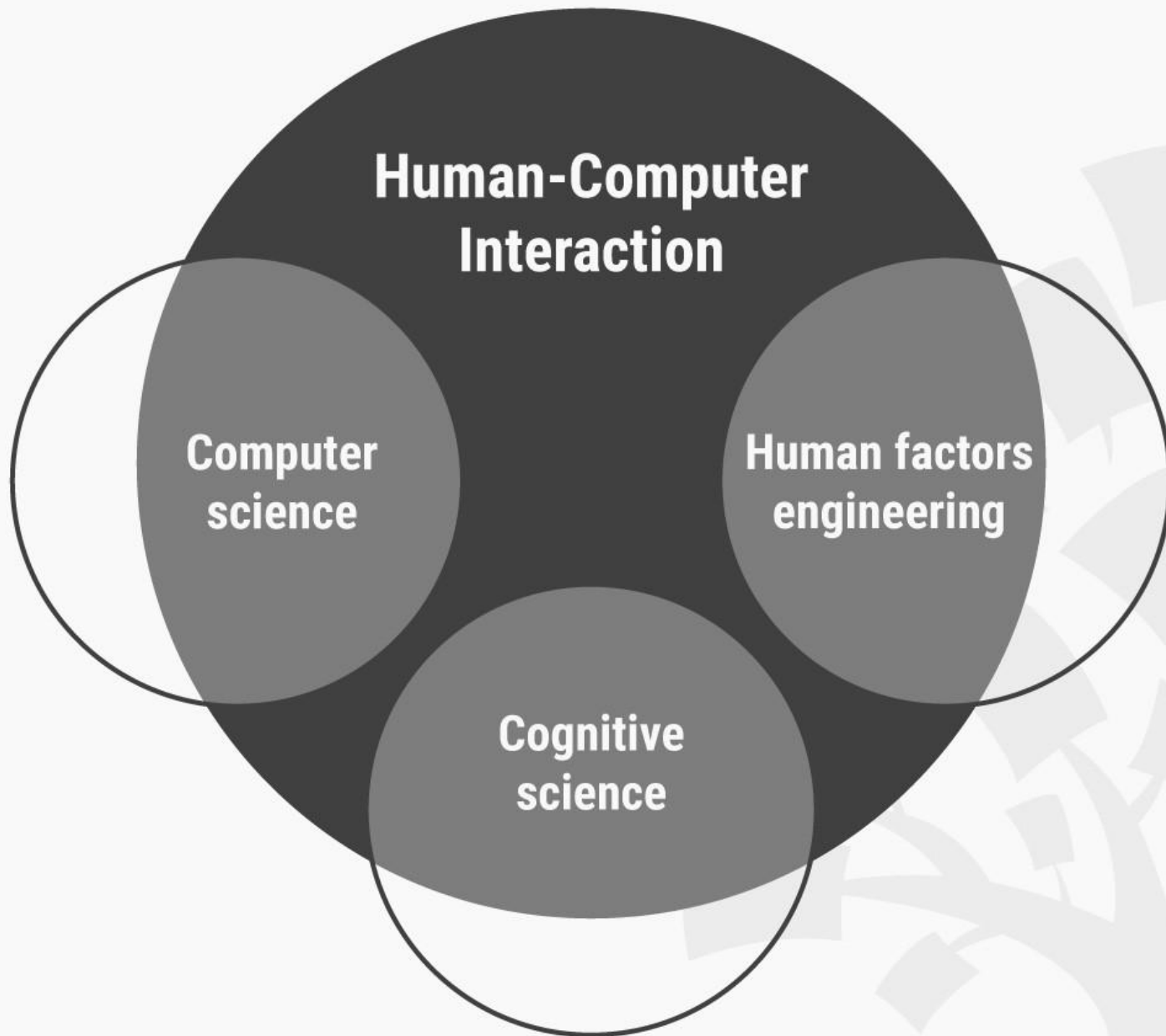
ECE 4880

UNIVERSITY OF IOWA

LOGISTICS FOR LAB #03

- Lab 3 is due on Friday, December 5
- Progress update with TA on the week of November 17
- Lab checkoff on the week of December 1
- Lab locations
 - 2319 SC
 - 1313 SC
- Lab access:
 - No scheduled lab periods.
 - Lab is available 24/7 (providing that proper lab etiquette is maintained).
- Lab maintenance:
 - Students are in charge of keeping the lab a clean and pleasant working environment.
 - To report problems (e.g., multimeter/oscilloscope malfunction, solder restock, etc.), email TA Nick and cc instructors.

The Multidisciplinary Field of HCI



UI CRITIQUE - EXAMPLE 1

1 / 4

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When

Email

Sign In Or Sign Up

Sign in to check out faster.

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Uruguay

Vanuatu

Vatican City

Venezuela

Last Name*

UI CRITIQUE – EXAMPLE 2



UI CRITIQUE – EXAMPLE 3



UI CRITIQUE – EXAMPLE 4



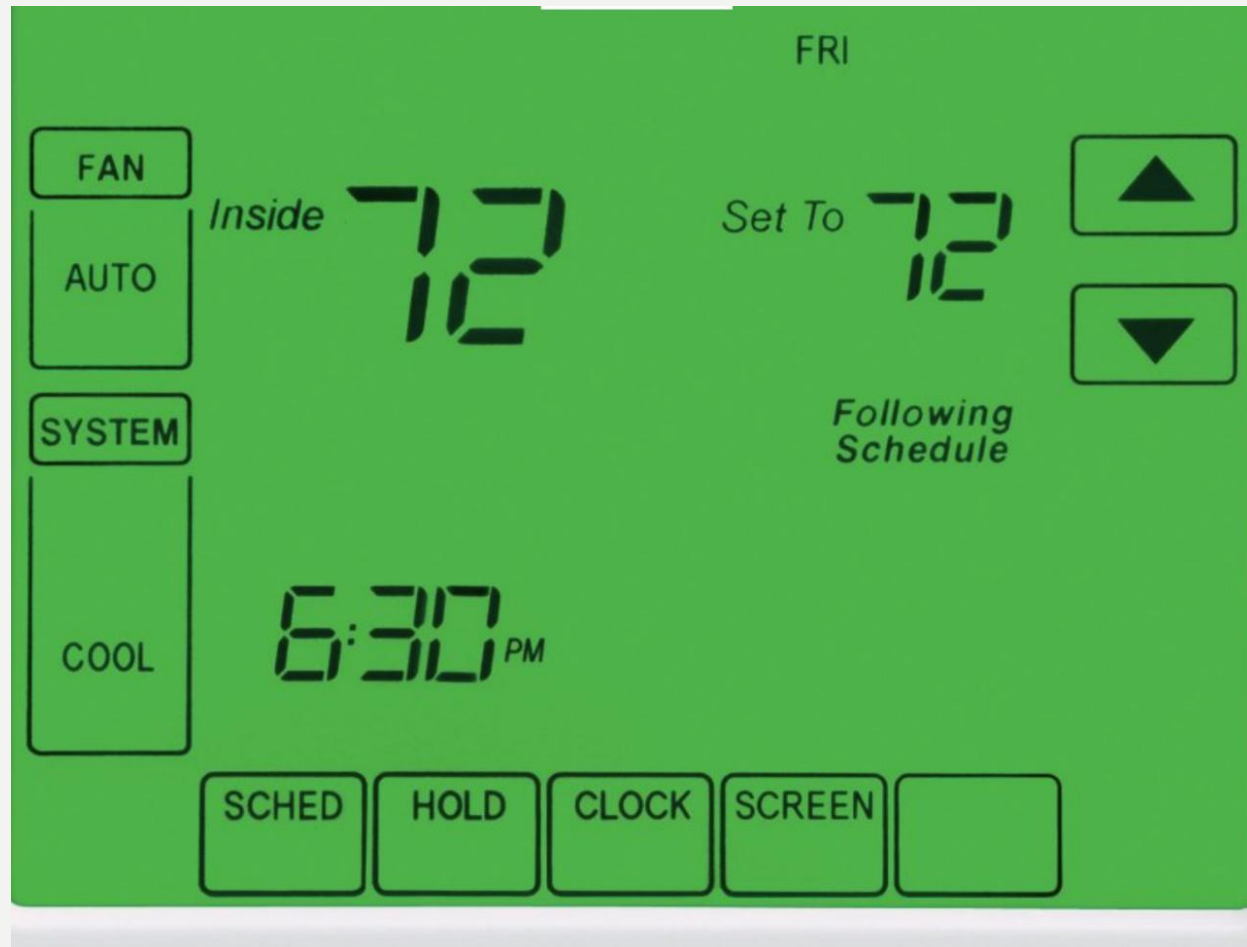
13 INVESTIGATES

FRONT BLIND ZONE TEST

13



UI CRITIQUE – EXAMPLE 5



UI TOPICS

- UI VS UX.
- Front-end Validation.
- Security VS UX.
- Responsive Web.

UI VS UX

WHAT DO STUDENTS THINK

- User Interface.
- User Experience

UI

- User Interface.
 - Typography
 - Arranging text to make it legible, readable, visually appealing.
 - White space (negative space), structure between elements.
 - Colors; contrast, for usability and readability.
 - Icon and illustration design.
 - Good on different devices.

UX

- Process.
 - Research.
 - Understand user requirements (requirement).
 - Representation of a typical user (persona).
 - How will different people use the product (use cases).
 - How a user starts and finishes (journey map).
 - Brainstorm.
 - Create user flows; outline the steps users might take.
 - Wireframe; rough skeleton of the UI.
 - Implement.
 - Prototypes: creating a prototype, may or may not be interactive.
 - Frontend & Backend Development (once prototype approved make it a product).
 - Report.
 - Usability reporting; observe real users.
 - Split Testing; test the effectiveness of a design or iteration.
 - Analytics; additional info like time spent on pages, bounce rates.

UI & SECURITY

- Security:
 - Authentication:
 - From the word “authentic”; original.
 - You are who you say you are.
 - Authorization:
 - From the word “authority”; power.
 - You may perform this task.
- Is UI authentication and authorization real?
 - If running on the client machine.
 - If done in JS, or HTML.
- Why have a validation layer in the UI?
 - User convenience, UX.

UI VALIDATION

- Form filling.
 - Age field.
 - Anything then check on the server ./
 - Only allow numbers and do not send to server if anything else.
 - Submit Button.
 - Submit and have the server check if you are missing a field.
 - Do not show the submit button until all fields are entered.
 - Maybe better to disable and indicate why.
 - Long form.
 - Page with scrolling.
 - Several pages with next.
 - Maybe even save progress.
- All about UX.

RESPONSIVE WEB

- Automatically adjust layout, content, and design to provide better UX based on viewing device.

WEBSITE FOR PROJECT AND TEAM MEMBERS

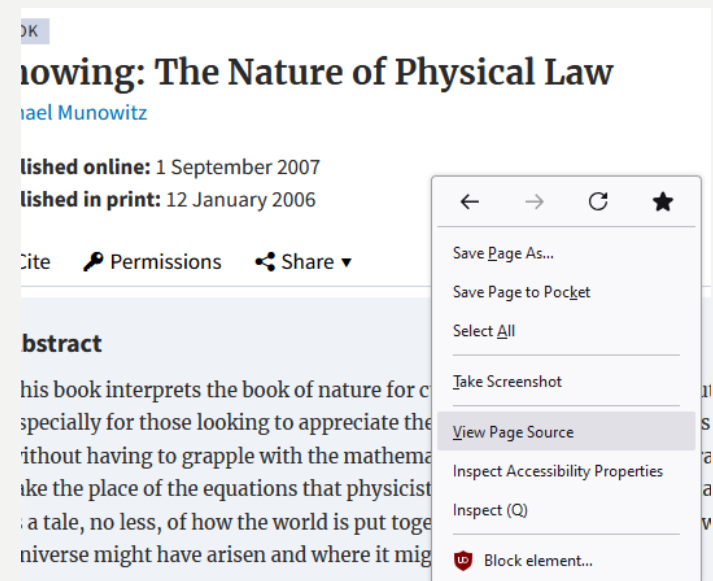
- Some required functionality:
 - See lab spec on ICON.
 - Also, on next several slides.
- Treat the requirements as baseline:
 - Consider the possibility of using your work on this lab as a project management tool.
 - Feel free to add features that may be useful for your team.
 - Calendar widget? TODO lists?

LAB REQUIREMENTS - 1

- Your objective is to create a portfolio website that includes a **contact form** and some content that is **password protected**, and is intuitive, easy-to-use, and informative.
- Possible to build using only html, css and javascript.
 - Can publish on the university's website hosting service:
<https://its.uiowa.edu/services/myweb>
 - Use any programming languages and tools, e.g. databases/backend tools.
 - Web applications requiring server-side tools may not be supported by myweb.

LAB REQUIREMENTS - 2

- Password protected content (**Default Password: Fall2025Lab3**).
 - Main homepage lists a link to protected content, that when clicked presents a dialog asking for a password. Upon password verification, the webpage will navigate to a page showing a list of available protected content.
 - Navigation of the protected content should be possible without being repeatedly prompted for the password.
 - ❖ Many possible implementations.
 - ❖ Access expires after fixed time interval?
 - ❖ Idle timeout?



LAB REQUIREMENTS - 3

- **Security.**

- ❖ You should take reasonable measures to make sure that the protected content on the website is secured against unauthorized access. Specifically, it should not be possible to gain access to this content without the password, simply by viewing the html code of your main webpage.
 - Do NOT list the plain-text password anywhere in your html.
 - Do NOT list the URL of unencrypted pages with protected content in your html.
- ❖ There must be no mechanism to change the password for the website from the website itself. However, there will be a mechanism to change the password *offline*.
 - This mechanism should be automated to an extent resource if possible.
 - E.g. a shell script or Python program that creates a new set of protected content files that can then be uploaded onto the web server.

LAB REQUIREMENTS - 4

- ❖ **Contact Form** Each team member's portfolio page should include a contact form that allows the user to send a text message.
 - Messages sent using this form, along with a timestamp, should be saved as web pages that can be viewed as part of protected website content.

- ❖ **Black & Gold color scheme** The website's background color, font and other visual elements should follow the University's ("Black & Gold") standards as much as possible: <https://brand.uiowa.edu/fonts>.
 - Your site is NOT an official university website.
 - Do NOT include university logos and trademarks.

STORYBOARDING

Figma/Figjam

Free online white board
and design tool for
teamwork

Welcome to the Senior Design Instructor's Website



ECE:4880 Senior Design Team

[Link to Our Team's About Page](#)

Prof. Liu's Page

I love my dog, Alvin!! Visit my page to learn more about Alvin.

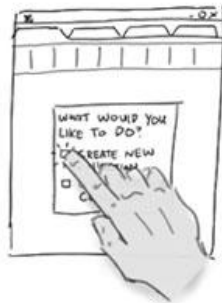
Prof. Chu's Page

I worked in industry for many years before becoming a professor. Visit my page to learn about a few of my projects.

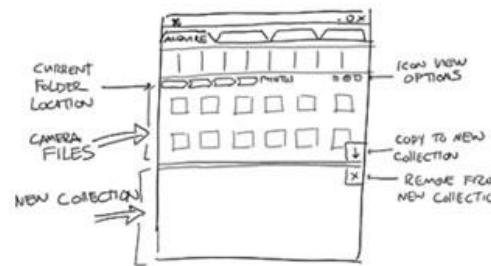
TA Tessa's Page

I created this example Figma page! Feel free to ask me any questions about creating a Figma account and how to create a page like this one.

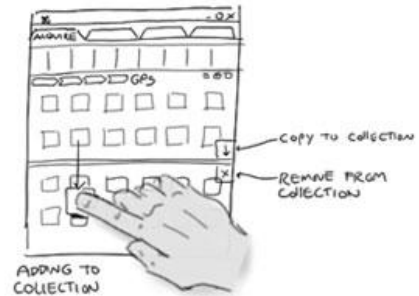
STORYBOARDING



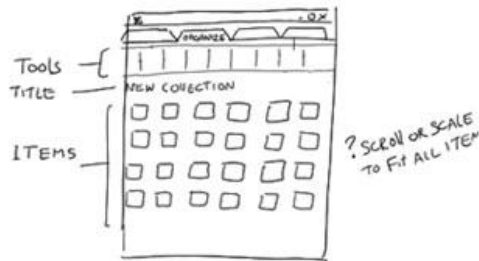
CREATE NEW COLLECTION



7 - DOWNLOAD FROM CAMERA
 OL - RETRIEVE PHOTOS FROM
DEFAULT CAMERA LOCATION



SELECT DATA FILES



"ORGANIZE" HOME SCREEN



SELECT FACE TO SORT BY



EDIT LAYOUT OF COLLECTION



“CAN’T UNSEE”

<https://cantunsee.space/>

