Human-Computer Interaction

Course Introduction

Professor Bilge Mutlu

Today's Agenda

- Topic introduction
- HCI research at Wisconsin
- Course introduction

Instructional Team

Instructor: Bilge Mutlu

Professor of Computer Science, Psychology, & Industrial Engineering

Director of People and Robots Laboratory

People & Robots Laboratory

PhD, 2009, Carnegie Mellon University

bilge@cs.wisc.edu, http://bilgemutlu.com

Instructional Team

TA: Dakota Sullivan

Second year graduate student

Department of Computer Sciences

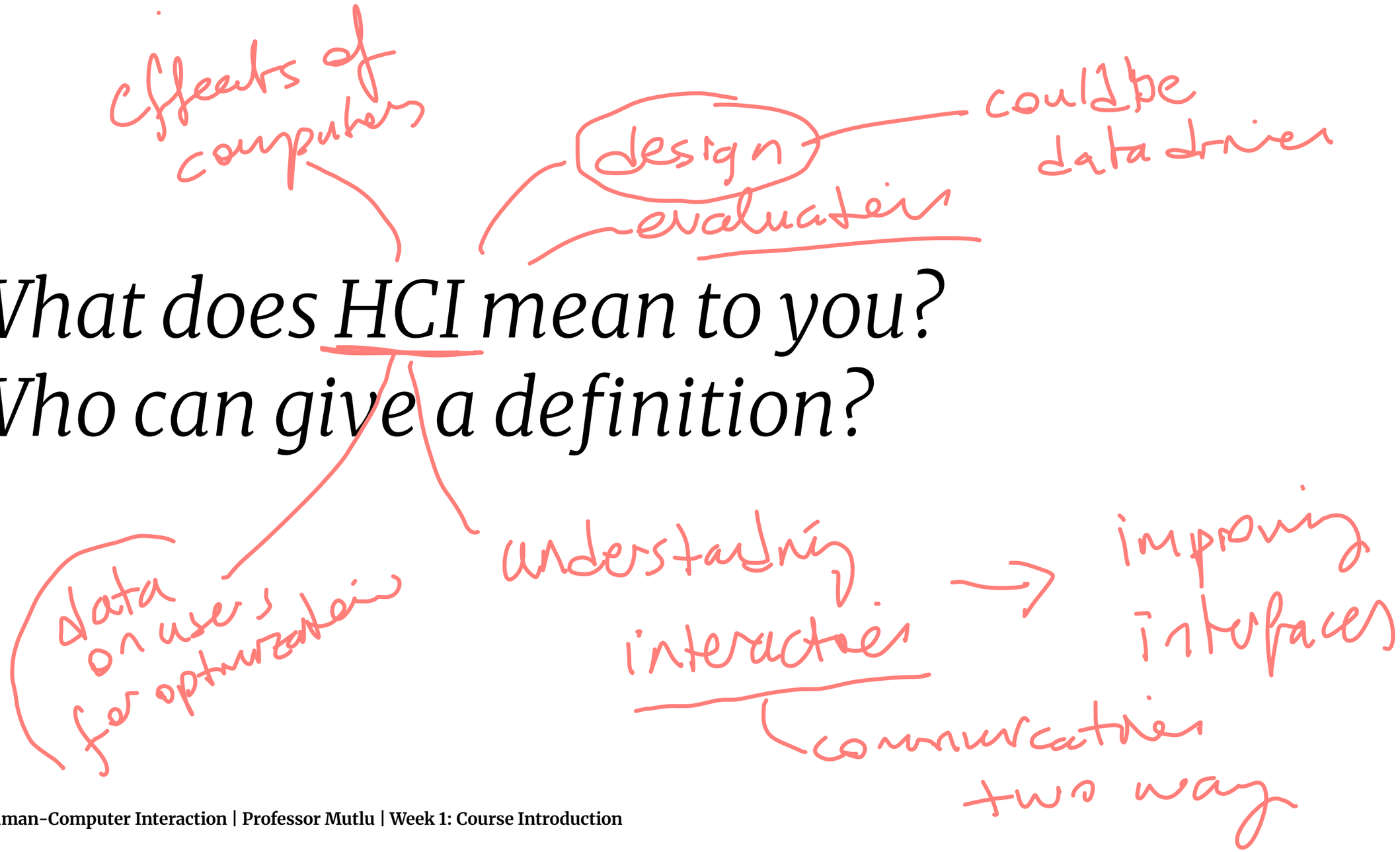
CS-770 Veteran

People & Robots Laboratory

How about you?
Give us your name, program, year.

What is this course about?

Human-Computer Interaction


effects of computers
design
could be data driven
evaluation
What does HCI mean to you?
Who can give a definition?
data on users for optimization
understanding interactions
improving interfaces
communication two way

Different Perspectives

Design Implications

I want to design a computer system and need to know what to design.

Evaluation

I have designed a computer system and would like to understand whether it is any good (for people).

Understanding Impact

I would like to understand how a computer system that I designed affects people's lives.

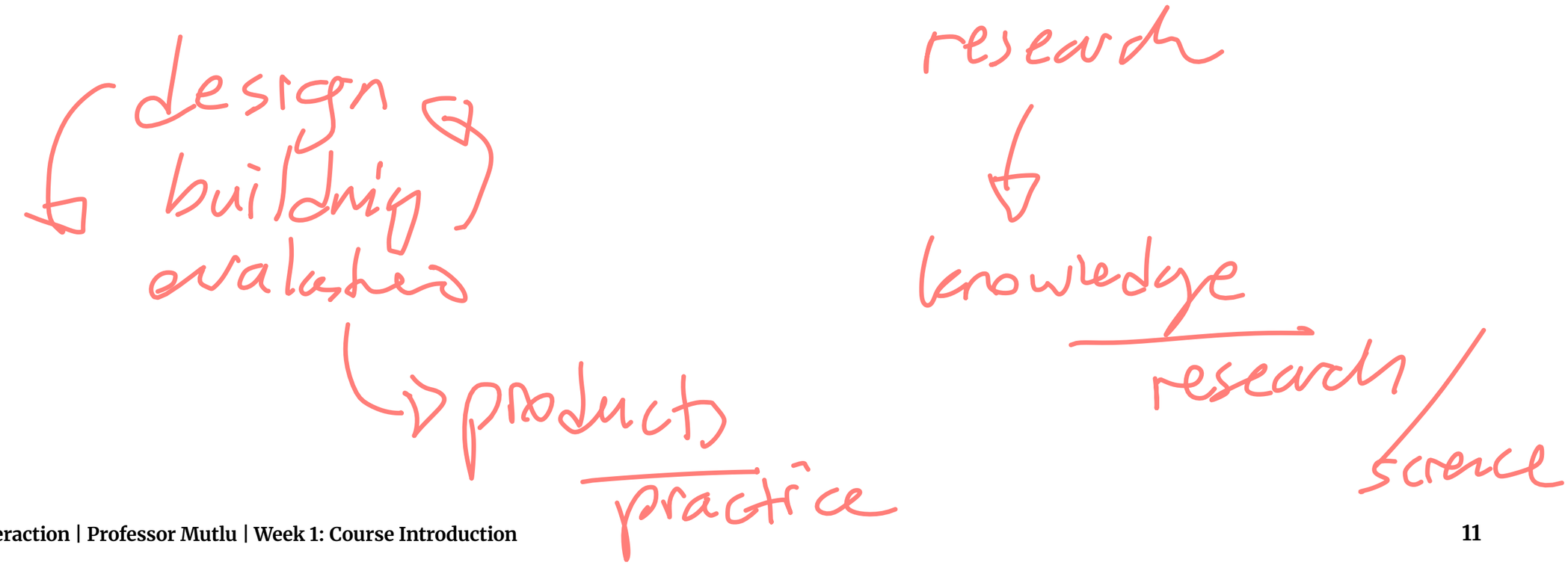
Societal Change

I would like to understand how a computer technology affects society at large.

Definitions

"...a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them."

— ACM



Where does HCI fit within Computer Science?

1

[1] Image sources: 1, 2, 3, 4, 5, 6

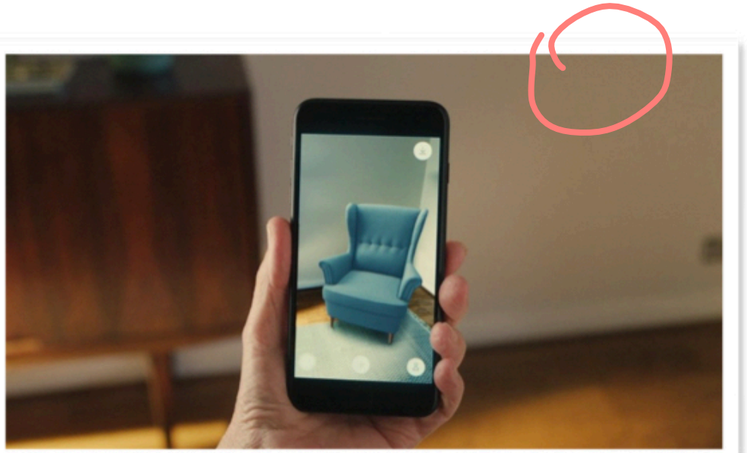
What's missing here?

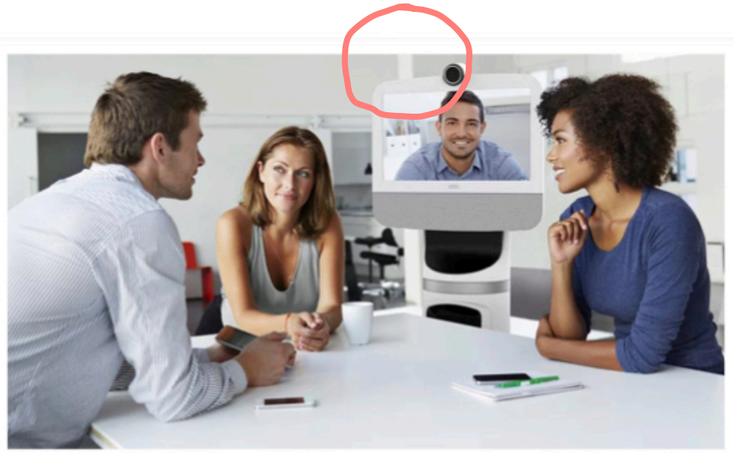
"The old computing is about what computer can do, the new computing is about what people can do [using the computer]."[2]

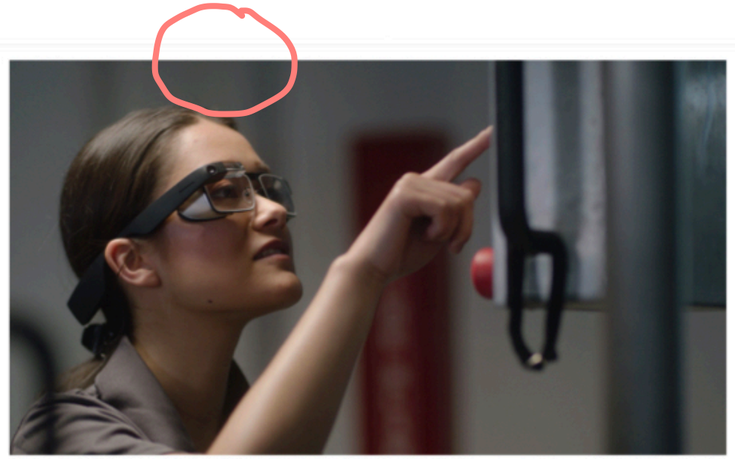
— Schneiderman, 2002

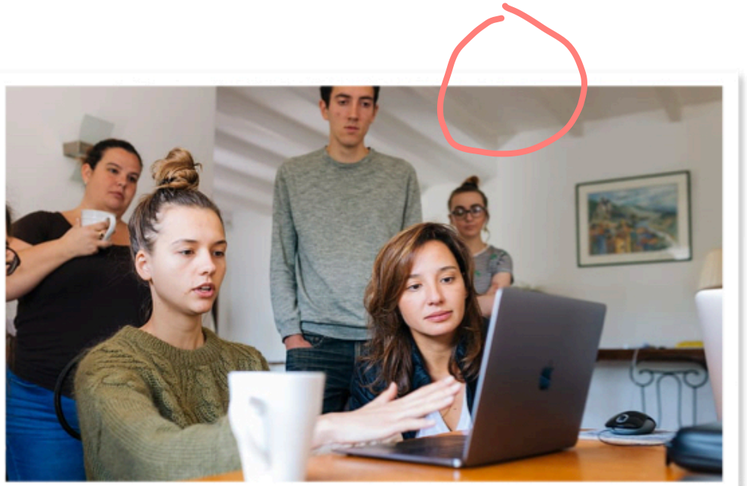
[2] Image source

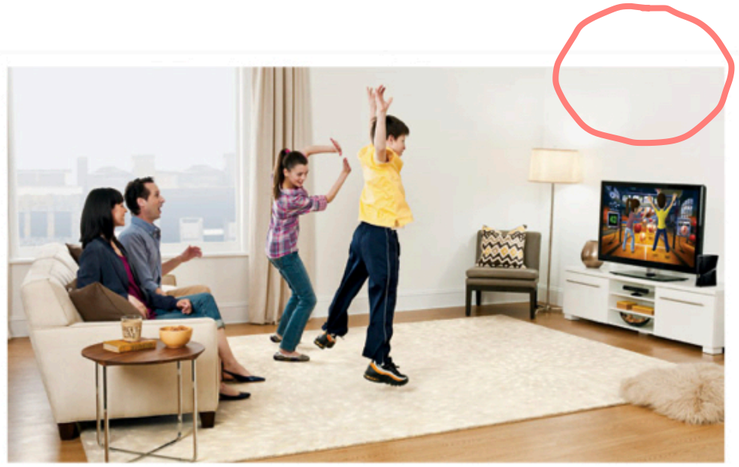
3

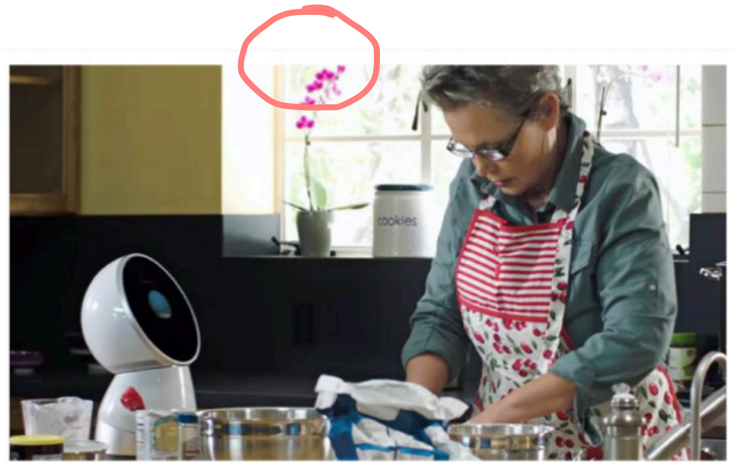








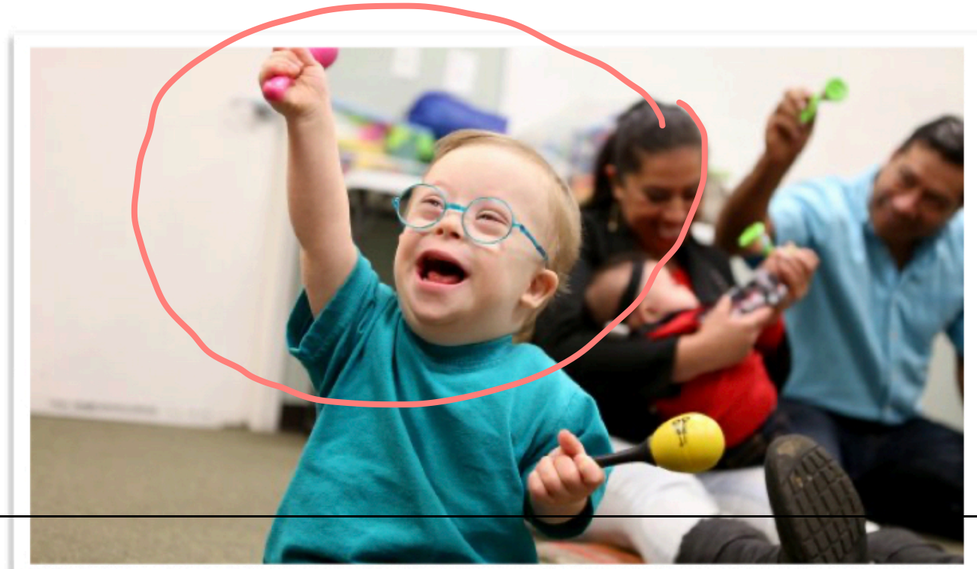




[3] Image sources: 1, 2, 3, 4, 5, 6

Where does HCI fit within psychology/ education?

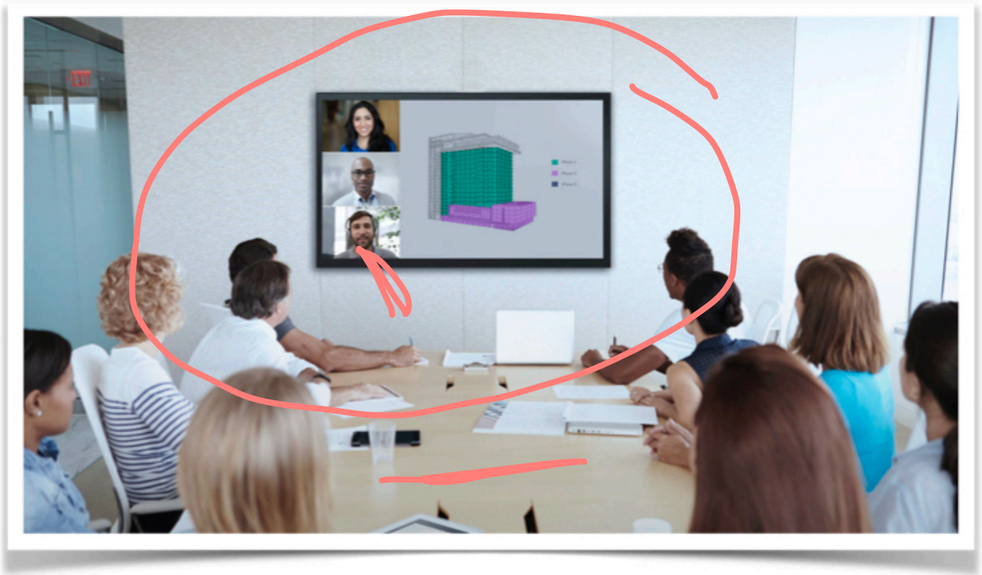
4



[4] Image sources: 1, 2, 3, 4

What's missing here?

5



[5] Image sources: 1, 2, 3, 4

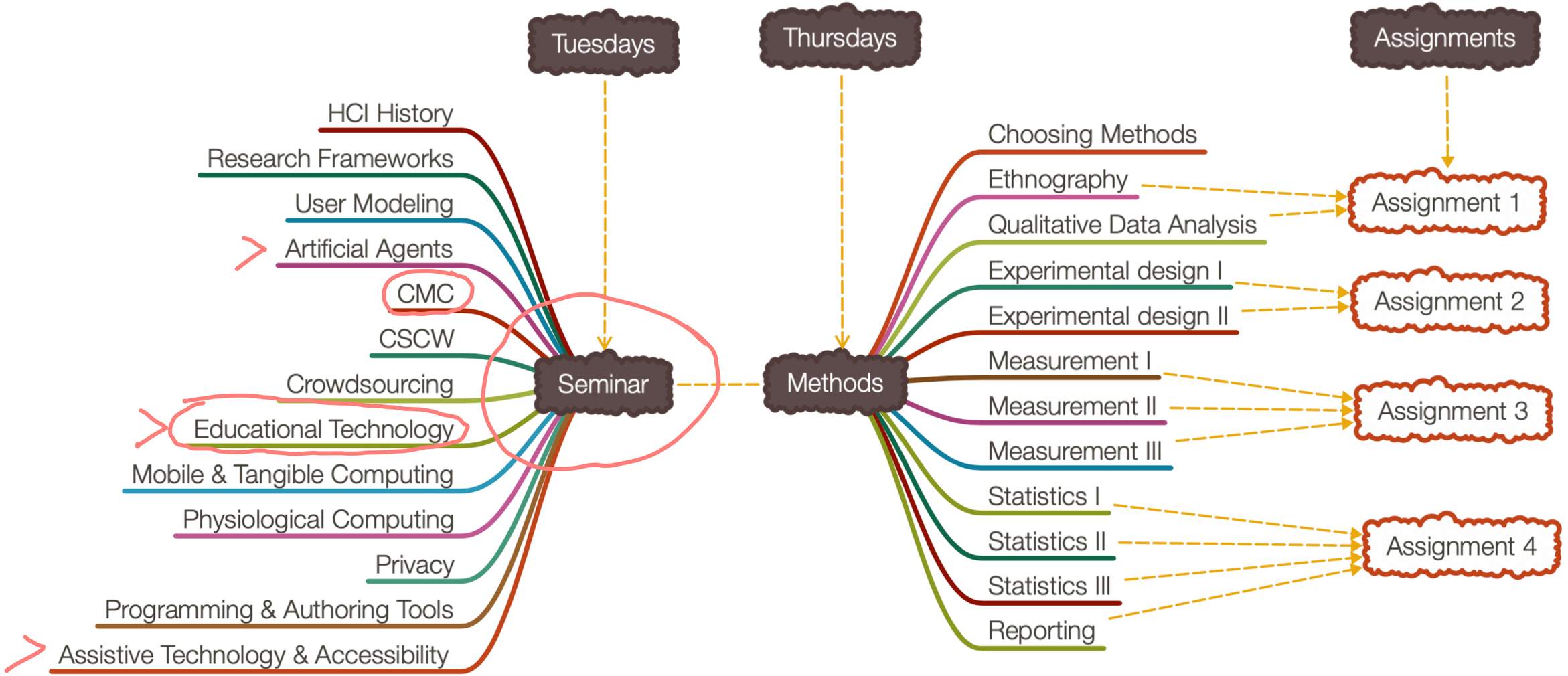
Seminar in HCI

+

Research Methods in HCI

+

Independent Study in HCI

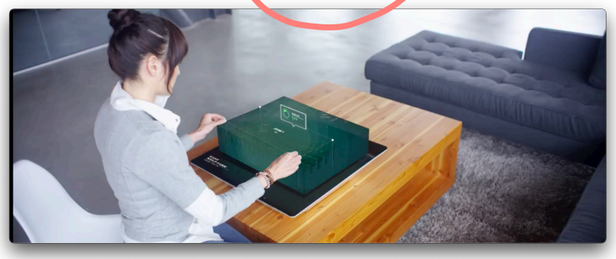

Tuesdays
Thursdays
Assignments
HCI History
Research Frameworks
User Modeling
Artificial Agents
CMC
CSCW
Crowdsourcing
Educational Technology
Mobile & Tangible Computing
Physiological Computing
Privacy
Programming & Authoring Tools
Assistive Technology & Accessibility
Seminar
Methods
Choosing Methods
Ethnography
Qualitative Data Analysis
Experimental design I
Experimental design II
Measurement I
Measurement II
Measurement III
Statistics I
Statistics II
Statistics III
Reporting
Assignment 1
Assignment 2
Assignment 3
Assignment 4

Wearable computing[7]

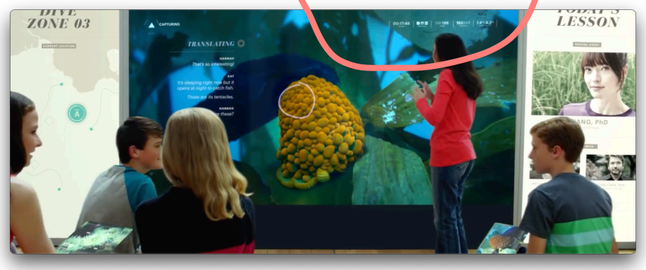
CSCW

CMC

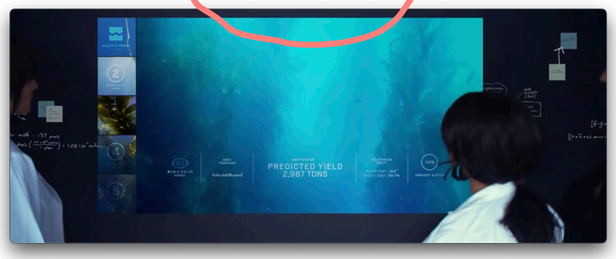
Tangible computing/AR



Educational Technology

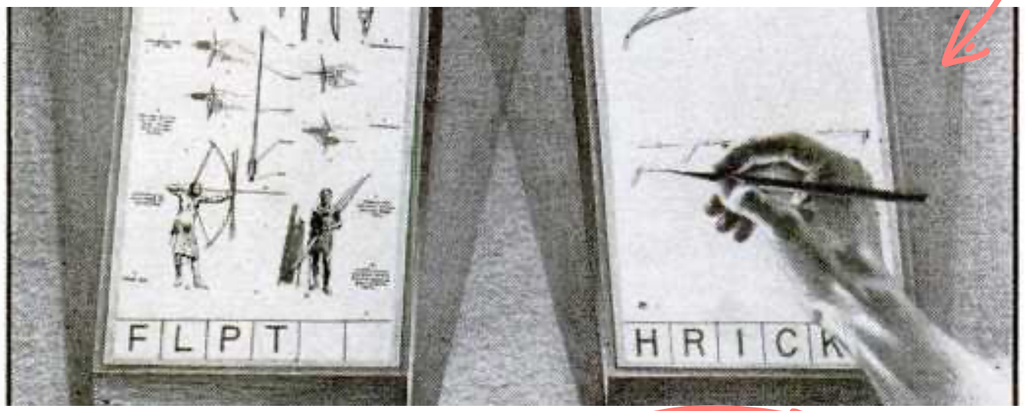


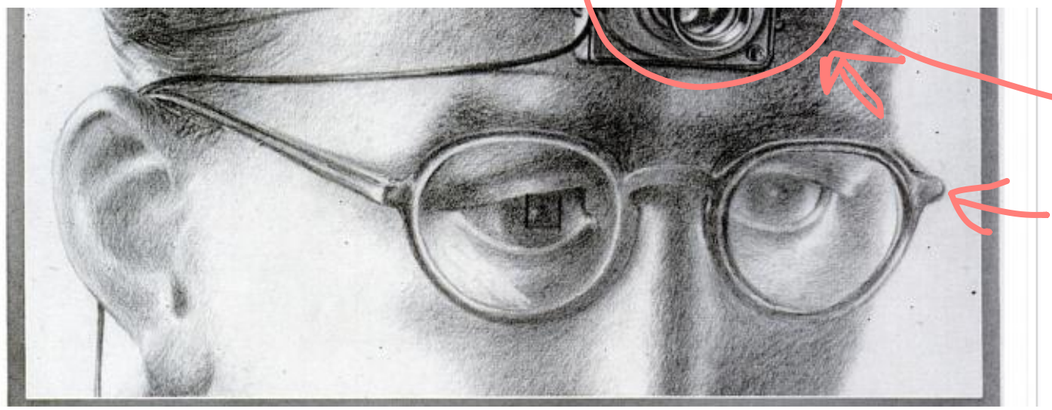
Human-Robot Interaction



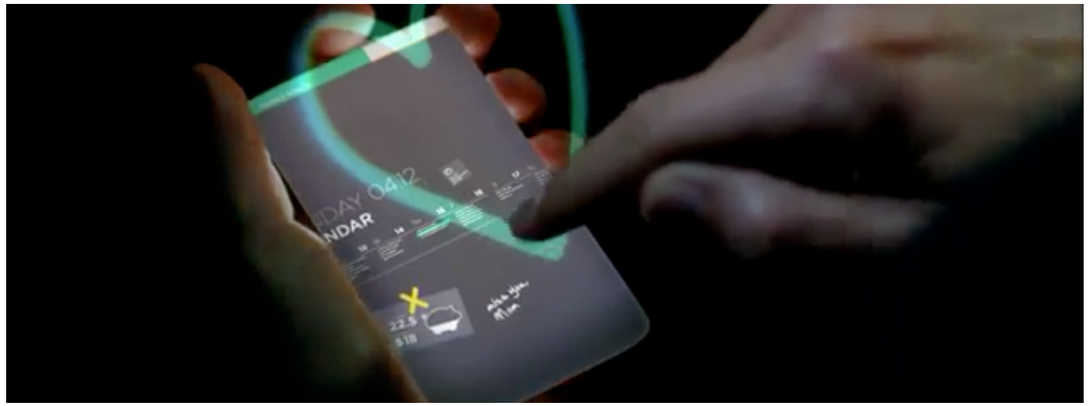
[7] Microsoft Office

1945 (Vannevar Bush)[8]





2016 (Microsoft)



[8] Wired, Microsoft

Questions?

HCI Research @ Wisconsin

1.

CDIS [CS, iSchool]

2.

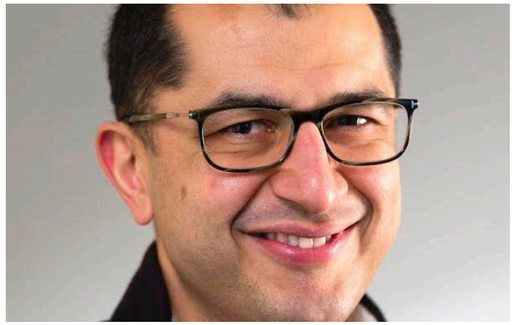
Distributed [ISyE, EdPsych, Psych, ME]

HCI Research in CS

Yea-Seul Kim

Information visualization, data-driven decision making

Bilge Mutlu



HRI, end-user programming, educational technology

Michael Gleicher

Information visualization, graphics, HRI

Yuhang Zhao

AR/VR interfaces, accessibility

HCI Research at the iSchool

Corey Jackson

Citizen science, science engagement, online communities

Adam Rule

Medical informatics, health decision making, information visualization

Jacob Thebault-Spieker

Social computing, bias and fairness

Other HCI-related Research on Campus

John Lee (ISyE)

AR/VR, automotive interfaces

Paula Niedenthal (Psych)

Affective human-machine interaction

Martina Rau (Ed Psych)

Educational data mining, intelligent tutors

Michael Zinn (ME)

Haptic interfaces

Questions?

Course Outline

Why is this class online?

- The University wanted a small number of classes to be offered online for students who may not be able to attend on campus instruction.
- 770 is a mature course that has been taught in all formats.

What's the difference between 570 and 770? And now there is a 571?

“...a discipline concerned with (**570**, **571**) [the design, evaluation and implementation of interactive computing systems for human use] and with (**770**) [the study of major phenomena surrounding them].”

— ACM

770

- Research methods
- For grads from across campus
- Project-based
- No technical background

570

- Design methods
- For undergrads
- Project-based
- No technical background

571

- Design/building methods
- For CS undergrads
- Assignment-based
- Needs at least CS-400 & JS

Let's focus on 770

Learning Goals

1. Define research questions, construct hypotheses, map out and identify gaps in the research literature, and situate research questions and hypotheses in existing knowledge
2. Gain familiarity with seminal research across various topics in human-computer interaction
3. Determine the research approach that best fits a research question, identify variables of interest for empirical investigation, and design qualitative, qualitative, and hybrid studies

1. Determine appropriate objective, behavioral, physiological, subjective, and composite measures for empirical investigation
2. Design survey questions, construct scales, and assess reliability and validity
3. Analyze qualitative and quantitative data using grounded theory and statistical methods
4. Carry out a project to investigate an original research question in human-computer interaction
5. Write an academic paper to report on research design and findings

Setting Expectations

1. Be prepared to read a lot ~ 2 papers + 1 book chapter each week
2. This class will take about 10-15 hours/week (university guidelines require a *minimum* of 9 hours for 3-credit courses, and that's for undergraduates)
3. Total of 5 assignments, each can take 6-12 hours of work
4. Semester-long project where you will work with others
5. Be prepared to discuss

Questions?

Overview of Syllabus

Three modules

1. Seminar
2. Methods
3. Project

Module 1: Seminar

General Outline[9]

We will read seminal papers, discuss them online and in class.

» You will read 1–2 papers per week and will find 1 resource (an academic paper, popular science article, a video) yourself

» First 45 minutes of Tuesday class

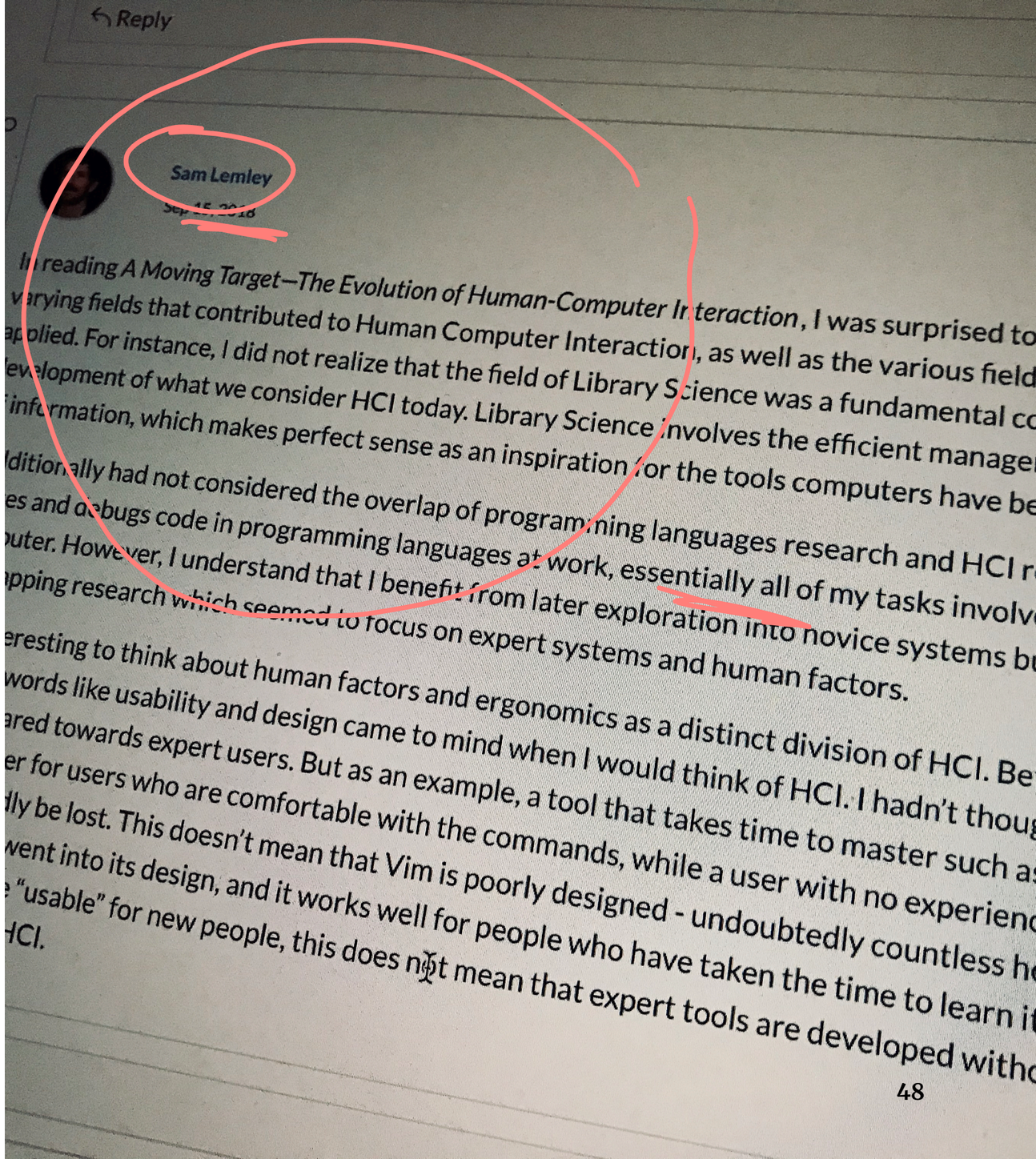
» I will give a 15-minute overview of the topic and lead a 30-minute in-class

[9] Image source

Online Discussion

Students reflect on the topic (from the readings and/or the resource they found) in online forum

- Minimum of 250 words
- Due Sunday midnights
- Post on Canvas
- Graded on timeliness, depth, and substantiveness



Classroom Discussion

We will work together to try to come up with a list of takeaways.

» Instructor will give an overview

» Students will have a brief discussion, generating questions

» Instructor will collect questions and facilitate discussion

» Class will collectively distill the discussion to a set of takeaways

We'll review the process on Tuesday.

Why are we doing this?

- **Dialectics** — through discussion, we establish common themes/concerns/ground
- **Reflection** — you rarely get the chance to engage in open-ended discussion on research topics
- **Trivium** — you will get the grammar (language), logic (mechanics), and rhetoric (arguments) of a topic

Module 2: Methods

General Outline[10]

We will learn about HCI research methods through lectures, hands-on-activities, and assignments.

» Every week, a new research method is presented

» Reading a chapter from the textbook

» Lecture for ~30 minutes

» A~30-minute hands-on activity (graded for completeness)

[10] Image source

Assignments

You will complete six 1–2–week–long assignments:

» **Assignment 0:** Human subjects protection training

» **Assignment 1A–B:** Qualitative/ethographic research

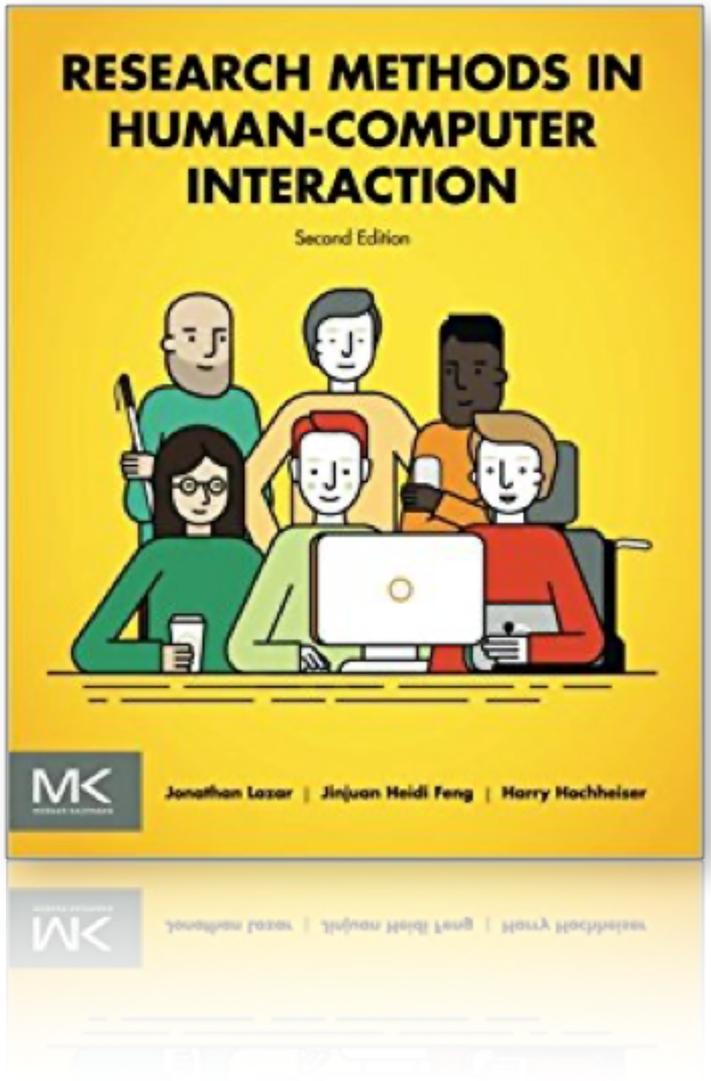
» **Assignment 2A–B–C:** Quantitative/experimental research

Always due Fridays at midnight

Textbook

Research Methods in Human-Computer Interaction, *Second Edition*, Lazar et al., 2017

Free through the University Library



Why are we doing this?

- **Learning** — you will learn a sample of all of the major methods and tools used in HCI research
- **Practice** — you will practice some of the critical ones in structured, guided ways

Module 3: Project

General Outline

We will carry out a semester-long research project where you will connect and practice the **seminar** and **methods** modules.

» We will use the last 15 minutes of class on Tuesdays and Thursdays to discuss project goals, steps, deliverables

» Feedback during office hours, through deliverables

» Individual or pairs, expectations are different

Project Deliverable

We will incrementally write a four-to-six-page paper potentially submittable to an HCI conference.

» **Individuals:** 4 pages

» **Pairs:** 6 pages

2012

Chidambaram et al.

Designing Persuasive Robots: How Robots Might Persuade People Using Vocal and Nonverbal Cues

Vijay Chidambaram, Yueh-Hsuan Chiang, Bilge Mutlu
Department of Computer Sciences, University of Wisconsin–Madison
1210 West Dayton Street, Madison, WI 53706, USA
{vijayc, ychiang, bilge}@cs.wisc.edu

ABSTRACT

Social robots have to potential to serve as personal, organizational, and public assistants as, for instance, diet coaches, teacher's aides, and emergency responders. The success of these robots will depend on their ability to persuade people to diet regimen or to encouraging them to follow evacuation procedures in the case of a fire—will rely largely on their ability to *persuade* people. Research in a range of areas has identified nonverbal behaviors—including gaze cues and nonverbal behaviors of a human speaker play a key role in the persuasiveness of the speaker's message and the behaviors are applicable to robots. In this paper, we explore how a robot might leverage its nonverbal behaviors—specifically vocal and bodily cues, to persuade users. In an experiment with 32 participants, we evaluate how manipulations in a robot's use of nonverbal cues affected participants' perceptions of the robot's persuasiveness and participants' ratings of the robot's suggestions across four conditions: (1) no vocal or bodily cues, (2) vocal cues only, (3) bodily cues only, and (4) vocal and bodily cues. The results showed that participants complied with the robot's suggestions significantly more often when the robot used vocal cues. We also did not see those cues and that bodily cues were more effective in persuading participants than vocal cues were. Our model of persuasive robots based on these findings can inform more direct implications for the design of persuasive behaviors for humanlike robots.

Categories and Subject Descriptors

H.1.2 [**Models and Principles**]: User/Machine Systems—*human factors, software psychology*; H.5.3 [**Information Interfaces and Presentation**]: User Interfaces—*evaluation/methodology, user-centered design*.

General Terms

Design, Human Factors

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2081'12, March 5–8, 2012, Boston, Massachusetts, USA.
Copyright 2012 ACM 978-1-4503-1063-5/12/03 ...$10.00.

Figure 1: The vocal and bodily cues of persuasion in human-robot interaction.

Keywords

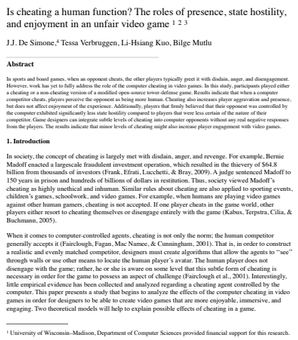
Persuasion, compliance, nonverbal immediacy, nonverbal cues, gaze, gestures, proximity, vocal tone

1. INTRODUCTION

Robots hold great promise as social actors that may positively affect and improve people's motivation and compliance [1, 2] and persuade people [3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200 citations

2012

De Simone et al.



Is cheating a human function? The roles of presence, state hostility, and enjoyment in an unfair video game [1] [2] [3]

J.J. De Simone,[4] Tessa Verbruggen, Li-Hsiang Kuo, Bilge Mutlu

Abstract

In sports and board games, when an opponent cheats, the other players typically greet it with disdain, anger, and disengagement. However, work has yet to fully address the role of the computer cheating in video games. In this study, participants played either a cheating or a non-cheating version of a modified open-source tower defense game. Results indicate that when a computer competitor cheats, players perceive the opponent as being more human. Cheating also increases player aggravation and presence, but does not affect enjoyment of the experience. Additionally, players that firmly believed that their opponent was controlled by the computer exhibited significantly less state hostility compared to players that were less certain of the nature of their competitor. Game designers can integrate subtle levels of cheating into computer opponents without any real negative responses from the players. The results indicate that minor levels of cheating might also increase player engagement with video games.

1. Introduction

In society, the concept of cheating is largely met with disdain, anger, and revenge. For example, Bernie Madoff enacted a largescale fraudulent investment operation, which resulted in the thievery of $64.8 billion from thousands of investors (Frank, Efrati, Lucchetti, & Bray, 2009). A judge sentenced Madoff to 150 years in prison and hundreds of billions of dollars in restitution. Thus, society viewed Madoff's cheating as highly unethical and inhuman. Similar rules about cheating are also applied to sporting events, children's games, schoolwork, and video games. For example, when humans are playing video games against other human gamers, cheating is not accepted. If one player cheats in the game world, other players either resort to cheating themselves or disengage entirely with the game (Kabus, Terpstra, Cilia, & Buchtmann, 2005).

When it comes to computer-controlled agents, cheating is not only the norm; the human competitor generally accepts it (Fairclough, Fagan, Mac Namee, & Cunningham, 2001). That is, in order to construct a realistic and evenly matched competitor, designers must create algorithms that allow the agents to "see" through walls or use other means to locate the human player's avatar. The human player does not disengage with the game; rather, he or she is aware on some level that this subtle form of cheating is necessary in order for the game to possess an aspect of challenge (Fairclough et al., 2001). Interestingly, little empirical evidence has been collected and analyzed regarding a cheating agent controlled by the computer. This paper presents a study that begins to analyze the effects of the computer cheating in video games in order for designers to be able to create video games that are more enjoyable, immersive, and engaging. Two theoretical models will help to explain possible effects of cheating in a game.

[1] University of Wisconsin–Madison, Department of Computer Sciences provided financial support for this research.

[2] A preliminary version of this manuscript has been presented at the 2012 Association for Education in Journalism and Mass Communication Conference.

[3] Authors thank Karyn Riddle for her valuable comments.

[4] Corresponding author. Tel.: +1 816 589 1469. E-mail address: jdesimone@wisc.edu (J.J. De Simone).

12 citations

2015

Johnson et al.

Handheld or Handsfree? Remote Collaboration via Lightweight Head-Mounted Displays and Handheld Devices

Steven Johnson[1], Madeleine Gibson[2], Bilge Mutlu[1]
[1] Department of Computer Sciences
[2] Department of Industrial and Systems Engineering
University of Wisconsin–Madison
sjj@cs.wisc.edu; mcgibson2@wisc.edu; bilge@cs.wisc.edu

ABSTRACT

Emerging wearable and mobile communication technologies, such as lightweight head-mounted displays (HMDs) and handheld devices, promise support for everyday remote collaboration. Despite their potential for widespread use, their effectiveness as collaborative tools is unknown, particularly in physical tasks involving mobility. To better understand their impact on collaborative behaviors, perceptions, and performance, we conducted a two-by-two (technology type: HMD vs. tablet computer; task setting: static vs. dynamic) between-subjects study where participants (*n* = 66) remotely collaborated as "helper" and "worker" pairs in the construction of a physical object. Our results showed that, in the dynamic task, HMD use enabled helpers to offer more frequent directing commands and more proactive assistance, resulting in marginally faster task completion. In the static task, while tablet use helped convey subtle visual information, helpers and workers had conflicting preferences for HMDs, suggesting social factors affect their success. Our findings offer strong design and research implications, underlining the importance of a consistent view of the shared workspace and the differential support collaborators with different roles receive from technologies.

ACM Classification Keywords

H.5.3 **Information Interfaces and Presentation**: Group and Organization Interfaces–*Collaborative computing, Computer-supported cooperative work, Evaluation/methodology*

General Terms

Human Factors; Performance; Experimentation

Author Keywords

Computer-supported cooperative work; remote collaboration; videoconferencing; head-mounted displays (HMDs); wearable computing; handheld devices; tablet computers

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ACM 978-1-4503-2922-4/15/03 $15.00
http://dx.doi.org/10.1145/2675133.2675176

INTRODUCTION

Collaborative work across many domains involves physical tasks. A team of doctors performing surgery, workers repairing machinery, and young adults learning how to cook from their parents are examples of hands-on activities where the level of expertise differs across members of the collaboration. Distributed physical tasks, in which not all members of the collaboration are collocated, have important roles in medical, industrial, and educational domains. With the rapid development of communication and collaboration technologies that enable remote workspace sharing, such as smartphones, tablets, and lightweight head-mounted displays (HMDs), remote collaboration for physical tasks has become more feasible than ever. These technologies promise easy assistance to users from their co-workers, family members, or friends who have expertise in their tasks, but those individuals who are most geographically accessible.

While many technologies that support assistance in physical tasks are finding widespread use, little research has been conducted to evaluate their efficiency and effectiveness in these settings. One class of collaboration technologies are handheld mobile devices, such as smartphones and tablet computers, which are equipped with videoconferencing capabilities that can enhance collaboration [8]. Tablets are also becoming increasingly popular for both work and casual use [9]. The larger screen size of a tablet computer relative to the smartphone may

48 citations

2017

Rakita et al.

A Motion Retargeting Method for Effective Mimicry-based Teleoperation of Robot Arms

Daniel Rakita, Bilge Mutlu, Michael Gleicher
Department of Computer Sciences, University of Wisconsin–Madison
1210 West Dayton Street, Madison, WI 53706 USA
{rakita, bilge, gleicher}@cs.wisc.edu

ABSTRACT

In this paper, we introduce a novel interface that allows novice users to effectively and intuitively tele-operate robot manipulators. The premise of our method is that an interface that allows its user to direct a robot arm using the natural 6-DOF space of his/her hand would afford effective direct control of the robot; however, a direct mapping between the user's hand and the robot's end effector is impractical because the robot has different kinematic and speed capabilities than a human hand. Our method addresses this issue by relaxing the constraint of the direct mapping between hand position and orientation and end effector configuration, a system can provide the user with the feel of direct control, while still achieving the practical requirements for telemanipulation, such as motion smoothness and singularity avoidance. We present methods for implementing a motion retargeting solution that achieves this relaxed control using constrained optimization and describe a system that utilizes it to provide real-time control of a robot arm. We demonstrate the effectiveness of our approach in a user study that shows novice users can complete a range of tasks more efficiently and enjoyably using our relaxed-mimicry based interface compared to standard interfaces.

1. INTRODUCTION

Telemanipulation systems, where a human user controls a robot arm from a distance, are valuable in scenarios where automation is impractical, where human judgment is essential, or where having the user engaged in the task is desirable [25]. However, controlling a robot arm from a distance introduces a number of challenges, including unfamiliar kinematic and speed mappings and perceptual challenges in effectively translating human operator commands into robot actions. While shared control strategies are often used to improve performance by providing higher-level control through automation, such strategies have limited applicability, as they require prior knowledge of user goals, target object locations, and feasible robot trajectories [29, 35, 24, 6, 1, 36, 8]. Therefore, many applications involving telemanipulation must rely on direct control of robot arms. While successful real-world applications of direct control exists, such as tele-surgery, these interfaces are designed for expert users with substantial skill and training. Broadening applications and the potential users of telemanipulation, such as family members providing remote home care for an elder parent, requires interfaces that are intuitive and effective to novice users.

Our goal is to provide a direct control interface that will allow novice users to effectively teleoperate robot arms and will support fluent interaction that does not require the user to devote substantial considerable human judgment and involvement without the opportunity for extensive training in system operation [18, 14]. We posit that enabling users to work in the "natural" space of their arms will allow them to draw on their inherent kinesthetic sense and ability to perform tasks in controlling a robot. That is, mapping the movement of the user's arm, particularly the position and orientation of their hand, to the movement of the robot can allow intuitive and effective control of the robot without significant training. Capturing arm motion has become practical with the recent emergence of a variety of technologies, including visual tracking (e.g., the Microsoft Kinect[1] and wireless controllers (such as the HTC Vive[2] shown in Figure 1). However, translating captured motion into robot movements that provide effective control, while also appearing natural to users, remains a key challenge. Furthermore, because we lack satisfactory solutions to this challenge, the promise that such a mapping between human and robot arms serves as effective interface for direct control has not been validated.

The key technical challenge stems from differences in the characteristics and capabilities of robot and human arms, making a direct

[1]Microsoft Kinect: https://dev.windows.com/en-us/kinect
[2]HTC Vive: http://www.vive.com/us/

42 citations

2021

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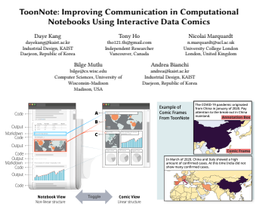


ToonNote: Improving Communication in Computational Notebooks Using Interactive Data Comics

Dave Kang
daykang@kaist.ac.kr
Industrial Design, KAIST
Daejeon, Republic of Korea

Tony Ho
tho321.th@gmail.com
Independent Researcher
Vancouver, Canada

Nicolai Marquardt
n.marquardt@ucl.ac.uk
University College London
London, United Kingdom

Bilge Mutlu
bilge@cs.wisc.edu
Computer Sciences, University of Wisconsin–Madison
Madison, USA

Andrea Bianchi
andrea@kaist.ac.kr
Industrial Design, KAIST
Daejeon, Republic of Korea

Figure 1: ToonNote is a novel technique for representing computational notebooks in the form of interactive data comics: **Notebook View** uses the traditional computational notebook's format (using a combination of markdown/code/output), which **ToonNote View** provides a high-level, excited narrative of the dataset in Comic View. The author can choose different markdown (A) and outputs (B) which can be combined in single or multiple (C) comic frames. When viewing the data in the Comic View, readers can focus on data storytelling, and not be hindered by code, unnecessary outputs, or markdown – and can switch back to the Notebook View when needed.

ABSTRACT

Computational notebooks help data analysts analyze and visualize datasets, and share analysis procedures and outputs. However, notebooks typically combine code (e.g., Python scripts), notes, and outputs (e.g., tables, graphs). The combination of disparate materials in a single view can be overwhelming to readers and difficult for analysts to collaborate with other analysts unfamiliar with the dataset. To mitigate this problem, we introduce ToonNote, a JupyterLab extension that enables the conversion of notebooks into "data comics." ToonNote provides a simplified view of a Jupyter notebook and automatically generates comic panels to support the interactive and live exploration of the dataset. The paper presents the results of a formative study that motivated the system, its implementation, and an evaluation with 11 users, demonstrating the effectiveness of the produced comics. We discuss how our findings

1 citations

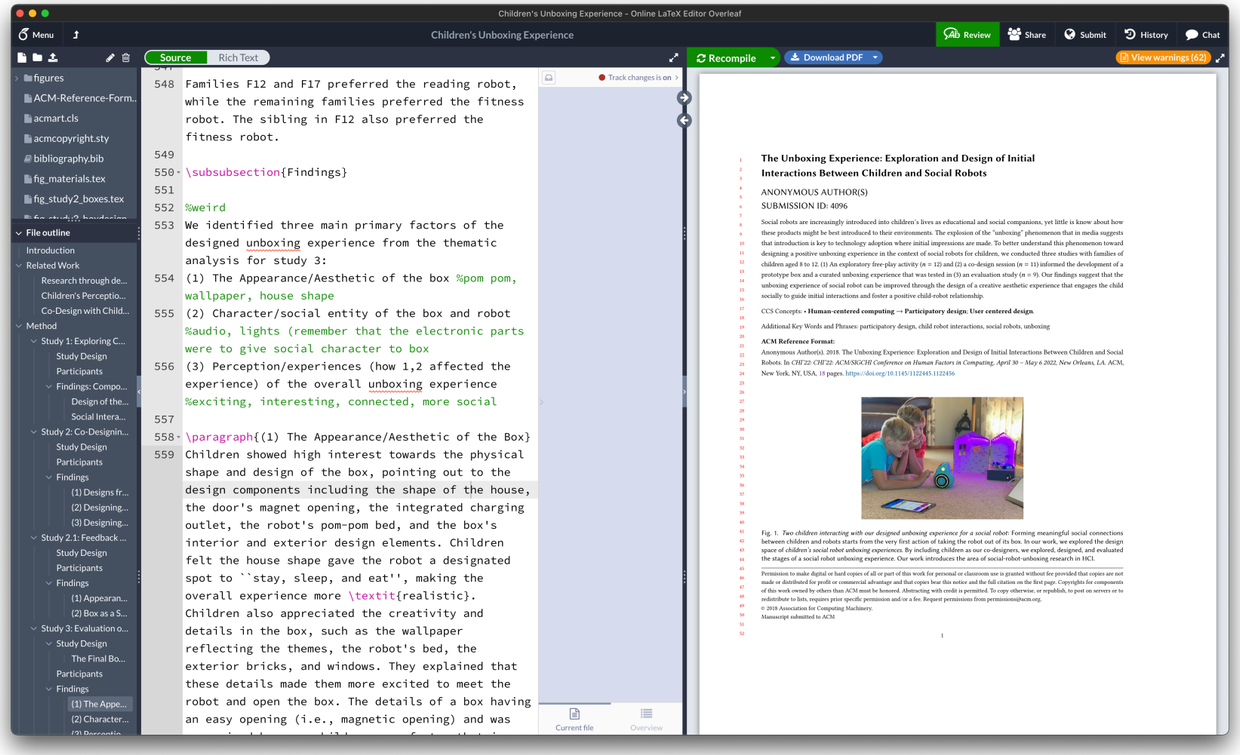
Project Topics

We will take inspiration from last year's best-paper-award winners at CHI and choose a topic following the algorithm:

```
Skim a set of papers
Focus on 2-3 based on interest/research style
Read related work to understand gap
Read what the paper did to understand where it fits
Determine what else remains unexplored from limitations
Zoom out, choose topic, find partner (optional)
```

Project Deliverables[11]

- » Project Topic
- » Literature survey, RQs
- » Method
- » Data
- » Analysis, results
- » Final paper



[11] Image source

Why are we doing this?

- Practicing research with different levels of uncertainty
  - **Hands-on activities**: controlled, structured, short
  - **Assignments**: semi-controlled, semi-structured, medium
  - **Projects**: uncontrolled, unstructured, long
- This might feel redundant, but redundancy is often good!
- Bridging the seminar and the methods, contextualizing the methods within the seminar topics

Questions?

Course Policies

Grading

Assessments	Points
Seminar: Participation in online discussions	15
Methods: Hands-on activities	10
Methods: Assignments	40
Project	30
General: Attendance, classroom participation	5
Total	*100*

Letter grade	Grade range	Description
A	93.5–100	Excellent work *(Exceeds expectations)*
AB	89.5–93.4	Good work *(Robustly meets all stated requirements)*
B	83.5–89.4	Adequate work *(Meets the spirit of all stated requirements)*
BC	79.5–83.4	Slightly below adequate *(Missing small required elements or turned in late without approved extension)*
C	73.5–79.4	Below adequate *(Missing required elements or turned in late without approved extension)*
D	73.4–63.5	Well below adequate *(Missing many required elements or turned in late without approved extension)*
F	63.5	Inadequate *(Work not turned in, no extension requested)*

Rule of Thumb: If you complete every assignment, you should be getting an **A** or an **AB**. So, just come to class, do the work, and don't worry about your grade.

Communication

Type	Examples	Channel
Question about course content	"R is giving me a singularity error;" "Should we be turning in our data file?"	Post on Piazza
Personal questions	"I am traveling to a conference on <date>;" "I have to travel to my home country because of an emergency!"	Send message to me/TA on Teams
Feedback request	"Can we get feedback on our study design;" "Can you check if I'm doing this analysis right?"	Office hours + appointment

During Class

Laptops/tablets: Laptop and tablet use is encouraged for the ongoing class and discouraged for anything else:

» Engaging in Piazza; looking through readings, slides; researching.

» We will have a Piazza thread open at every class for questions.

Phones: Should be put away.

In general, please strive to **be present**.

Late, Absence Policy

Late assignments: Will lose 20% of the total grade for the assignment for each day it is late. Only true emergencies (e.g., hospital visits) justify extensions.

Missing class: $E[m] = 2, m = \{0, 1, \ldots, 29\}$, so we will discount two absences from hands-on-activities/classroom discussion.

Logistics

» Course Website | Course Canvas

Office Hours

» **Instructor:** Tue 2:15-3:00 pm, Microsoft Teams

» **TA:** Mon-Wed 3:00-3:30 pm, Microsoft Teams

CS-770 HCI

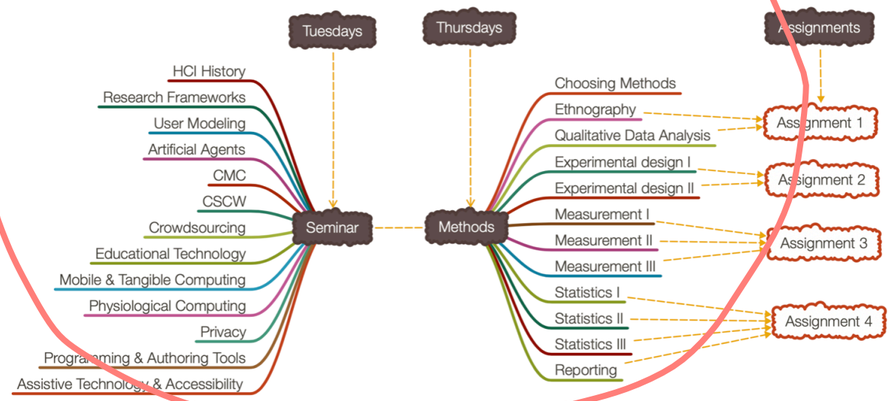
Search CS-770 HCI

Overview
Schedule
Syllabus

Welcome to CS-770 Human-Computer Interaction!

This course introduces graduate students in computer science, psychology, educational psychology, and other disciplines research topics, principles, and research methods in human-computer interaction (HCI), *an interdisciplinary area concerned with the study of the interaction between humans and interactive computing systems*. Research in HCI looks at major social, cognitive, and physical phenomena surrounding human use of computers with the goal of understanding their impact and creating guidelines for the design and evaluation of software and physical products and services in industry.

The course consists of three modules: (1) **seminar**, which reviews major research topics in HCI through a set of readings, class presentations, and discussions; (2) **methods**, which covers qualitative and quantitative human-subjects research through lectures, tutorials, hands-on activities, and weekly assignments; and (3) **project**, where students complete a semester-long project, usually involving empirical research, that culminates in the writing of a short paper. Below is a visual overview of the topics that will be covered in the seminar and methods modules.



Course Resources

Course Canvas Page | Course Piazza Page | Course Textbook

COURSE LOCATION	TR 1:00-2:15 pm, Online (Microsoft Teams)
INSTRUCTOR OFFICE HOURS	Tuesdays 2:15-3 pm, Online (Microsoft Teams)
TA OFFICE HOURS	TBA

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This site uses Just the Docs, a

Questions?

What's next?

- **Seminar**
  - *Readings* due on Monday; *forum comment* — due on Monday
- **Method**
  - *Chapter reading* due on Thursday; *Assignment 0* — due Sep 24
- **Project**
  - We'll discuss on Tuesday; *topic selection* — due Sep 27