

Human-Computer Interaction

Project Introduction

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General Outline

We will carry out a semester-long research project where you will practice the research methods we learn to conduct *original research*.

- » Schedule a Friday "team time" for team meetings, milestone kickoffs, and deliverable preparation
- » Ideally teams of 3, fewer or more should be exceptions
- » 40 + 20% of your total grade, integrates team member evaluations
- » Incrementally write a full-length (~10-pages) paper potentially submittable to an HCI conference

Chidambaram et al.

De Simone et al.

Johnson et al.

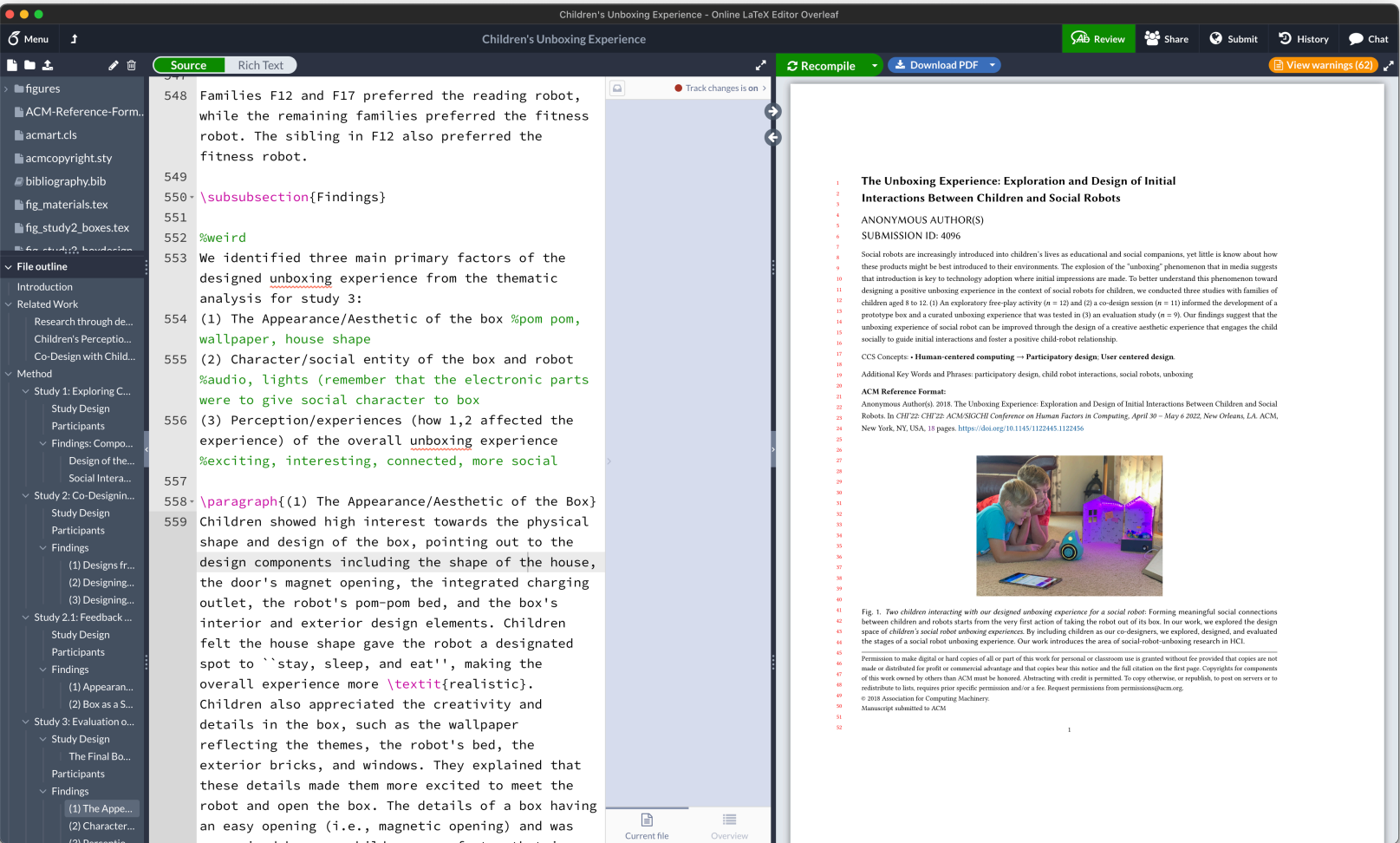
Rakita et al.

Kang et al.

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Project Milestones & Deliverables

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



Speculative Design Workshop

What You'll Do	Instructions
Get Oriented (0–5 min)	We'll introduce speculative design and how today's activity will help you explore project ideas.
Create a Future (5–20 min)	At your table: (1) Use your 4 cards (Technology, Context, Contribution, Perspective); (2) Choose a prompt template; (3) Collaborate to create one output (a question, story, or concept); (4) Write or sketch your idea clearly on the worksheet
Post It Up (20–25 min)	Tape your worksheet (your speculative pitch) on the wall!
Gallery Walk (25–30 min)	Walk around the room. Read each group's idea. Write your name or ideas to express interest or spark conversation.
Form Teams (30–35 min)	Gather around the ideas that inspire you. Join, merge, or remix ideas to form a team.
Lock It In (35–40 min)	Each team writes their names and topic on the signup sheet. Be ready to evolve your idea as your project takes shape.

Technologies

Category	Examples
AI & Agents	LLMs, gen-AI, chatbots, autonomous systems, embodied AI, affective computing
XR & Sensing	AR/VR, physiological sensing (e.g., eye tracking, EEG), biosensors, emotion recognition
Robotics & IoT	Robots, digital assistants, telepresence, smart homes/cities, fabrication & 3D printing
Wearables & Interfaces	Smartwatches, haptics, on-body interaction, brain-computer interfaces (BCIs), gesture-based interfaces
Ubiquitous & Embedded Systems	Smart devices, ambient computing, location-aware tech, context-aware systems

Contexts & Populations

Theme	Examples
Health & Wellbeing	Chronic illness, mental health, behavior change, disease management
Learning & Development	Children, neurodiverse learners, developmental disabilities, families
Accessibility & Inclusion	Blind/VIP users, wheelchair users, low digital literacy populations
Work & Collaboration	Remote work, hybrid meetings, industrial settings, creative teams
Everyday Life & Mobility	Driving, commuting, navigation, home life, aging/older adults
Vulnerable & Marginalized Populations	Low income, homelessness, refugees, justice-involved individuals

Contribution Types

Type	Examples
Design Contribution	Speculative designs, systems, probes, toolkits, concept sketches
Empirical Study	Studies of users or stakeholders (interviews, observations, surveys)
Evaluation Study	Testing prototypes or systems (usability, trust, engagement, etc.)
Theoretical Contribution	Frameworks, models, taxonomies
Review & Meta-Analysis	Scoping/systematic reviews, ¹ critical syntheses
Methodological Contribution	New methods, evaluation metrics, data collection instruments

¹Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach

Perspectives

Perspective	Description
Accessibility & Usability	Supporting inclusive, usable design for diverse needs
Experience & Perception	Exploring trust, mental models, emotions, comfort, engagement
Ethics & Responsibility	Bias, fairness, privacy, algorithmic harm, data ethics
Adoption & Impact	Understanding real-world use, barriers, long-term effects
Creativity & Expression	Supporting play, art, self-expression, identity
Repair, Resistance, & Sustainability	Exploring resilience, counter-use, ecological and social sustainability

Tips

- » Understand the limitations of this process
- » Some combinations may be non-sensical, but they will still spark interesting ideas
- » Find topics of clear value to study, beneficial to society, to science, etc.
 - » Problems worth studying must be: *not studied/understudied, significant/impactful, pervasive/frequent, persistent*
- » Choose perspectives that you are inclined to take
- » Important to find teammates you click with

Q&A

- » Q: Can I bring my own research into this?
 - » A: Yes. The technology, context/population, and/or perspective can come from your research. Ideally, you will convince two of your classmates to work with you. Engage in discussion, but write your topic on the wall.
- » Q: Can multiple teams work on the same idea?
 - » A: Yes. You will necessarily diverge after the literature survey, so perfectly fine to form multiple teams around the same idea/topic.

Q&A

- » Q: Will we have access to technology, platforms, funds/resources?
 - » A: Yes, within reasonable limits. You can borrow equipment from my lab. For participant samples, most teams will use classmates, friends, roommates. In general, we will try to be resourceful (e.g., reserve a room at the union/library to run studies).
- » Q: Can we change any part of our topic?
 - » A: Yes, you are committing to a starting place. You will shift and adapt different facets of your project topic along the way.

Next Steps

- » Congratulations! You have a project topic and a team 🎉
- » Next project milestone is **literature review, research question**
 - » Due in two weeks
 - » Become familiar with ~30 papers on the topic you chose
 - » Build conceptual maps, identify gaps and opportunities
 - » Develop and refine a research question
 - » Write and submit a "related work" section