

I542 FALL 2023, SECTION 5100 VERSION I0202023A

Foundations of Human-Computer Interaction Design



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Instructors

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Format

Each week, our meetings will have the following three modalities (the idea of *tiles* is described below in the section on deliverables):

- Meet in AI led breakouts, share *tiles*, select *tiles* to represent group,
- Meet altogether, each group presents selected *tiles*,
- Mini lecture, following week's readings and deliverables assigned.

Learning Outcomes

It is tempting to imagine that there is a canonical collection of readings that represent HCI and Design. In fact, there is no such canon in any static sense. Rather, HCI and Design have dynamic and evolving literatures. The primary goal of this class is to introduce participants to a wide variety of sources in order to acquire an appreciation for the breadth and variety of writings that inform our area of practice and scholarship. The readings are carefully considered to represent current events journalism relating to interaction (sources that are generally 30-90 days old), topical scholarship or practice (sources that are generally no older than 5 years), and classics (sources that may be older than 5 years but are truly seminal in a meaningful sense).

At the end of the class, participants will learn how to find sources and discern the quality of sources. Participants will also gain an understanding of the following themes highly germane to claims of foundational knowledge in HCI and Design, namely:

- Framing HCI and Design
- Human-Centered vs Humanity-Centered Design
- Transdisciplinary Design
- Structure-Preserving Transformations
- Sustainable Interaction Design, (SID, SHCI)
- AI & HCI/d
- Pictorials, CHI(Art)

- Non-Linear Design Thinking
- The Novacene
- Self-Reliance
- Inclusivity
- Science and Design

Deliverables

Each week participants will create three *tiles* that may be shared. A tile is a slide that serves as the expression of the project content as shown in the Project column of the schedules that follow. Your slides will always emphasize minimalist aesthetics; accessibility; original authentic visual forms; everything essential, nothing inessential; clear and professional in every detail; properly attributed sources and tools; clearly labeled contributor names. Expect to commit 10 hours per week including class time to this class—no more, no less. Your slides may be compiled into online digital quilts to show the collective class work as a matter of constructivist learning.

You will place your three tiles (slides) into a PDF file in 8.5x11 landscape mode. You will also supply a thumbnail image of resolution and size to be agreed upon in class assembly.

Grading

Your work will be graded each week using the following rubric:

- Quality
- Production Values
- Originality

For each of these rubric items, AI's will assign either a "+" for professional, publishable quality work, a "=" for quality work that meets the standard of a valuable contribution, and a "-" for work that may need improvement. So, for example, the string "++=" denotes standard quality, high production values, and standard originality. The reason for this notation system is that the class is large, and the AI's need a consistent, tractable way to give feedback within the time constraints of giving feedback to every individual in a larger class environment.

<i>Rubric Notation</i>	Letter Grade
+++	A+
++=, +=+, =++	A
+==, =+=, ==+	A-
===, +=-, +=-, -+=, =+-, -=+, =-+	B+
--=, =-=, ==-, +--, -+-, --+	B
---, =--, -=-, --=	B-

During the course you will submit (exactly) 3 tiles in weeks 2-13 in response to the readings according to the project descriptions. You will also submit a Best-of Portfolio in week 16.

You may attend by Zoom or in-person. In-person is preferred. However, if you are unwell or suspect you may be unwell, do not attend in-person. Attending by Zoom or attending in-person count the same apropos of the participation grade. The final grade will be calculated as follows

Weekly Projects 78%
Participation 12%
Final Project 10%

The standard for an A grade is excellence. The standard for an A+ grade is publishable and professional in every detail.

Participation

As a matter of ensuring that all voices are heard, I will call on participants in a random but systematic order to present, comment, or ask questions. If you attend regularly and learn the names of all participants because you have listened to them carefully as well as having thoughtful things to say yourself, your participation grade should be high.

Notices

The schedule, including readings or prompts and project descriptions are subject to change.

This class is inspired in many ways by Prof. Hamid Ekbia who taught it for many years. Many of the details have changed. Notwithstanding, the spirit of the class very much owes to Prof. Ekbia.

Cover Photograph: *People playing in Crown Fountain, Millenium Park, Chicago designed by Jaume Plensa and executed by Krueck and Sexton Architects 2004. Photograph by Eli Blevis, 2010.*


Schedule, Weeks 1-5

Week	Theme	Readings or Prompt	Project
1	Introduction Sources		
2	Framing HCI and Design	<ul style="list-style-type: none"> Steve Harrison, Deborah Tater, and Phoebe Sengers. 2007. The Three Paradigms of HCI. https://api.semanticscholar.org/CorpusID:5250658 Additional Reference Eli Blevis. 2021. Three Key Competencies and Other Frameworks for HCI and Design Education. IU ScholarWorks. http://hdl.handle.net/2022/26048 	Something New, Something Old, Something Else that Should be Told
3	Human-Centered vs Humanity-Centered Design	<ul style="list-style-type: none"> Donald A. Norman. 2023. Design for a better world: Meaningful, sustainable, humanity centered. MIT Press. Chapter 22. 	Humanity-Centered Transformations
4	Transdisciplinary Design	<ul style="list-style-type: none"> Manfred A. Max-Neef. 2005. "Foundations of transdisciplinarity." <i>Ecological economics</i> 53, no. 1 (2005): 5-16. Additional References Erich Jantsch. 1972. "Inter- and Transdisciplinary University: A Systems Approach to Education and Innovation." <i>Higher Education</i> 1, no. 1 (1972): 7-37. http://www.jstor.org/stable/3445957. Basarab Nicolescu. 2002. "Manifesto of Transdisciplinarity, (translated by Claire Voss). <i>State University of New York Press, Albany</i>. Cynthia Mitchell. 2023. "Max-Neef 2005 and the great transdisciplinary swindle: Lack of originality or something more worrisome?." <i>Ecological Economics</i> 213 (2023): 107953. 	Should do, Can do, Can know, Forms
5	Structure-Preserving Transformations	<ul style="list-style-type: none"> Christopher Alexander. 2002 (republished 2020). "<i>The Nature of Order: An Essay on the Art of Building and The Nature of the Universe: The Process of Creating Life</i>." The Center for Environmental Structure (January 30, 2020), Berkeley CA USA. 	Photo-ethnographic Treasure Hunt

Schedule, Weeks 6-10

Week	Theme	Readings or Prompt	Project
6	Sustainable Interaction Design, (SID, SHCI)	<ul style="list-style-type: none"> Elinor Ostrom. 2010 (republished 2017). "Polycentric systems for coping with collective action and global environmental change." In <i>Global justice</i>, pp. 423-430. Routledge, 2017. 	Triumphs and Tragedies of the Digital Interactive Commons
7	AI & HCI/d	<ul style="list-style-type: none"> NEW: Michael A. Cusumano. 2023. Generative AI as a New Innovation Platform. <i>Communications of the ACM</i> 66, 10 (October 2023), 18–21. https://doi.org/10.1145/3615859 Bobby Allyn. 2023. "New York Times' Considers Legal Action against OpenAI as Copyright Tensions Swirl." <i>NPR</i>, August 16, 2023, sec. Media. https://www.npr.org/2023/08/16/1194202562/new-york-times-considers-legal-action-against-openai-as-copyright-tensions-swirl. Feifei Liu and Kate Moran. 2023. "AI-Powered Tools for UX Research: Issues and Limitations." Nielsen Norman Group. Accessed August 23, 2023. https://www.nngroup.com/articles/ai-powered-tools-limitations/. 	Wait, Wait, Don't Tell me
8	Pictorials, CHI(Art)	<ul style="list-style-type: none"> Paulina Yurman. 2021. "Fluid Speculations: Drawing Artefacts in Watercolour as Experimentation in Research Through Design." In <i>Creativity and Cognition</i>, pp. 1-13. 2021. 	Sketching, Collections, and Curation
9	Non-Linear Design Thinking	<ul style="list-style-type: none"> Bart de Langhe, Stefano Puntoni, and Richard Larrick. 2017. "Linear Thinking in a Nonlinear World." <i>Harvard Business Review</i>, May 1, 2017. https://hbr.org/2017/05/linear-thinking-in-a-nonlinear-world. 	NLDT Frame
10	The Novacene	<ul style="list-style-type: none"> Meehan Crist. 2021. Our Cyborg Progeny. Review of <i>Novacene: The Coming Age of Hyperintelligence</i>, by James Lovelock. <i>London Review of Books</i>, January 7, 2021. https://www.lrb.co.uk/the-paper/v43/n01/meehan-crist/our-cyborg-progeny. <p>Additional References</p> <ul style="list-style-type: none"> James Lovelock. 2019. <i>Novacene: The coming age of hyperintelligence</i>. MIT Press. How to Save Humankind (According to James Lovelock), 2019. https://www.youtube.com/watch?v=HuGj5n_vYz4. "What's the Future of Interaction Design?" — Tim Brown, 2021. https://www.youtube.com/watch?v=HJJFp475M3c. 	Three Predictions

Schedule, Weeks 11-16

Week	Theme	Readings or Prompt	Project
11	Self-Reliance	<ul style="list-style-type: none"> Prompt: If you were designing this syllabus, which three readings would you include? 	Inverted Seminar
12	Inclusivity	<ul style="list-style-type: none"> Katie Mogg. 2023. "AI Botched Their Headshots." <i>Wall Street Journal</i>, August 8, 2023, sec. Management. https://www.wsj.com/articles/generative-ai-photos-race-women-headshots-e60a8a3. <p>Additional Reference</p> <ul style="list-style-type: none"> Susanne Bødker. 2015. Third-wave HCI, 10 years later--- participation and sharing. <i>interactions</i> 22, 5 (September-October 2015), 24–31. https://doi.org/10.1145/2804405 	Three Wishes
13	Science and Design, Empathic Design	<ul style="list-style-type: none"> Nigel Cross. 2001. Designerly ways of knowing: design discipline versus design science. <i>Design Issues</i>, 17(3) pp. 49–55. <p>Guest speaker: Ilpo Koskinen</p> <ul style="list-style-type: none"> Ilpo Koskinen. 2023. <i>Design, Empathy, Interpretation: Toward Interpretive Design Research</i>. MIT Press. Open Access link: https://mitpress.mit.edu/9780262548928/design-empathy-interpretation/ 	Diagrams
14	Reflection	Optional Class	
15	Reflection	Optional Class	
16	Summative Work	Optional Class	Best-Of Portfolio

Example Project Instructions

(Instructions for other projects will be presented in class and recorded on Canvas).

Human-Centered vs Humanity-Centered Design

Readings

- Norman, Donald A. *Design for a better world: Meaningful, sustainable, humanity centered*. MIT Press, 2023.

Deliverables

- **Humanity-Centered Transformations**
Provide three tiles (as described in the Deliverables section of this syllabus) that are examples of Humanity-Centered Transformations that follow at least one of the five basic principles Don Norman identifies in the reading.

(e.g., find an example of a design space wherein the problem *as stated* is the symptom and not the cause and state what the actual core, root issues actually are).

From Norman, 2023:193-194

Transforming Human-Centered into Humanity-Centered Design: Five Basic Principles

1. *Solve the core, root issues, not just the problem as presented (which is often the symptom, not the cause).*
2. *Focus on the entire ecosystem of people, all living things, and the physical environment.*
3. *Take a long-term, systems point of view, realizing that most complications result from the interdependencies of the multiple parts and that many of the most damaging impacts on society and the ecosystem reveal themselves only years or even decades later.*
4. *Continually test and refine the proposed designs to ensure they truly meet the concerns of the people and ecosystem for whom they are intended.*
5. *Design with the community and as much as possible support designs by the community. Professional designers should serve as enablers, facilitators, and resources, aiding community members to meet their concerns.*

Additional Reference Texts

As I state at the outset, HCI and Design are dynamic areas of scholarship and practice. That is, there is not a strict canon of classic literature that one can read, once and for all. It is better to read current sources and to keep reading throughout your career. I suggest allotting 2 hours a day to reading from the sources described below and others in addition to the curricular content.

Some Reference Texts in addition to the readings listed in the Schedule

You may be using some of these sources in your other classes.

Bella Martin and Bruce Hannington. **2012**. *Universal Methods of Design*. Beverly, MA:Rockport.

Donald A. Norman. **2019**. The Four Fundamental Principles of Human-Centered Design and Application. *Essay*. JND.org (23 July 2019).

Martin Tomitsch, Cara Wrigley, Madeleine Borthwick, Naseem Ahmadpour, Jessica Frawley, A. Baki Kocaballi, Claudia Núñez-Pacheco, and Karla Straker. **2018**. *Design. think. make. break. repeat. A handbook of methods*. Bis Publishers.

Huaxin Wei, Jeffrey C. F. Ho, Kenny K. N. Chow, Shunying An Blevis, and Eli Blevis. **2019**. Should Do, Can Do, Can Know: Sustainability and Other Reflections on One Hundred and One Interaction Design Projects. In *Proceedings of the Fifth Workshop on Computing within Limits (LIMITS '19)*. Association for Computing Machinery, New York, NY, USA, Article 6, 1–18.

Places to Look First

Check these first:

<https://dl.acm.org/>

<https://www.semanticscholar.org/>

<https://scholar.google.com/>

Places to Browse: ACM Best Papers List

One strategy is to be sure to read the best papers listed here:

Jeff Huang's List of Best Papers

ACM Exemplary Papers

Each of the ACM conferences lists exemplary papers. I recommend looking at these exemplary papers which are constantly being updated in order to be sure your reading about HCI is up to date. ACM SIGCHI conferences are listed here:

<https://sigchi.org/conferences/upcoming-conferences/>

ACM CHI Exemplary Papers by Thematic Areas

ACM CHI conference papers are grouped by thematic areas called sub-committees that represent a broad view of HCI. Check each of the links to see the exemplary areas for each subcommittee:

- * *User Experience and Usability*
- * *Specific Applications Areas*
- * *Learning, Education, and Families*
- * *Interaction Beyond the Individual*
- * *Games and Play*
- * *Privacy and Security*
- * *Visualization*
- * *Health*
- * *Accessibility and Aging*
- * *Design*
- * *Building Devices: Hardware, Materials, and Fabrication*
- * *Interacting with Devices: Interaction Techniques & Modalities*
- * *Blending Interaction: Engineering Interactive Systems & Tools*
- * *Understanding People: Theory, Concepts, and Methods*
- * *Critical Computing, Sustainability, and Social Justice*
- * *Computational Interaction*

Technology in Practice

In some ways, keeping up with the technology and other sections of major high integrity new sources is the best way to be current. It is important to triangulate these readings—that is, to read from a great variety of sources in order to see what is important to different constituencies. Notwithstanding, reliable and high integrity sources are key. Here is a list:

- * *Technology Section of The Economist*
- * *Technology Section of the New York Times*
- * *Technology Section of the Guardian*
- * *Technology Section of Reuters*
- * *Technology Section of the Atlantic*
- * *Technology Section of NPR*
- * *Technology Section of the Wall Street Journal*
- * *Technology Section of the Washington Post*
- * *Technology Section of the BBC*

Pictorials

At the intersection of HCI and Design are pictorials. These are a good source for design inspirations that bridge between scholarship and practice:

- * *C&C 2017 to Current*
- * *DIS 2014 to Current*
- * *TEI 2020 to Current*

English

If English is not your native language or you are otherwise shy about speaking in class, please do not worry. You will not be penalized in any way for making contributions to the class in less than perfect English or for taking time to compose your answers. You are welcome to say what you want to say in your language of choice first and then ask for help from others to translate to English. I will frequently emphasize to the class the need for all of us to be supportive of each other when it comes to contributing to the discussions. There is no need to feel rushed when responding to questions in class—an important part of the class is the construction of a feeling of community with the faculty and your peers.

Important Note about Third Party Materials

In this class, your use of third-party materials must conform to ACM policy:

Third party material Fair use

<https://www.acm.org/publications/authors/guidance-for-authors-on-fair-use>

Sample permission request letter

<https://www.acm.org/binaries/content/assets/publications/permissionsformtemplate.odt>

The reason for this policy is to underscore the goal of producing professional quality, publishable work, as you will be expected to produce in real-world practice. In your professional career, you will be expected to adhere to copyright laws. It is also a matter of ethics and respect for the work of others.

Moreover, since the program includes an emphasis visual thinking, most of your evidence of such thinking must be your own original work.

Generative AI

Use of generative-AI tools, is permitted just in the case that each use is fully attributed and correctly referenced. To do otherwise is considered plagiarism and may result in a failing grade for the entire class. Participants assume all responsibility for fair use apropos of copyright issues with the use of generative AI.

Reference Formats

You must use ACM referencing formats: *<https://www.acm.org/publications/authors/reference-formatting>*

Accommodations & Feedback

We welcome your feedback. We will do our best to accommodate specific requests if they are reasonable and have merit.

Academic Misconduct

The class is morally and procedurally bound by IU's policies on academic misconduct, the details of which you can read about at the following website: *www.indiana.edu/~code/code/index.shtml*

Religious Observance

In accordance with the Office of the Dean of Faculties, any student who wishes to receive an excused absence from class must submit a request form available from the Dean of Faculties for each day to be absent. This form must be presented to the course professor by the end of the second week of the semester. A separate form must be submitted for each day. The form must be signed by the instructor, with a copy retained by instructor, and the original returned to the student. Information about the policy on religious observance can be found here:

www.indiana.edu/~vpfaa/holidays.shtml

Important Notice

As your instructor, one of my responsibilities is to help create a safe learning environment on our campus. Title IX and our own Sexual Misconduct policy prohibit sexual misconduct. If you have experienced sexual misconduct, or know someone who has, the University can help. I encourage you to visit <http://stopsexualviolence.iu.edu/> to learn more. If you are seeking help and would like to speak to someone confidentially, you can make an appointment with a Mental Health Counselor on campus. Contact information available at <http://stopsexualviolence.iu.edu/employee/confidential.html>

It is also important that you know that federal regulations and University policy require me to promptly convey any information about potential sexual misconduct known to me to our Deputy Title IX Coordinator or IU's Title IX Coordinator. In that event, they will work with a small number of others on campus to ensure that appropriate measures are taken, and resources are made available to the student who may have been harmed. Protecting a student's privacy is of utmost concern, and all involved will only share information with those that need to know to ensure the University can respond and assist.

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