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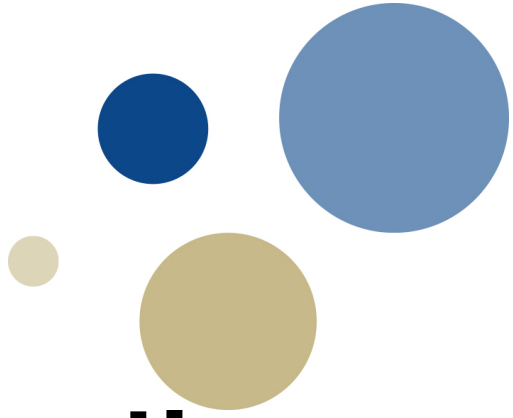

Human Computer Interaction

Trends in HCI

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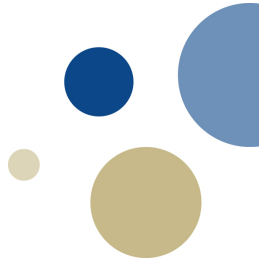
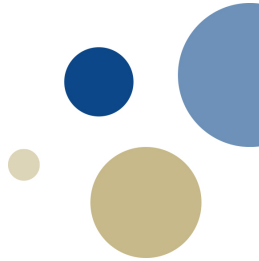
23 October 2018

Learning Outcomes



- Get a sense of the differences between 1st, 2nd, and 3rd wave in HCI.
- Explore a range of key topics in the HCI discipline.
- Identify the format of CHI paper writing.
- Discover the elements in a successful CHI paper submission.

Preparation: Reading



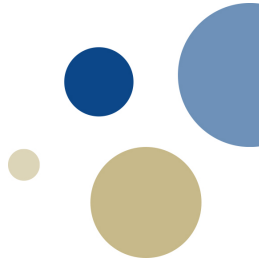
— Watch this video, which explains how the course will work: `http://folk.ntnu.no/annax/MCT-videos/VL-2018-10-15-09-01-MCT.mp4`, slides here.

— Send a summary (1 page max.) of the following article:

- Being Human Human-Computer Interaction in the Year 2020 [1] `https://hxd.research.microsoft.com/manage/resources/beinghumana3-1.pdf`

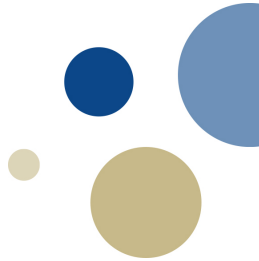
You should pick one subsection of each section e.g. (1.1 changing computers, 2.2. the end of interface stability and 3.2 extending the research and design cycle) and briefly summarize what it is about writing 1 paragraph for each subsection.

Final Assignment (1/2)



- The final assignment of this course will consist in writing a short paper (4 pages long) about the prototype that you built in team and presented during the mini-hackathon of the Physical Computing Workshop.
- The paper will have both individual parts (written individually) and group parts (written in team).
- This final assignment will count 40% of the total grading of the course, where 50% will count from your individual contributions and 50% will count from group contributions.
- Page about the final assignment on Canvas:
  `https://uio.instructure.com/courses/11472/pages/final-assignment-human-computer-interaction/`

Final Assignment (2/2)



The paper structure should have the following sections:

- Title
- Abstract (300 words)
- Introduction (*group*)
- Background (*group*)
- The System (*group*)
- The Performance (*group*)
- Reflective Notes (*individual*)
- Conclusion (*individual*)

Class Structure

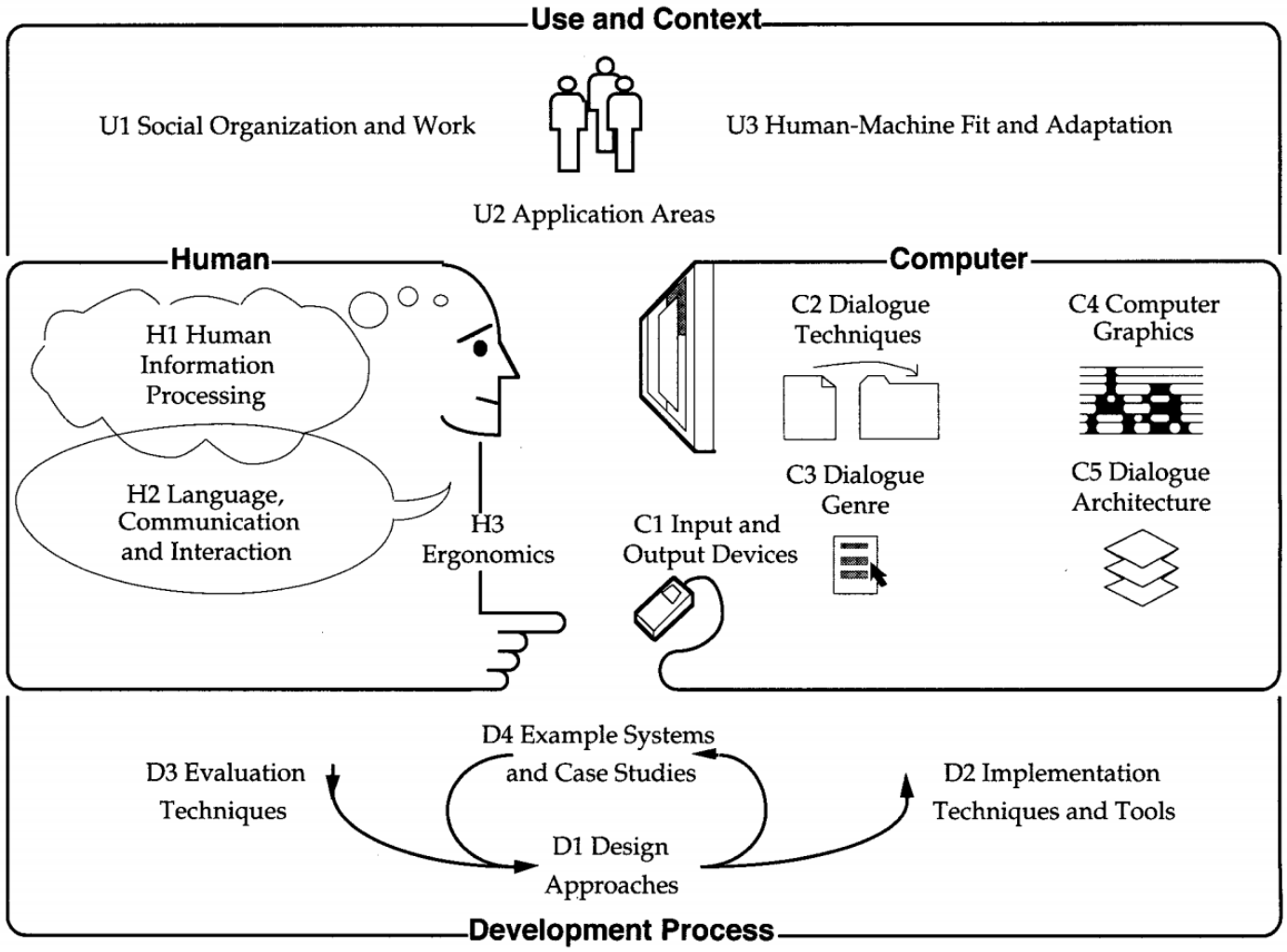
- 10.15-10.30 Presentation/lecture of the 1st, 2nd, and 3rd wave in HCI.
- 10.30-11.00 Discussion about the prep. reading framed in the context of the three waves in HCI.
- 11.00-11.30 Team work: Selection of a paper from the CHI 2018 Best Papers (`https://chi2018.acm.org/attending/best-of-chi/`) and discussion about what is the research question, the approach used to address the research question, the main findings and the main contribution.
- 11.30-12.00 The teams summarize to the group their selected paper (10 min per group).

What is HCI?

Human-computer interaction is 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. [2]

- Interaction Design is concerned with the theory, research, and practice of designing user experiences for all manner of technologies, systems, and products. [3]
- Ergonomics and Human Factors have closely overlapping goals with HCI, being concerned with understanding the interactions among humans and other aspects of a system in order to optimize human well-being and overall system performance. [3]

The Content of HCI



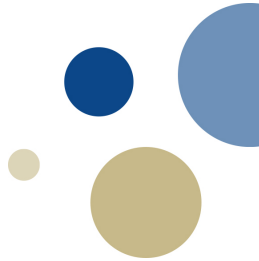
Hewett et al. 1992 [2]

ACM Classification Keywords

ACM's first classification system for the computing field was published in 1964. Then, in 1982, the ACM published an entirely new system. New versions based on the 1982 system followed, in 1983, 1987, 1991, and 1998. The 2012 scheme utilizes a new poly-hierarchical structure and a more in-depth approach than the 1998 version. It no longer uses the letter-and-number coding of the previous versions. The old scheme has been mapped to the new, and both the 1998 and 2012 terms are available on Citation Pages of all indexed articles in the ACM Digital Library.

Source: `https://www.acm.org/about-acm/class`

The 2012 ACM Computing Classification System



- Hardware
- Computer Systems Organization
- Networks
- Software
- Theory of Computation
- Mathematics of Computing
- Information Systems
- Security and Privacy
- Human-Centered Computing
- Computing Methodologies
- Applied Computing
- Social and Professional Topics

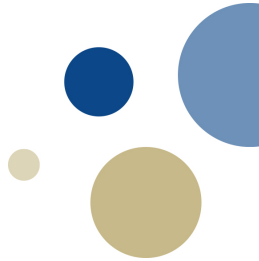
Source: `https://www.acm.org/publications/class-2012-intro`
Tool with a visual display:
`https://www.acm.org/publications/class-2012`

What is SIGCHI

ACM SIGCHI is the Special Interest Group on Human-Computer Interaction.

> *SIGCHI is the premier international society for professionals, academics and students who are interested in human-technology and human-computer interaction (HCI). We provide a forum for the discussion of all aspects of HCI through over 20 sponsored and over 40 in-cooperation conferences, publications (eg. OpenTOC: Table of Contents page), communities, web sites, and other services. We advance education in HCI through workshops and outreach, and we promote informal access to a wide range of individuals and organizations involved in HCI.*
> *Source:* `https://sigchi.org/about/about-sigchi/`

How does HCI relate to music tech?



I also discovered that in the grand scheme of things, there are three levels of design: standard spec, military spec and artist spec. Most significantly, I learned that the third, artist spec, was the hardest (and most important). If you could nail it, then everything else was easy. Buxton, 1997 [4]

What is CHI?

- CHI stands for the ACM Conference on Human Factors in Computing Systems.
- The CHI series of academic conferences is generally considered the most prestigious in the field of human–computer interaction and is one of the top ranked conferences in computer science.
- CHI has been held annually since 1982 and attracts thousands of international attendees. CHI continues to grow, reaching over 3,300 attendees in 2013 and 3,800 in 2016.
- Since 1993 the acceptance rate for full papers was consistently below 30 percent. After 1992 the average acceptance rate was around 20 percent. The number of accepted full papers is slowly increasing and reached 157 accepted papers with an acceptance rate of 22 percent in 2008.
- The Proceedings of CHI can be found on the ACM Digital Library: `https://dl.acm.org/`

Source: `https://en.wikipedia.org/wiki/Conference_on_Human_Factors_in_Computing_Systems`

When Second Wave HCI meets Third Wave Challenges

Abstract: This paper surveys the current status of second generation HCI theory, faced with the challenges brought to HCI by the so-called third wave. In the third wave, the use context and application types are broadened, and intermixed, relative to the focus of the second wave on work. Technology spreads from the workplace to our homes and everyday lives and culture. Using these challenges the paper specifically addresses the topics of multiplicity, context, boundaries, experience and participation in order to discuss where second wave theory and conceptions can still be positioned to make a contribution as part of the maturing of our handling of the challenges brought on by the third wave. Bødker, 2006 [5]

The ‘third wave’

The ‘third wave’ provides a different lens for understanding alternative computing systems to window-icon-mouse-pointer systems, such as ubiquitous, mobile, collaborative or social computing systems. This paradigm is referred by [6] as “situated perspectives”, a sum of perspectives that studies HCI interaction as situated in a particular context and which connects to qualitative disciplines such as ethnography or practice-based research.

The three paradigms compared

	Paradigm 1	Paradigm 2	Paradigm 3
Metaphor of interaction	Interaction as man-machine coupling	Interaction as information communication	Interaction as phenomenologically situated
Central goal for interaction	Optimizing fit between man and machine	Optimizing accuracy and efficiency of information transfer	Support for situated action in the world
Typical questions of interest	How can we fix specific problems that arise in interaction?	▪ What mismatches come up in communication between computers and people? ▪ How can we accurately model what people do? ▪ How can we improve the efficiency of computer use?	▪ What existing situated activities in the world should we support? ▪ How do users appropriate technologies, and how can we support those appropriations? ▪ How can we support interaction without constraining it too strongly by what a computer can do or understand? ▪ What are the politics and values at the site of interaction, and how can we support those in design?

Harrison et al. (2007) [6]

Third-Wave HCI, Ten Years Later (Bødker, 2015)

- The first wave was cognitive science and human factors. It was model-driven and focused on the human being as a subject to be studied through rigid guidelines, formal methods, and systematic testing. [7]
- The second wave is the move “from human factors to human actors.” In the second wave, the focus was on groups working with a collection of applications. Focus on situated action, distributed cognition, context, and proactive methods (e.g. participatory design, prototyping). [7]
- In the third wave, technology spread from the workplace to our homes and everyday lives and culture. Focus on understanding experience and meaning-making. [7]

Being human: HCI in the year 2020

Computer technologies are not neutral – they are laden with human, cultural and social values. We need to define a new agenda for human-computer interaction in the 21st century – one that anticipates and shapes the impact of technology rather than simply reacts to it.

Source: `https://hxd.research.microsoft.com/work/being-human-human-computer-interaction-in-the-year-2020.php`

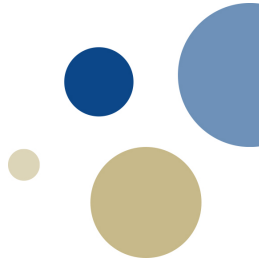
— What is a roadmap or agenda?

— After 10 years of the publication of this agenda, to what extent their predictions have been successful or not. Any surprises?

Being human: HCI in the year 2020: Discussion

— 10.30-11.00 Discussion about the prep. reading framed in the context of the three waves in HCI.

CHI 2018 Best Papers



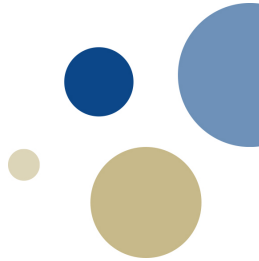
— 11.00-11.30 Team work: Selection of a paper from the CHI 2018 Best Papers (`https://chi2018.acm.org/attending/best-of-chi/`) and discussion about what is the research question, the approach used to address the research question, the main findings and the main contribution.

— 11.30-12.00 The teams summarize to the group their selected paper (10 min per group).

Human-Computer Interaction Day 1 - Group Assignment (post-class)

— Send a summary (1 page max.) of the selected article discussed in group during class from the CHI 2018 Best Papers (https://chi2018.acm.org/attending/best-of-chi/) after the class on Tuesday 22 October 2018 and before Wednesday 24 October 2018 9:00. You should explain what is the research question, the approach used to address the research question, the main findings and the main contribution.

Resources



- The content of this class can be found on Canvas here: `https://uio.instructure.com/courses/11472/pages/human-computer-interaction-1a`
- The slides of this class can be found on GitHub here: `https://github.com/axambo/hci-lecture-slides/tree/master/slides/d1/`
- SIGCHI: `https://sigchi.org/`
- HCI Bibliography: `http://www.hcibib.org/`

References

[1] Richard Harper et al. *Being Human: Human-Computer Interaction in the Year 2020*. Microsoft Research Ltd, 2008.

[2] Thomas T. Hewett et al. *ACM SIGCHI Curricula for Human-Computer Interaction*. Tech. rep. 1992.

[3] Jenny Preece, Yvonne Rogers, and Helen Sharp. *Interaction Design: Bbeyond Human-Computer Interaction*. John Wiley & Sons, 2015.

[4] Bill Buxton. "Artists and the Art of the Luthier". In: *SIGGRAPH Comput. Graph.* 31.1 (Feb. 1997), pp. 10–11.

[5] Susanne Bødker. "When Second Wave HCI Meets Third Wave Challenges". In: *Proceedings of the 4th Nordic Conference on Human-Computer Interaction: Changing Roles*. ACM. 2006, pp. 1–8.

[6] Steve Harrison, Deborah Tatar, and Phoebe Sengers. "The three Paradigms of HCI". In: *Alt. Chi. Session at the SIGCHI Conference on Human Factors in Computing Systems San Jose, California, USA*. 2007, pp. 1–18.

[7] Susanne Bødker. "Third-wave HCI, 10 Years Later—participation and Sharing". In: *interactions* 22.5 (Aug. 2015), pp. 24–31.