

Human Computer Interaction

Introduction to the course

Luigi De Russis

Alberto Monge Roffarello, Tommaso Calò

Academic Year 2024/2025

Disclaimer

Students (you!)

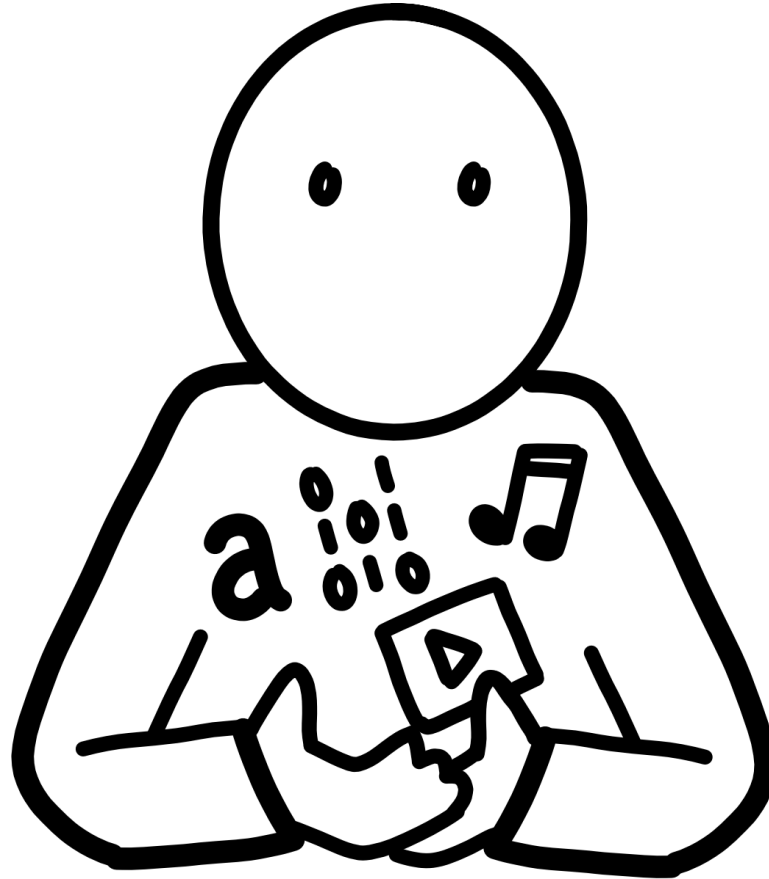
Expectations?

Students (last year)

End-of-course questionnaire

Teachers (us)

*Goals and
motivation*



Everybody here

*Topics, organization, and
exam*



Students
(you!)



What do you hope to learn in this course?



Teachers
(us)

Goals and Motivation

Goals

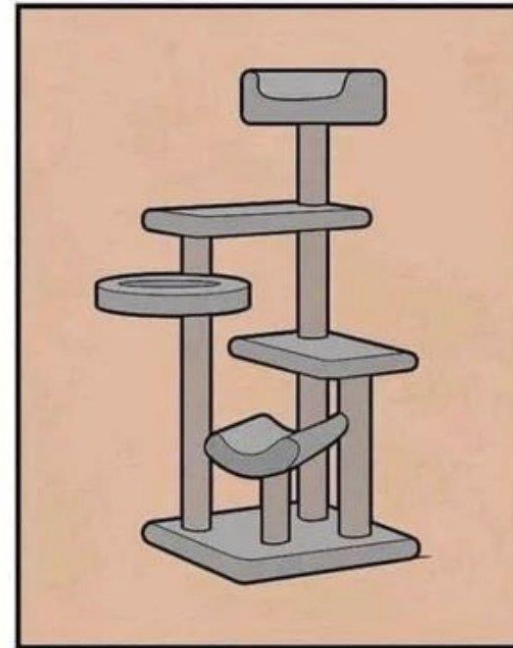
- Understanding how to design the user experience when interacting with modern applications, devices, and environments
- Gaining in-depth knowledge of a human-centered process to create interactive systems
 - and how to apply it in practice
- Becoming familiar with methods to gather and listen to users' needs
- Learning to evaluate interactive systems with their users

Why?

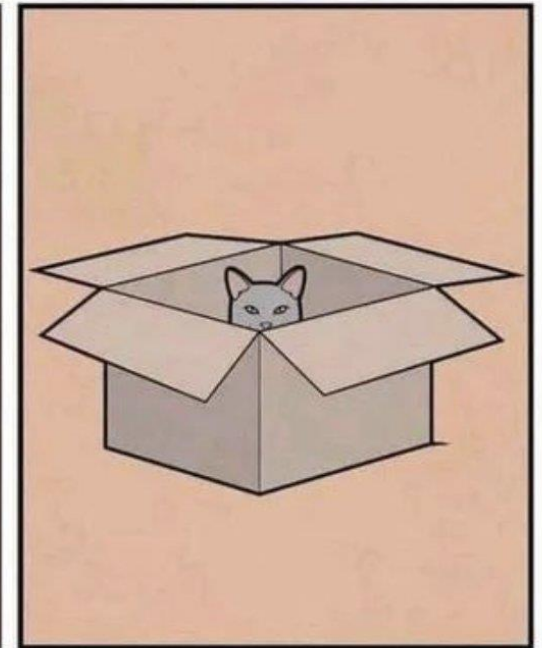


source: https://www.instagram.com/p/CT8qVYaDE_R/

Product features

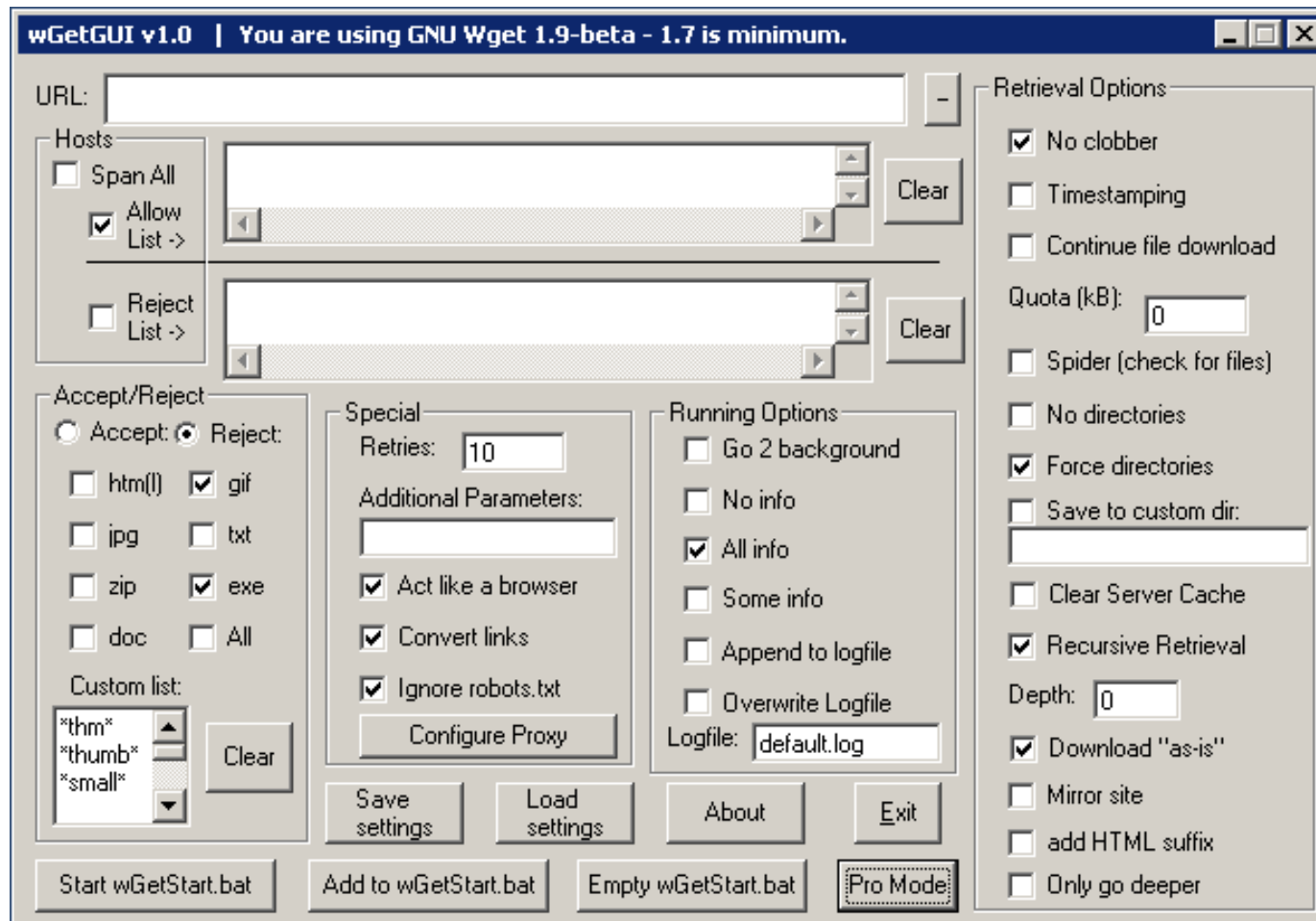


User needs



© _yes_but

Why?



How to Design and Develop Good Interactive Systems?

- *Iterative and human-centered process*
- People needs (not “wants”)
- Design principles and guidelines
- Usability goals
- Prototyping (rapidly and frequently)
- Evaluation (various kind)
- Programming



Students
(last year)

2023 End-of-course Questionnaire

Full responses: 93% Course satisfaction: 96.61% Teacher(s) satisfaction: 97.20%

- Relevant critiques*:
 - Better initial explanation of what is the final project
 - Even more interactivity in class, especially for the practical parts
 - More guidance on the projects/during the labs

** considered in planning this year's course*



Everybody
here

Topics, Organization, and Exam

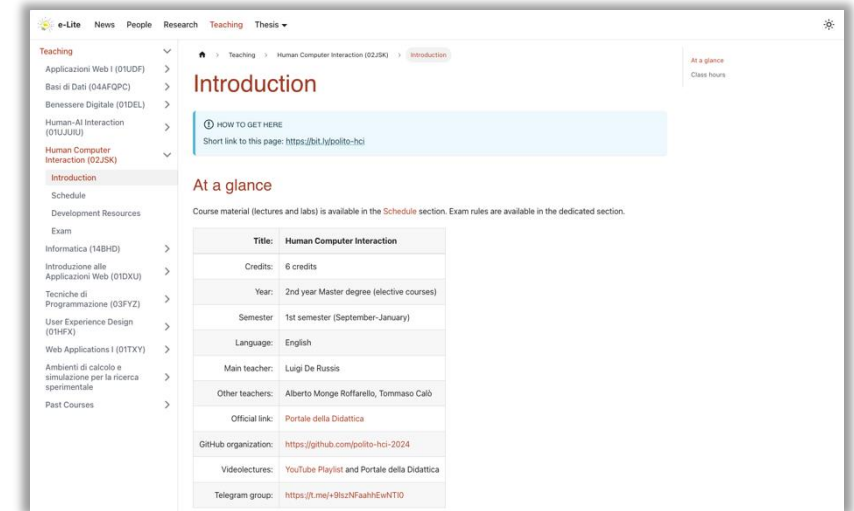
Course Topics... At a Glance!

1. Introduction to HCI (*this week!*)
2. Problem framing and needfinding
3. Tasks and their analysis
4. Prototyping at various levels of fidelity
5. Design guidelines, principles, and heuristics
6. Visual design and design patterns
7. Heuristic evaluation
8. Usability testing
9. Advanced interactions



Learning Material

- Course website - <http://bit.ly/polito-hci>
 - Slides, exercises, lab texts
 - Full schedule
 - Templates and deadlines
 - Supplementary material
- Video lectures (for classes, only)
 - YouTube - https://www.youtube.com/playlist?list=PLs7DWGc_wmwSfM5xREqwSr7vWQcl5VErw
 - Portale della Didattica
- GitHub - <https://github.com/polito-hci-2024>
 - Slides, lab texts, examples, group work, ...



The screenshot shows the course website for Human Computer Interaction (02J5K) at Politecnico di Milano. The page is titled "Introduction" and includes a "HOW TO GET HERE" section with a short link to the page. Below this, there is an "At a glance" section with a table of course details.

Title:	Human Computer Interaction
Credits:	6 credits
Year:	2nd year Master degree (elective courses)
Semester:	1st semester (September-January)
Language:	English
Main teacher:	Luigi De Russis
Other teachers:	Alberto Monge Roffarello, Tommaso Calò
Official link:	Portale della Didattica
GitHub organization:	https://github.com/polito-hci-2024
Videolectures:	YouTube Playlist and Portale della Didattica
Telegram group:	https://t.me/+9lzNFaahEwNTD





Communications

- We will use **Telegram** for quick communications
 - Among students, with teachers, etc.
- Join at <https://t.me/+9lszNFaahhEwNTlo>
- Two topics:
 - **News and Updates** -> Announcements, reminders, and official information
 - Q&A -> For feedback and questions
- Private conversations can be done via direct messages
- Emails are an **alternative** for longer, slower, and private conversations
 - Use “Student Hours”, too

Student Hours

Why?

- An opportunity for *individual students (or groups)* to discuss any need or challenge
- To clarify information and ask questions about the course
- To discuss academic and/or career goals
- To know more about certain topics
- ...

When?

- Every **Thursday 14:00-16:00** in my office, send a message beforehand
- On request, either in person (in my office) or remotely (on Zoom)

Course Methodology

- Project-based
 - students learn by doing a project, in teams
- Problem-based
 - the project work starts from elicited and real users' needs (*needfinding phase*)

Course Methodology

- Projects developed **during** the semester and **step-by-step** (*assignments*)
 - Within a given *theme* and mostly in the *labs*
 - Iterating on *prototypes*
- Checks at the end of two assignments: **feedback** to the teams
 - Feedback is there to help students improve the next step in their projects, in the course, in addition to possibly improve the final grading

Course Organization

- Classes
 - 3 h/week
 - Interactive lectures + exercises
- Laboratories
 - 1.5 h/week
 - 3 Lab slots
 - Starting from **Week 2**
 - For group projects
- **Exception:** first week
 - Class instead of Lab (first 3 hours)

	MO	TU	WE	TH	FR
08:30					
10:00					
11:30		Class 4			
13:00			Lab 11l		
14:30			Lab 11l		
16:00			Lab 2l		
17:30	Class 27				

Classes

- In-person, in rooms with power outlets at the desks
- Lectures video-recorded and made available soon after each class
 - *not streamed live*
 - not in-class exercises and labs
- *This week*: lecture on Wednesday at 13:00 (3 h)
 - we will skip the last class before Christmas and the one in January

Laboratories

- Starting **October 2, 2024**
 - in rooms with power outlets at the desk
- For group activities
- Assignment text online some days in advance
 - we *aim* at “one week in advance”

Laboratories

- **Collaborative** and interactive places, to work and share feedback
 - In-person attendance is *fundamental!*
 - Each team will be in the **same slot** and will work with the **same teacher** for the entire semester
 - The teacher is there to **support** the teams' work, not just reply at questions
- Two **main activities** within labs, identical for the three slots:
 1. *Assignments* - Teams work on steps of the project with the guidance of the teacher
 2. *Checks* - Teams present their assignment work to the teacher and receive feedback

Laboratories

- Each of the three slots will have a specific **theme**
 - All the projects must fall in the slot's theme and specialize it
 - Slots must have around the same number of assigned teams

- 2024 themes:
 1. **Health and Wellbeing** (13:00-14:30)
 2. **Playful Exploration of the World** (14:30-16:00)
 3. **Education with AI** (16:00-17:30)

No one: Are you okay?
Me: Yeah. I'm totally fine.
My Phone:

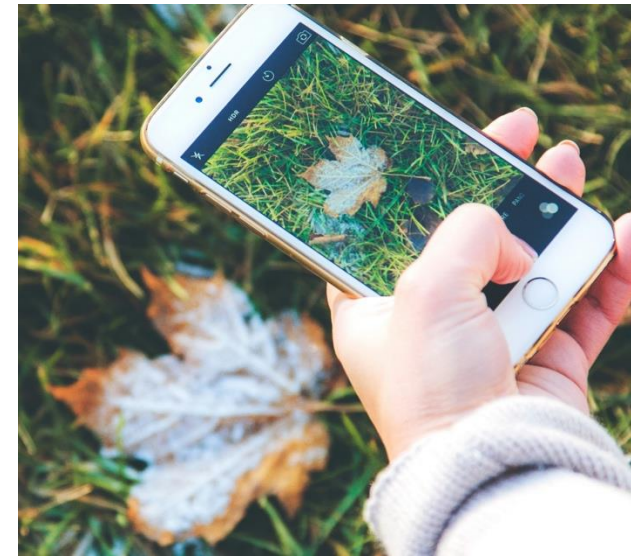


Theme 1 – Health and Wellbeing

- **Teacher:** Alberto Monge Roffarello (alberto.monge@polito.it)
- **When:** Wednesday 13:00-14:30
- **Description:** Health and wellbeing are fundamental aspects of our daily existence. They encompass physical, mental, and emotional dimensions that can be significantly influenced by our interactions with technology. Within this theme, we will explore innovative ways to create applications and interfaces that empower individuals to lead healthier lives.

Theme 2 – Playful Exploration of the World

- **Teacher:** Luigi De Russis (luigi.derussis@polito.it)
- **When:** Wednesday 14:30-16:00
- **Description:** We are constantly “exploring the world”: we visit new places, we move to a new city or country to study, we get around our neighbors, we discover new monuments or museums, etc. Within this theme, we will focus on better supporting people exploring a bit of their world in any scale and environment (building, city, park, country, ...) by building playful applications for specific users.



Theme 3 – Education with AI

- **Teacher:** Tommaso Calò (tommaso.calo@polito.it)
- **When:** Wednesday 16:00-17:30
- **Description:** Education, either formal or informal, plays a pivotal role in many aspects of our life: you can learn at school, you can educate on how to better play sports, you can support your class' learning activities, etc. Within this theme, we will explore how we might create educational experiences for helping people learn or teach better, thanks to AI. The focus is on identifying and addressing challenges to foster more engaging, effective, and inclusive learning experiences.



Teams

- 3-4 students (*preferably 4*)
- It is students' responsibility to form teams
 - Teachers may help, but not automatically assign anyone
- Teams cannot be changed during the semester
- In case of issues among teammates: please, **talk** with the teachers
- Each team will work on their own GitHub repository
 - we will create and assign private repositories to each group



About The Exam

1. Project development (up to 20 points)

- In teams
- Final report – process, execution, and outcomes of *four group assignments*
- Prototypes “source”

2. Heuristic evaluation (up to 6 points)

- Individual
- Report – outcome and execution of *one individual assignment*

3. Oral discussion on the project (up to 4 points)

- As a group, mandatory

- The realized project will be valid until the end of the **academic year**
- Additional points (max 2) can be assigned for the effort during the course, the project quality and creativity, and the oral discussion

We will provide a *template* for both reports, which will need to be documents (not slides)

Evaluation Criteria

- Invested effort in the project activity, including the willingness to incorporate the provided feedback
- Originality, complexity, and richness of the work
- Methodological and technical correctness of the entire process
- Completeness and communication quality of the assignments' outcomes and report(s)
- Quality of the presentations and oral discussion
- Individual contribution

Project Development

- **Goal:**
 - to give hands-on experience with the modern human-centered design process described during the course
- Projects will be built **step-by-step** and mostly carried on *during* labs
- Project's topic proposed by each group
 - Within the chosen theme
 - Based on *needfinding*
- *Group assignments* represent the various process steps
 - Start during a lab
 - Are often followed by *checks* with teachers (in one of the following labs)
 - Evaluated at the exam through reports and discussion

(Planned) Assignments and Checks

- Assignment 1 [group]
 - *Needfinding*
 - Starts at week 2, ends/check at week 4 (duration: **2 week**)
- Assignment 2 [group]
 - *Storyboard and Low-fidelity prototype*
 - Starts at week 5, ends/check at week 7 (duration: **2 week**)
- Assignment 3 [individual]
 - *Heuristic evaluation on another group's low-fidelity prototype*
 - To be done **during** the labs of week 8 and 9
 - Results passed to the other group

(Planned) Assignments and Checks – cont'd

- Assignment 4 [group]
 - *Medium- to high-fidelity prototype*
 - Starts at week 10, ends at week 11, no check (duration: **1 week**)
- Assignment 5 [group]
 - *High-fidelity prototype and evaluation (+ final report)*
 - Starts at week 11, ends **one week before each exam date**
 - The course is composed of 14 weeks

{ Coding will start here, not before!

Assignments and Checks – Summary

	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	...	Exam -1 week
A1				Check												
A2							Check									
A3																
A4																
A5																

Projects Completion Level

- The realized final prototype *must* be a **high-fidelity interactive prototype**
 - in code
 - not a final “product”
- The application is not required to (fully) implement standard (yet important) features, such as sign-up, sign-in, ...
 - Assume that your user is *already* registered and signed in
- This means that some (difficult or standard) features can be *faked* or *hard coded*

Oral Discussion

- **All teammates** present and presenting
- Each group will have 30 mins to:
 1. Give a brief *introduction* to the project (*no slides*)
 2. Do a *demonstration* of the implemented prototype, where students cover the main features and everybody in the team speak
 3. Answer some *questions* from the teachers, about what students showed and/or about the submitted report(s)
- **Beware:** the demonstration is typically the most critical part
 - it needs to be carefully prepared, and not rigged up at the moment
- Teachers will have already read the report(s) and had a look at the final prototype code, so there is no need to cover those

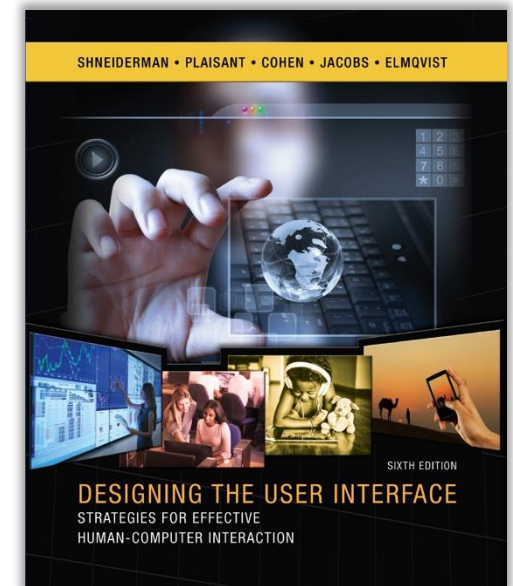
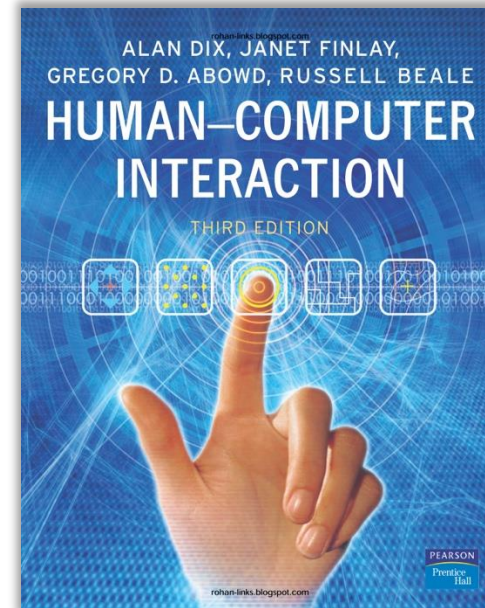
Introducing... the Assignment Zero

- Submit group composition
 - Group name
 - 4 persons (max), for each:
 - ID (matricola), Surname, Name, GitHub username, e-mail
 - Two preferred lab slots/themes
- Submission link (Google Form):
 - <https://forms.gle/ApoCw5xTaamBJNe88>

Deadline:
October 1, 2024
End of Day (EoD)

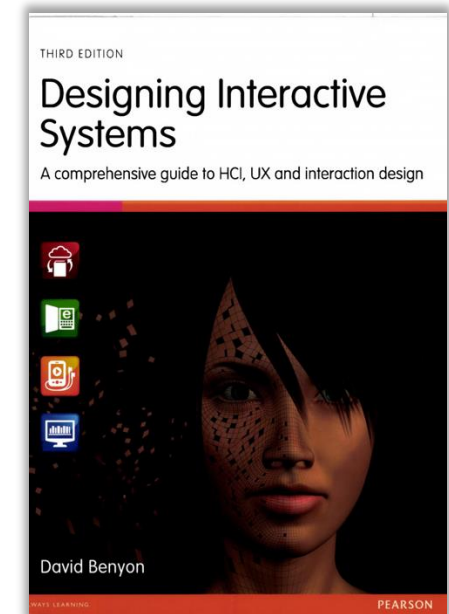
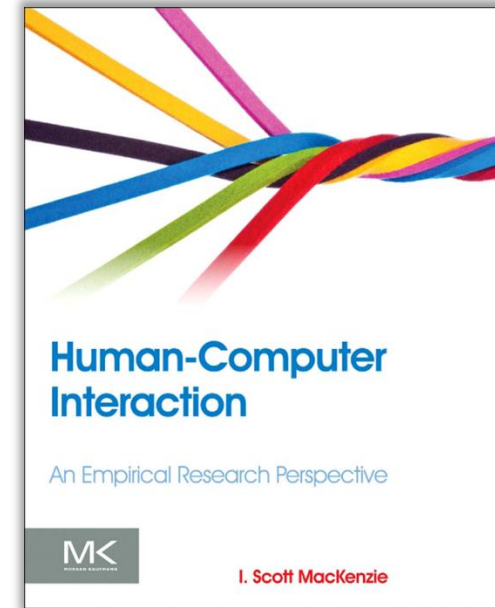
Suggested Books

- Alan Dix, Janet Finlay, Gregory D. Abowd, Russel Beale, "Human-Computer Interaction", 3rd edition, Prentice Hall, 2004, ISBN 0-13-046109-1
- Shneiderman, Plaisant, Cohen, Jacobs, Elmqvist, "Designing the User Interface: Strategies for Effective Human-Computer Interaction", 6th edition, Pearson, 2016, ISBN 013438038X / 9780134380384



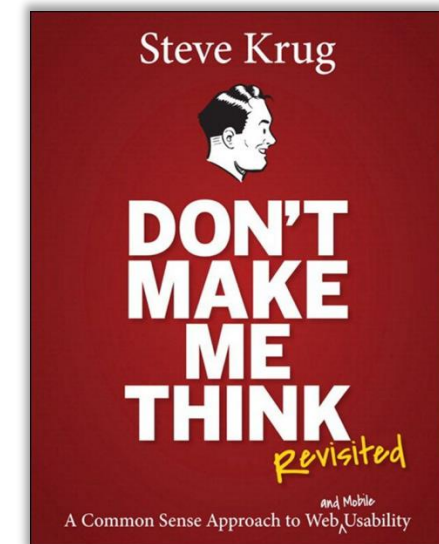
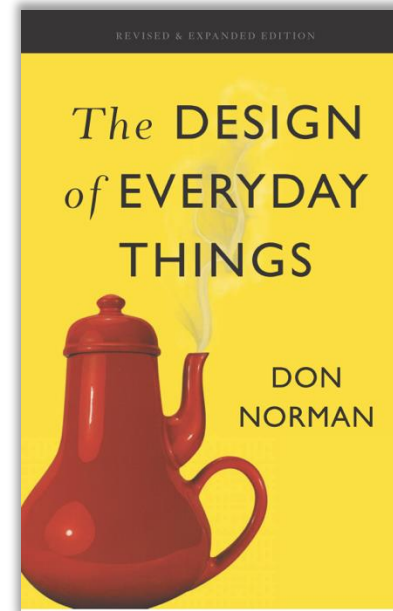
Suggested Books

- I. Scott MacKenzie, "Human-Computer Interaction: An Empirical Research Perspective", Morgan Kaufmann, 2013, ISBN 978-0-12-405865-1
- David Benyon, "Designing Interactive Systems", 3rd edition, Pearson, 2014, ISBN 978-1447920113



Suggested Books

- Don Norman, "The Design of Everyday Things: Revised and Expanded Edition", Hachette UK, 2013, ISBN 0465072992/9780465072996
- S. Krug, "Don't Make Me Think: A Common Sense Approach to Web and Mobile Usability - revisited", Pearson Education, 2014, ISBN 0321648781/9780321648785





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