02JSKov

# Human Computer Interaction

## Course introduction

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Academic Year 2019/2020

# Summary

- Motivation
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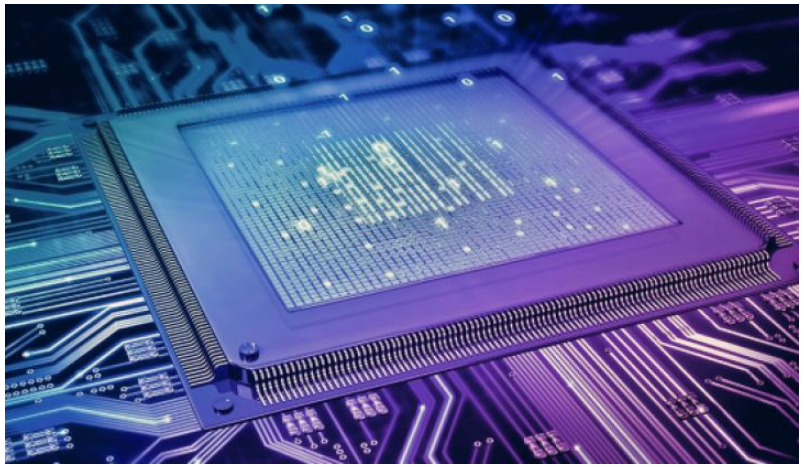
- Methodology
- The exam
- Contacts

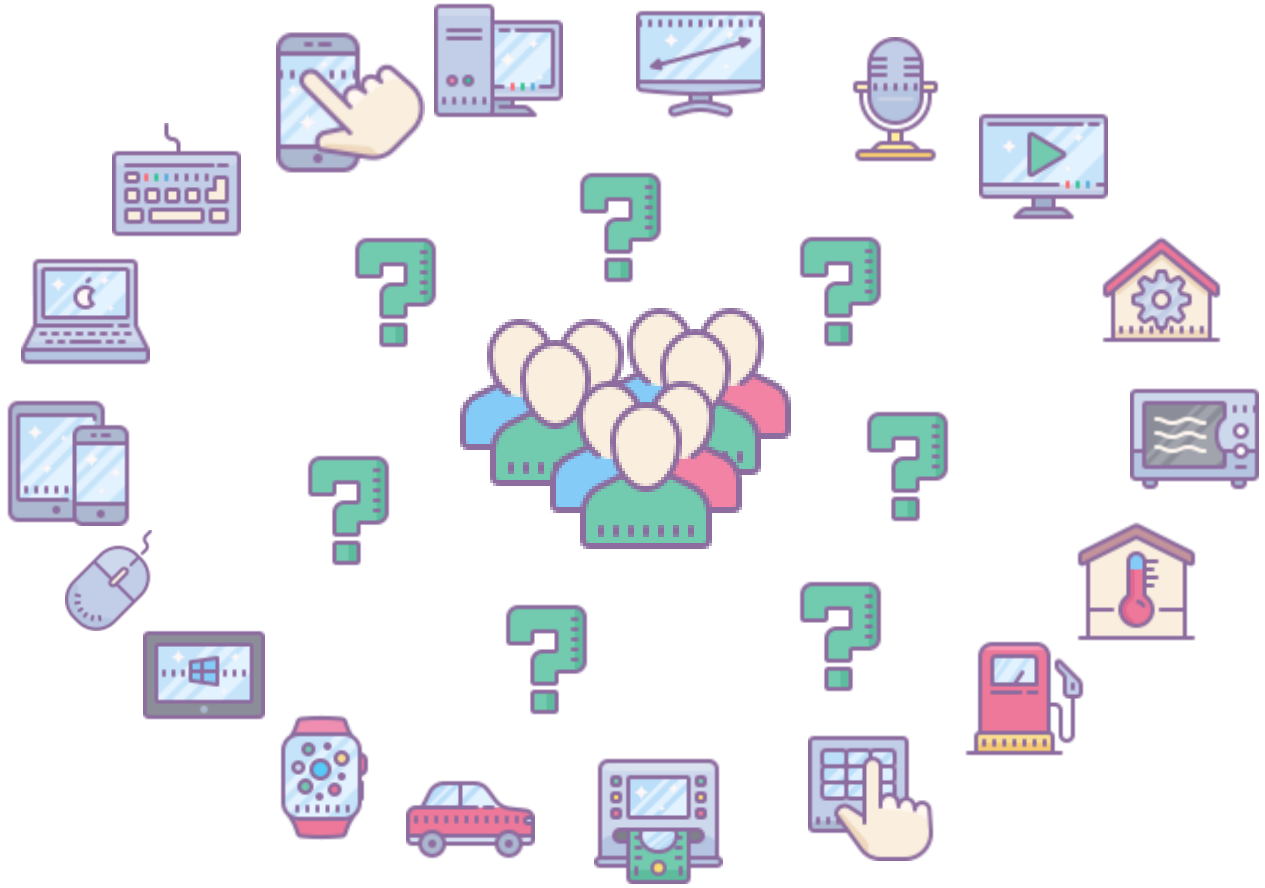
# Motivation

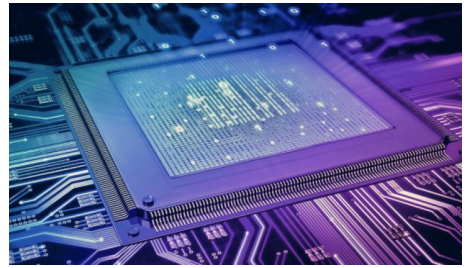
Why should a Computer Engineer care about HCI?

# Motivation



# Motivation





# Challenges

- How to design the user experience when interacting with modern applications, devices, environments?
- How to exploit the novel interaction methods provided by touch, voice, natural interaction, gestures, …?
- How to ensure that people use such interfaces and systems with “joy” rather than “frustration”?

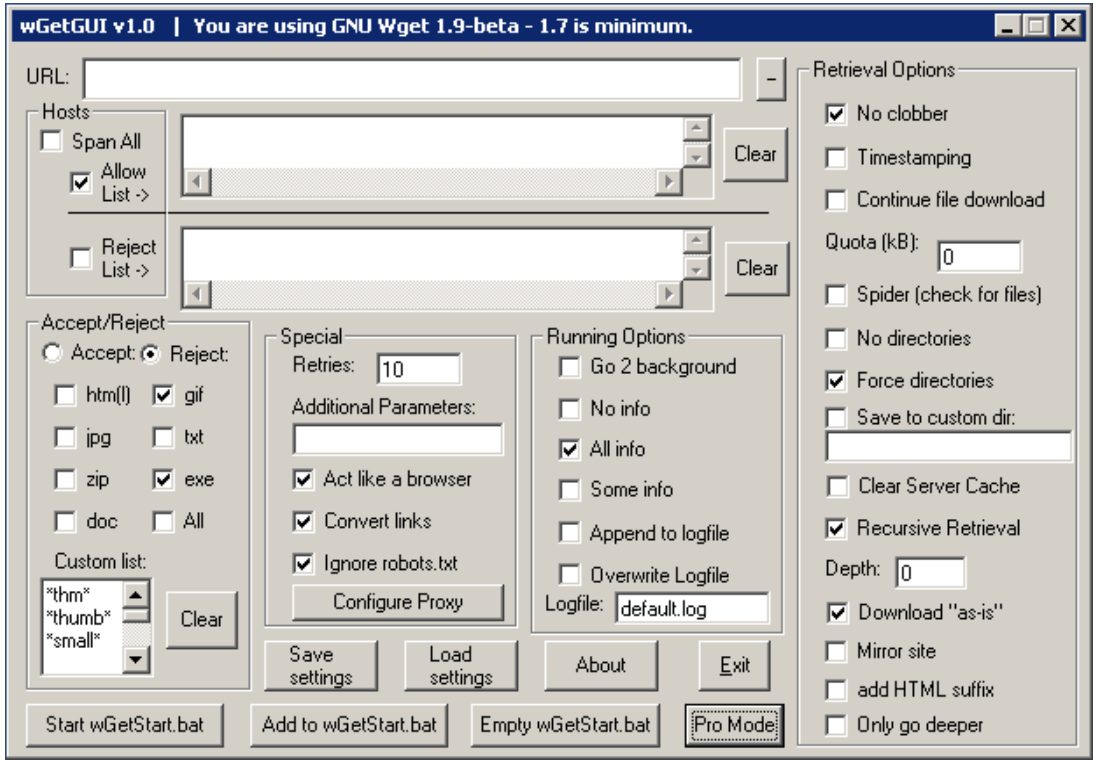
- Deep down inside every software developer, there's a budding graphic designer waiting to get out. And if you let that happen, you're in trouble. Or at least your users will be, anyway…

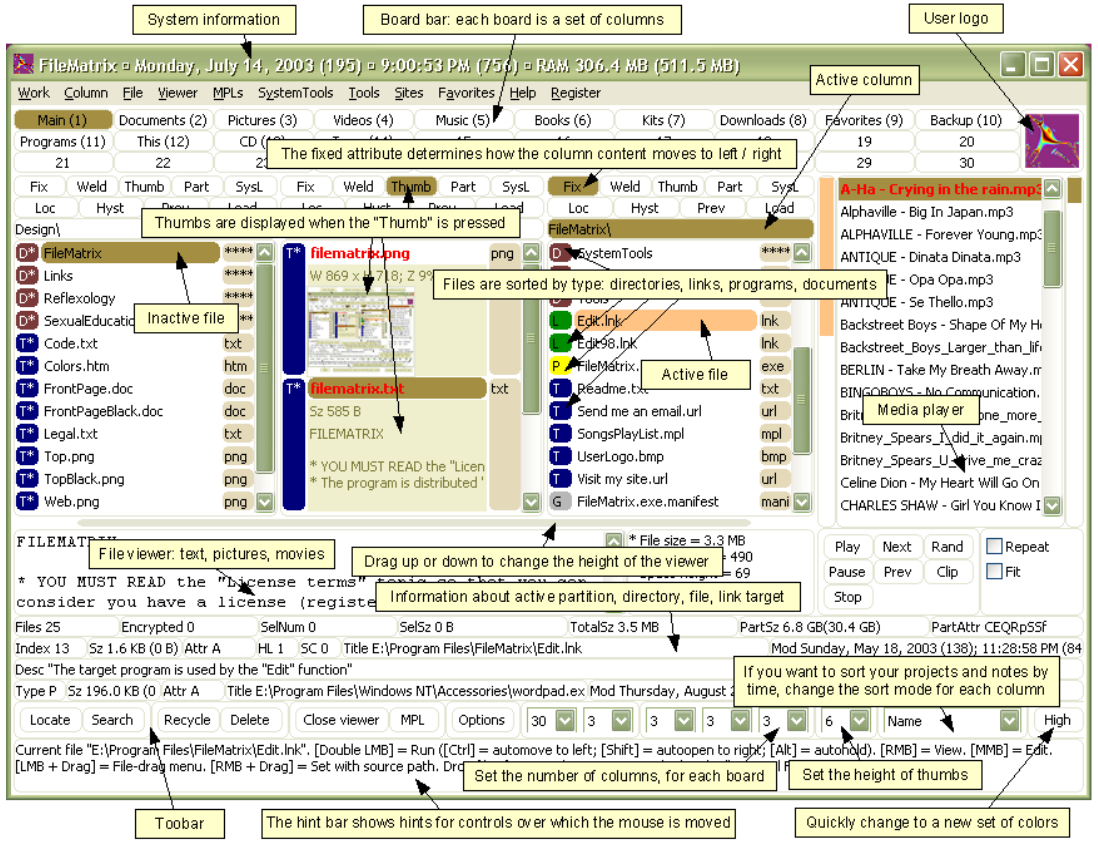
  Jeff Atwood, Nov 2006
  https://blog.codinghorror.com/this-is-what-happens-when-you-let-developers-create-ui/

- The two hardest problems in computer science are: (i) people, (ii), convincing computer scientists that the hardest problem in computer science is people, and, (iii) off by one errors.

  Prof. Jeffrey P. Bigham, 2018
  http://www.cs.cmu.edu/~jbigham/

# Developers' attitude




https://thedailywtf.com/articles/Classic_WTF_-_Enter_the_Matrix

# Course contents

Objectives, topics, outcomes

# Course Objectives

## Learn:

- Key concepts related to HCI
  - User Experience, Usability
  - Design Methods
  - Evaluation Techniques
- User Centered Design Process
- New “modern” interaction methods
- Not only web & mobile

## Apply:

- Design and development of a project
  - Eliciting needs
  - Following the process
  - Developing a result
- Analysis and evaluation of interfaces

# Course Contents

| | |
|---|---|
| Introduction to Human-Computer Interaction (10%) | History, the human, the computer, vision of the future |
| Building interactive applications with a human-centered process (35%) | Main tasks and methods to design, develop, and evaluate an interactive application |
| | Needfinding strategies, low- and high-fidelity prototypes, mental models and visual design, heuristic evaluation, and basic concepts and methods for controlled experiments |
| Application & Projects (30%) | Practical part on a specific application domain and interaction technology |
| | Web applications |
| "Beyond WIMP" paradigms (25%) | Tangible interaction, wearables, voice user interfaces, gestures, eye tracking, and interaction with IoT systems, … |
| | Contemporary examples and development tools |
| | Thematic seminars on emerging topics and case studies |

# Methodology

Lectures, labs, support material, exam

# Methodology

- Learning method
  - project-based → students learn by doing a project
  - problem-based → the project work starts from elicited and real users' needs
- Projects developed **during** the semester, with intermediate milestones and deliverables
- Contemporary communications and project development tools and technologies
  - e.g., Slack, Git and GitHub, …

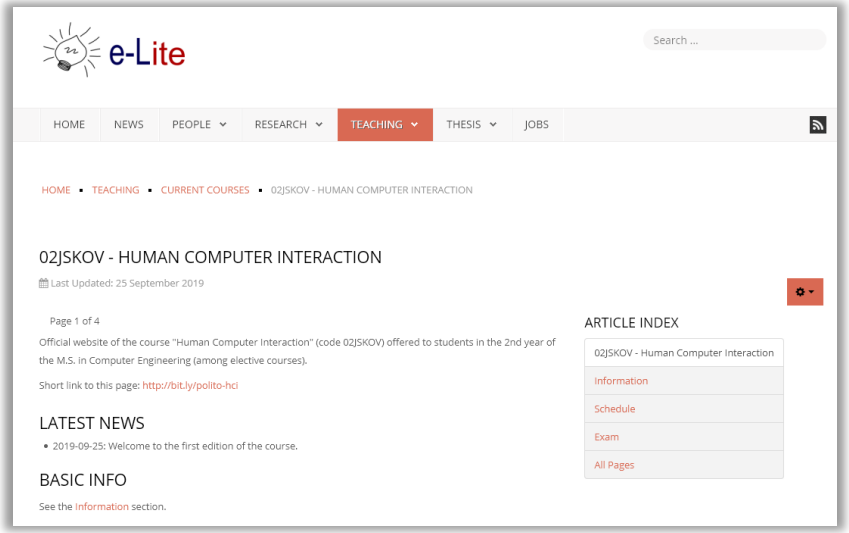
# Schedule

| | Mon | Tue | Wed | Thu | Fri |
|---|---|---|---|---|---|
| **08:30-10:00** | | | | | |
| **10:00-11:30** | | | | Lab (group 1)<br>LABINF | |
| **11:30-13:00** | | | Lecture<br>Room 101 | Lab (group 2)<br>LABINF - **TBD** | |
| **13:00-14:30** | | | | | |
| **14:30-16:00** | | | | | |
| **16:00-17:30** | | | | | |
| **17:30-19:00** | | Lecture<br>Room 101 | | | |

Starting October 10

Depends on final student count

# Learning material

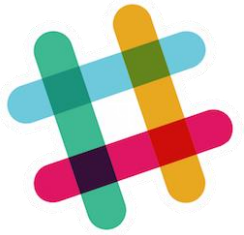



- Course website - http://bit.ly/polito-hci
  - Slides
  - Full schedule
  - Deliverable templates
  - Supplementary material
- Video lectures
  - YouTube - https://www.youtube.com/playlist?list=PLs7DWGc_wmwRB2ttWJXBHBW4OU5B_2NTp
  - Portale della Didattica
- GitHub - https://github.com/polito-hci-2019
  - Examples, exercises

# Collaboration and communication

- Projects on GitHub:
  https://github.com/polito-hci-2019

- Communication with teachers and among groups via Slack App
  https://polito-hci-2019.slack.com
  *(you will be invited)*



# Internal Communication

- All contacts with teachers **must** take place on Slack
  - e-mail messages will **not** be considered
- The `#general` channel is reserved to official communications by the teachers.
- The `#discussion` channel is for questions, requests, ideas, etc. by any student. Teachers will read and respond.
- The `#random` channel is for free discussion among students.
- Groups of students may *create private channels* for collaborating on their project

# Development

- All development (labs, projects, websites) on GitHub
  - Use it! Really! Continuously!
- Create a GitHub account
  - Choose a nickname that may last forever (don't use the "matricola" number)
  - Register with a @studenti.polito.it address, you may get free private repositories (request on https://education.github.com)
- Per-project repositories will be created in polito-hci-2019
  - If you need further repositories, please ask
- Always commit your intermediate work

# Study material

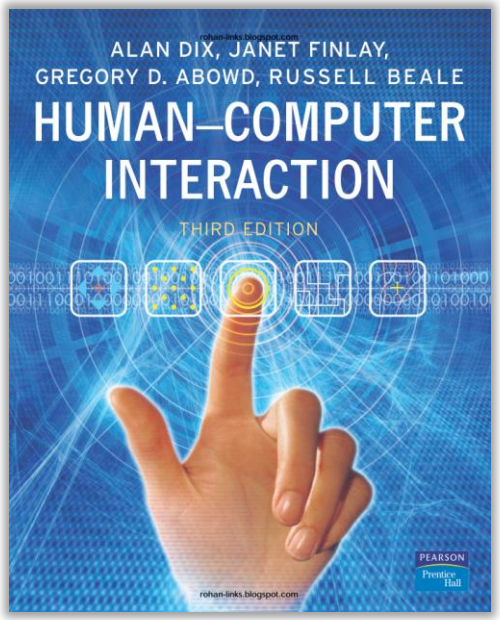
- No suitable textbook for the whole course

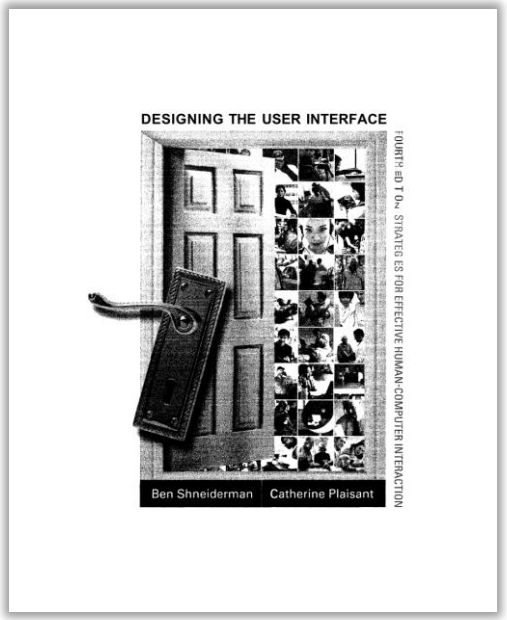
- Teachers' slides
- Required readings
- Lecture videos

- Suggested books for some of the topics
- Suggested papers
- On-line technical documents

# Suggested books

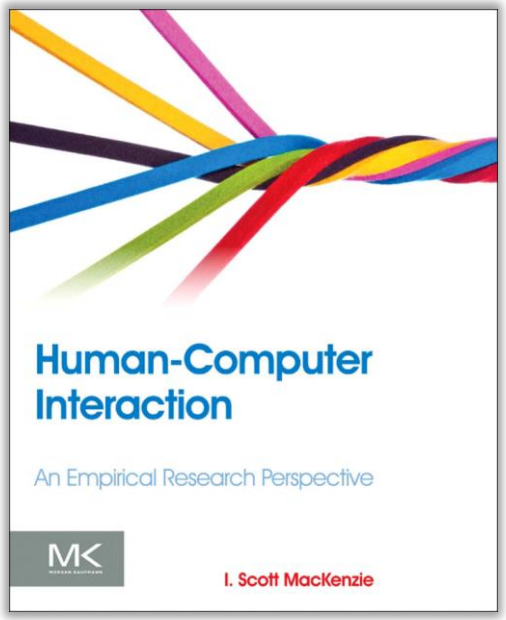
- Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale: Human Computer Interac tion, 3rd Edition, Prentice Hall, 2004, ISB N 0-13-046109-1
- Shneiderman, Plaisant, Cohen, Jacobs, Elmqvist & Diakopoulos: Designing the User Interface: Strategies for Effective Human-Computer Interaction, 6th Edition, Pearson, 2016, 013438038X / 9780134380384

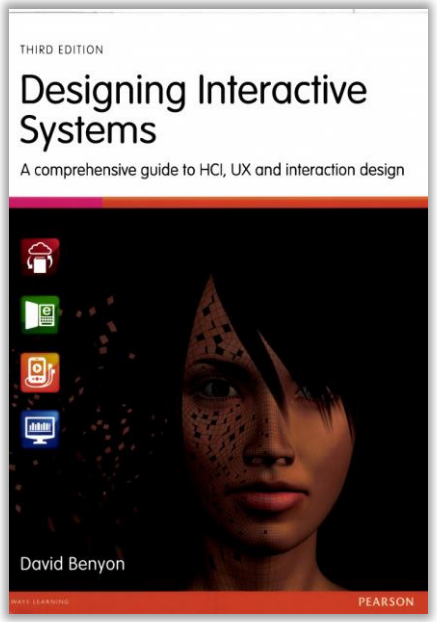


# Suggested books

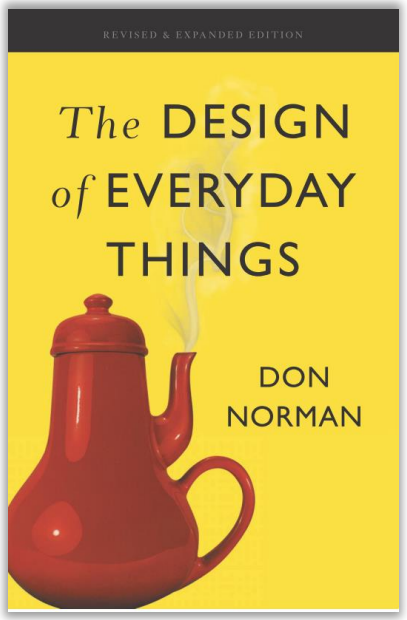
- I. Scott MacKenzie: Human-Computer Interaction – An Empirical Research Perspective, Morgan Kaufmann, 2013, 978-0-12-405865-1
- David Benyon: Designing Interactive Systems, Pearson, 2014, 978-1447920113

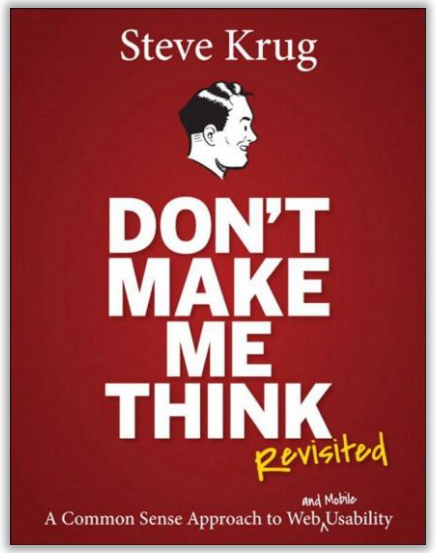


# Suggested books

- D. Norman, The Design of Everyday Things: Revised and Expanded Edition, Hachette UK, 2013, INBN 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



# The exam

Group projects, written test, exam rules

# The exam

- Written test [40%: 13 points, minimum 7]
  - Design methods, design processes, design and analysis instruments, …
  - No coding
- Evaluation of the projects (by group) [60%: 20 points]
  - Deliverables
  - Source code
- Both parts must be passed **in the same academic year**
  - In any order

# Contacts

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