HCI
Design & Evaluation

Lecture 1 – Introduction to
HCI Design & Evaluation

Monday 15-11-2021

Randy Klaassen

Tutorial groups

Are we complete?

In this lecture there is time to find a group.

If you did not found a group, we will randomly assign you to a group.

CS/BIT MOD06 Group 01 and CS/BIT MOD06 Group 02 will have the first tutorial this afternoon!

Who am I?

Health

Computer Science

Human Media Interaction

Virtual coaches

Foundations of Interaction Tech

Beh

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Sı

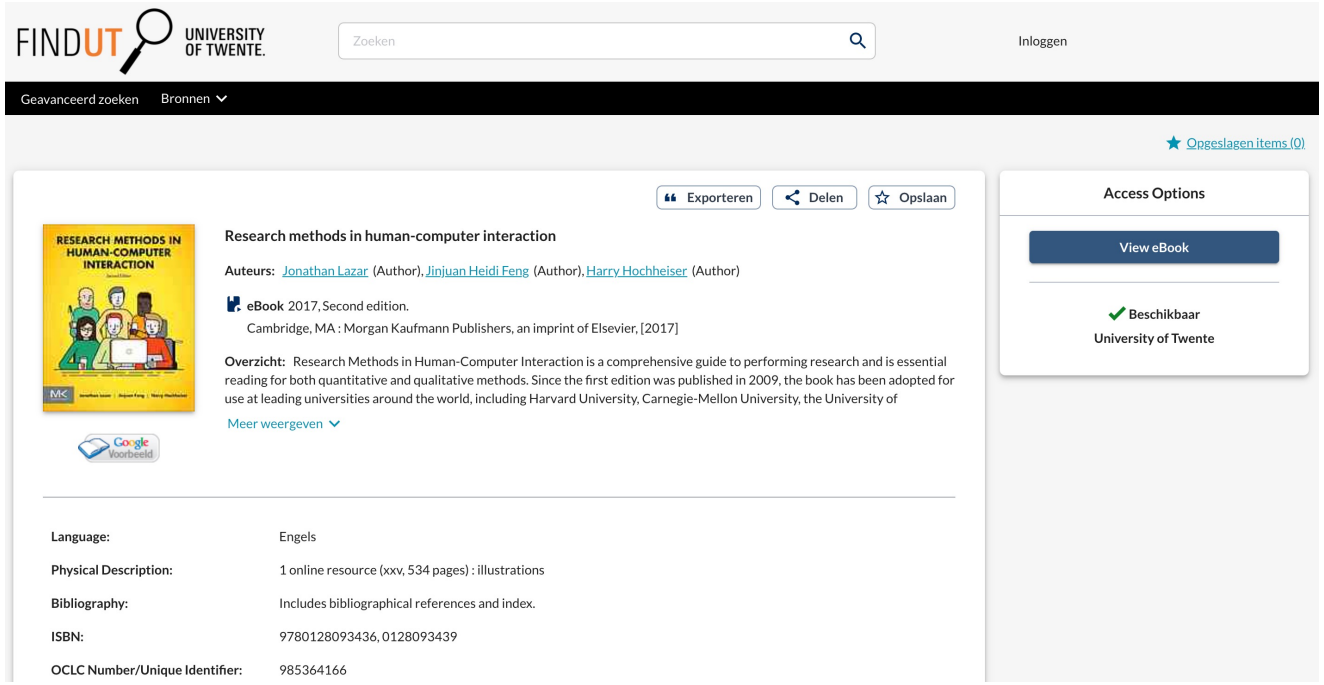
Sp

Well-bein

d

no

Book



https://www-sciencedirect-com.ezproxy2.utwente.nl/book/9780128053904/research-methods-in-human-computer-interaction

Access to papers/book outside campus….

- Fix VPN, off-campus plugin and/or …

The course

Week	Lecture *(Location in Rooster)*	on	Tutorial	Deadlines	Readings
1	Introduction HCI Course overview, topic and project	15.11	Ideation activity * Literature * Brainstorm * top 3 ideas	Proposal report (Fri 19-11)	Klemmer, Lecture 1. Available: YouTube Preece, Chapter 2 Link Lazar, Chapter 1 Link
2	Concepts, Ideation, Value Sensitive Design	22.11	Concept and Ideation * Scenario's, persona's, Values * Final #1 top idea * Video shotlist of above	Concept video, persona and scenario report (Fri 26-11)	Scenario-Based Design - Mary Beth LINK Value Sensitive Design and Information Systems - Batya Friedman LINK CHI - Guide to a Successful Video Submission
3	User confrontation	29.11	User confrontation * Interview script * Interview with peer groups * Interview results and conclusions	Interview report (Fri 03-12)	Lazar, Chapter 5 Surveys Link Lazar, Chapter 8 Interviews Link Lazar, Chapter 11 Qualitative Data Link
4	Lo-fi prototyping	06.12	Prototyping part I * (digital) prototyping * Setup user evaluation	-	Preece, Chapter 12 Link Klemmer, Lecture 2, The Power of Prototyping Link Lazar, Chapter 15 Link Lazar, Chapter 16 Link
5	Hi-Fi Prototyping	13.12	Prototyping part II * (digital) prototyping * User evaluation * Conclusions and results	Lo-Fi prototype report (Fri 17-12) **Exam part I (Fri 17-12)**	Lazar, Chapter 10 Link
6	Experiment Design, Research methods and Data Analysis	20.12	Prototyping part III * Hi-fi prototyping	-	Lazar Chapter 2 Link Lazar, Chapter 3.1, 3.2, 3.3 Link Lazar, Chapter 4 Link Usability.gov Link; Quant. Spec. Link
	Holiday				
7	Ethics	10.01	Prototyping part III * Hi-fi prototyping * Experiment design + ethics	Hi-Fi Prototype report (Fri 14-01) Controlled Experiment report (Sun 16-01)	*provided during lecture*
8	Guest lecture	14.01	User testing (Resits required)	**Exam part II (Fri 21-01)**	-
9	n/a		n/a	Final project Report (Sun 23-01)	
10	n/a		n/a	Oral Reflection (TBD) (option) resubmission Final project Report (Sun 06-02)	

Readings List:
Rosson, M. B. & Carroll, J. M. (2002) Scenario-Based Design. LINK
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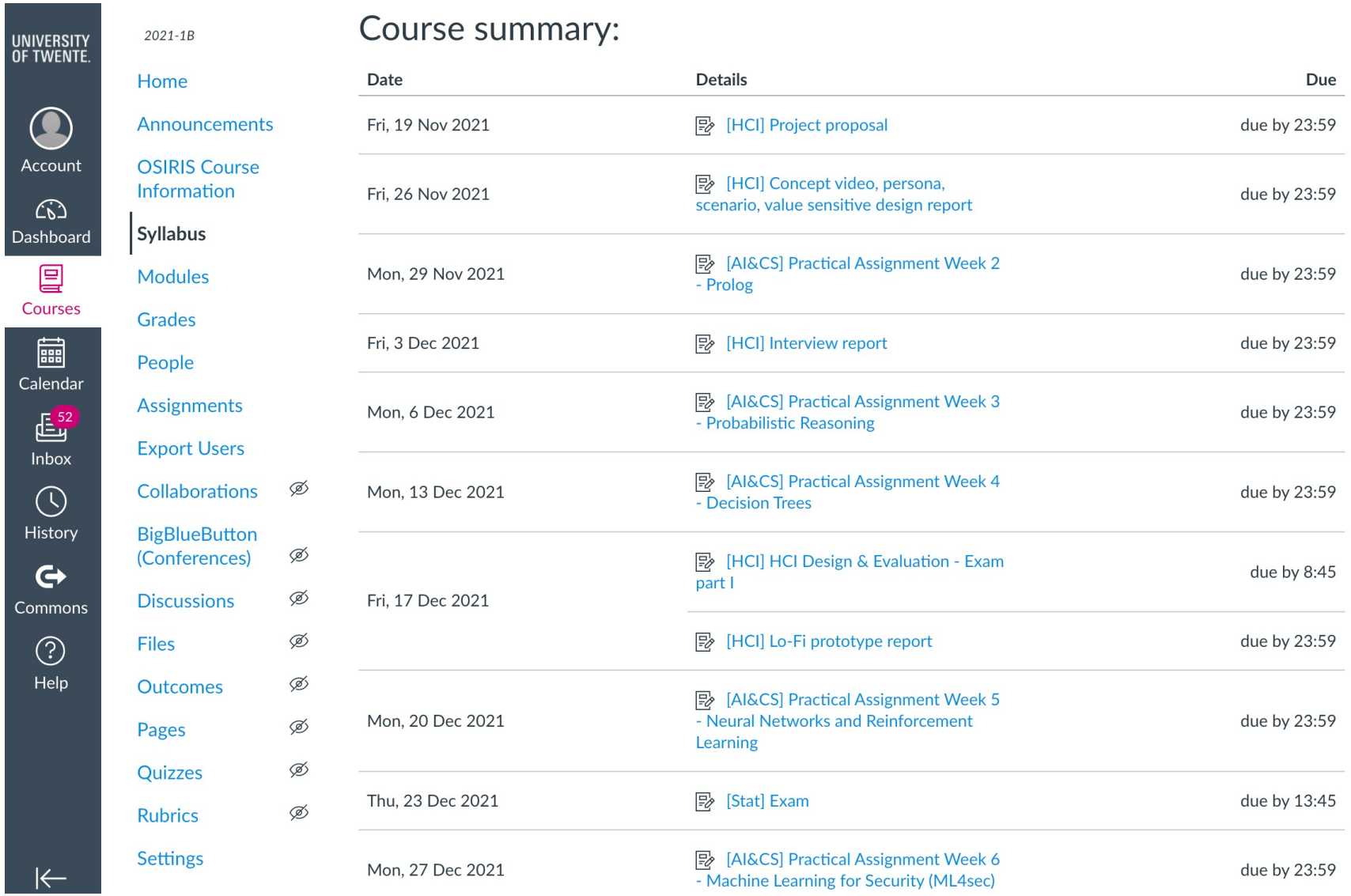
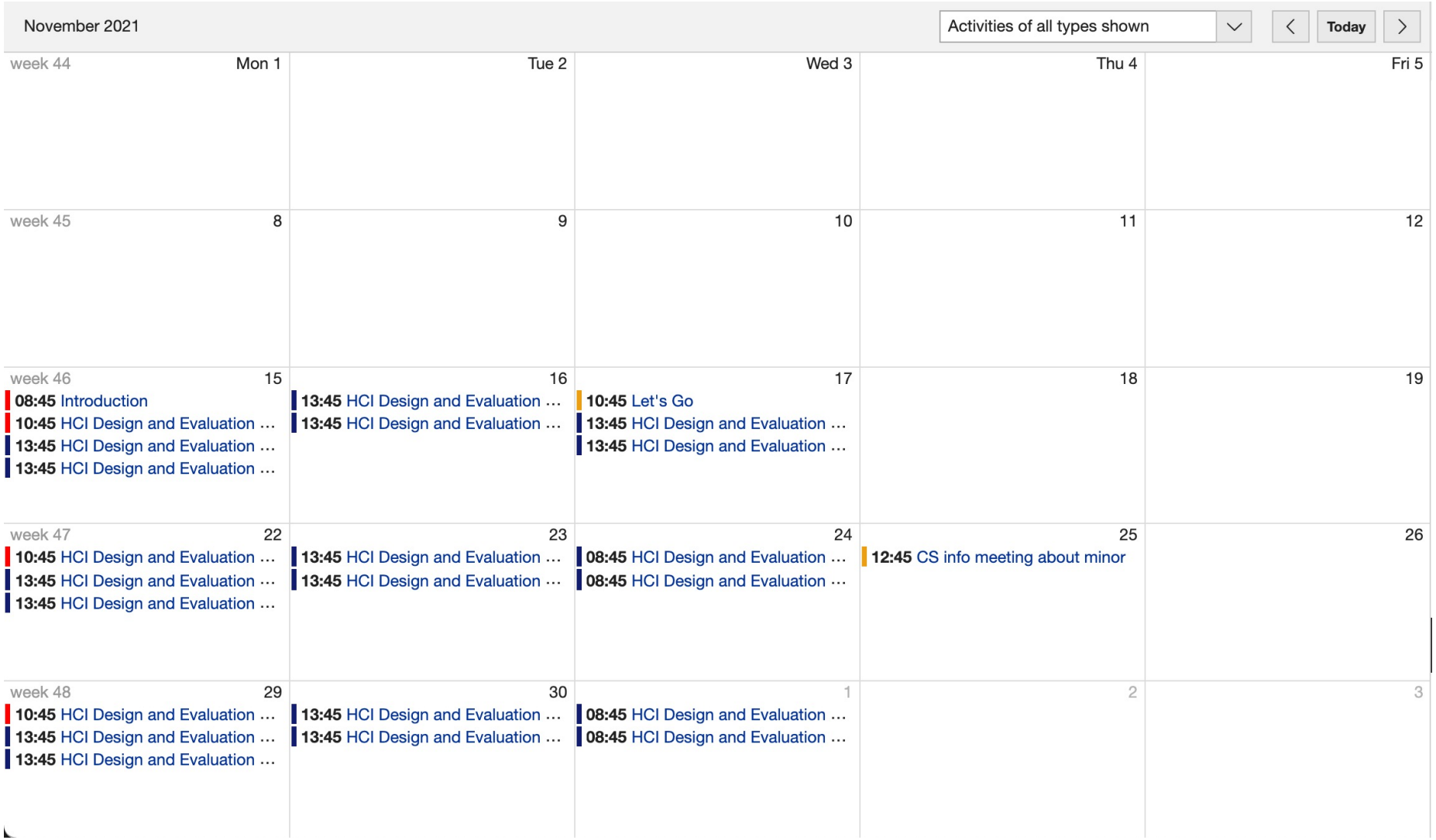
The course



Course summary:

Date	Details	Due
Fri, 19 Nov 2021	[HCI] Project proposal	due by 23:59
Fri, 26 Nov 2021	[HCI] Concept video, persona, scenario, value sensitive design report	due by 23:59
Mon, 29 Nov 2021	[AI&CS] Practical Assignment Week 2 - Prolog	due by 23:59
Fri, 3 Dec 2021	[HCI] Interview report	due by 23:59
Mon, 6 Dec 2021	[AI&CS] Practical Assignment Week 3 - Probabilistic Reasoning	due by 23:59
Mon, 13 Dec 2021	[AI&CS] Practical Assignment Week 4 - Decision Trees	due by 23:59
Fri, 17 Dec 2021	[HCI] HCI Design & Evaluation - Exam part I	due by 8:45
	[HCI] Lo-Fi prototype report	due by 23:59
Mon, 20 Dec 2021	[AI&CS] Practical Assignment Week 5 - Neural Networks and Reinforcement Learning	due by 23:59
Thu, 23 Dec 2021	[Stat] Exam	due by 13:45
Mon, 27 Dec 2021	[AI&CS] Practical Assignment Week 6 - Machine Learning for Security (ML4sec)	due by 23:59

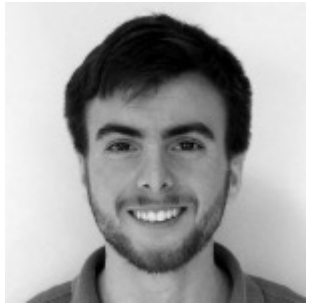
The course


November 2021
Activities of all types shown
Today
week 44
Mon 1
Tue 2
Wed 3
Thu 4
Fri 5
week 45
8
9
10
11
12
week 46
15
08:45 Introduction
10:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
16
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
17
10:45 Let's Go
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
18
19
week 47
22
10:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
23
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
24
08:45 HCI Design and Evaluation …
08:45 HCI Design and Evaluation …
25
12:45 CS info meeting about minor
26
week 48
29
10:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
30
13:45 HCI Design and Evaluation …
13:45 HCI Design and Evaluation …
1
08:45 HCI Design and Evaluation …
08:45 HCI Design and Evaluation …
2
3

Teaching staff

- Theory


Randy Klaassen


Lorenzo Gatti

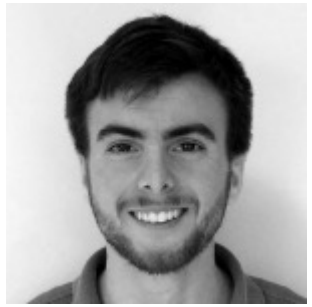

Birna van Riemsdijk


Dasha Kolesnyk

- Project


Khiet Truong

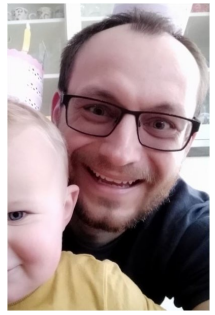

Jelte van Waterschoot


Lorenzo Gatti


Randy Klaassen


Sara Falcone


Jur van Geel


Daniel Davison


Luc Schoot Uiterkamp

+ assistants

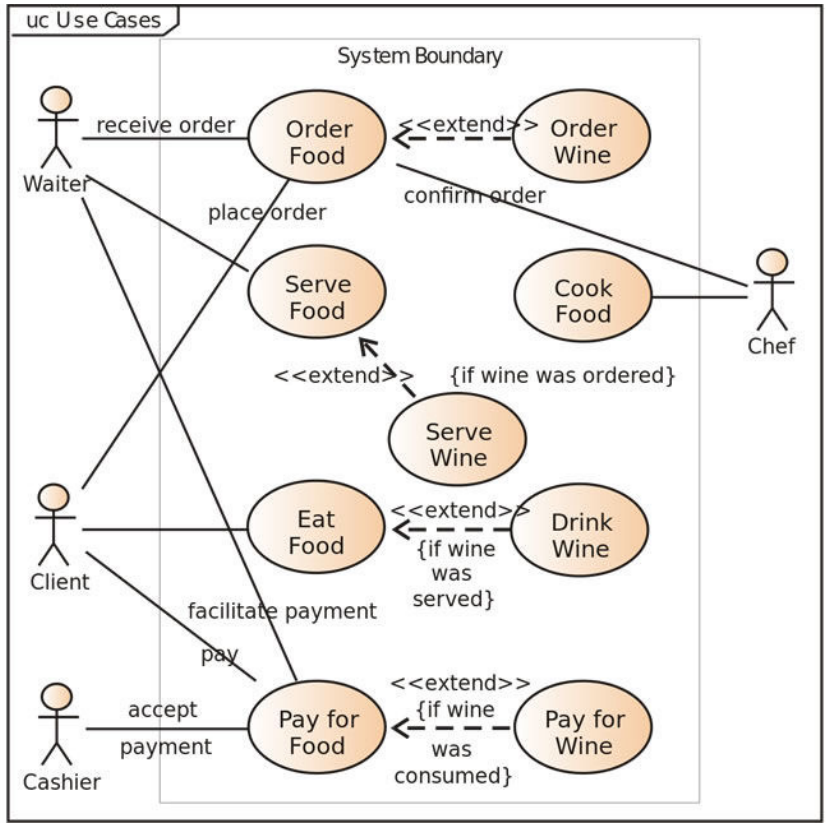
What will you learn?

- HCI Process (user needs, development, evaluation)
  - Focus on the process of **designing technology solutions** for **specific users and specific application domains** using a **user-centered design (UCD) process**.
  - You will learn about telling the story about the process and behind the technology, the users, and the domain
  - You will learn about techniques of designing, evaluating and prototyping user interactions and user interfaces.

- Theory – methods, key concepts, terminology, research questions, …

What will you learn?

- In this course this methods and techniques will focus on interaction design, but these methods and techniques are also import in software engineering



What will you do?

- You will apply those techniques to your own project.
- The topic of group projects will be ***Intelligent Assistants.***
  - Eating (e.g. diet, dinner, cooking, …)
  - Skills training for sports or language
  - Sustainability of energy or waste

How will you be graded

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- HCI Design theory
  - 2 parts of the exams (17-12-2021, 17-01-2022)
  - Both 50% of the final grade, no minimum grade for parts
- HCI project
  - Final report
  - Oral **reflection** meeting
  - Card system (see Canvas)

https://www.wooclap.com/HCIDESIGNANDEVALUATION

What is HCI (about)?

HCI =

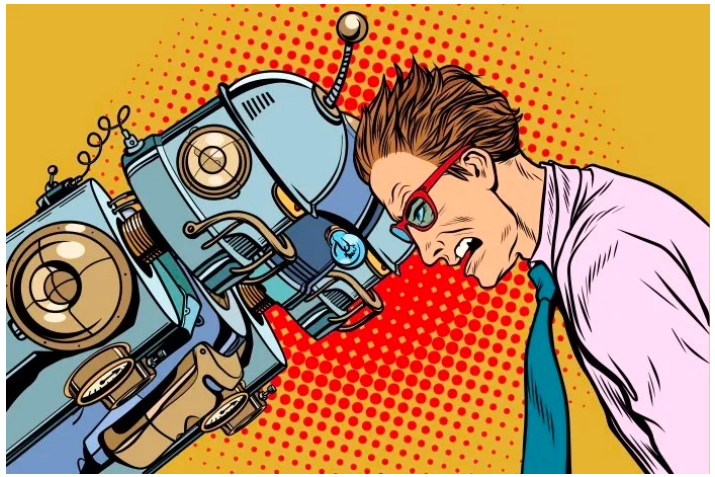
WEB

1 Connect to www.wooclap.com/HCIDESIGNANDEVALUATION

2 You can participate

What is HCI?

- HCI = Human Computer Interaction
- (Research) field formally founded in 1982 (SIGCHI)
  - First conference on Human Factors in Computing Systems
- HCI is complex…

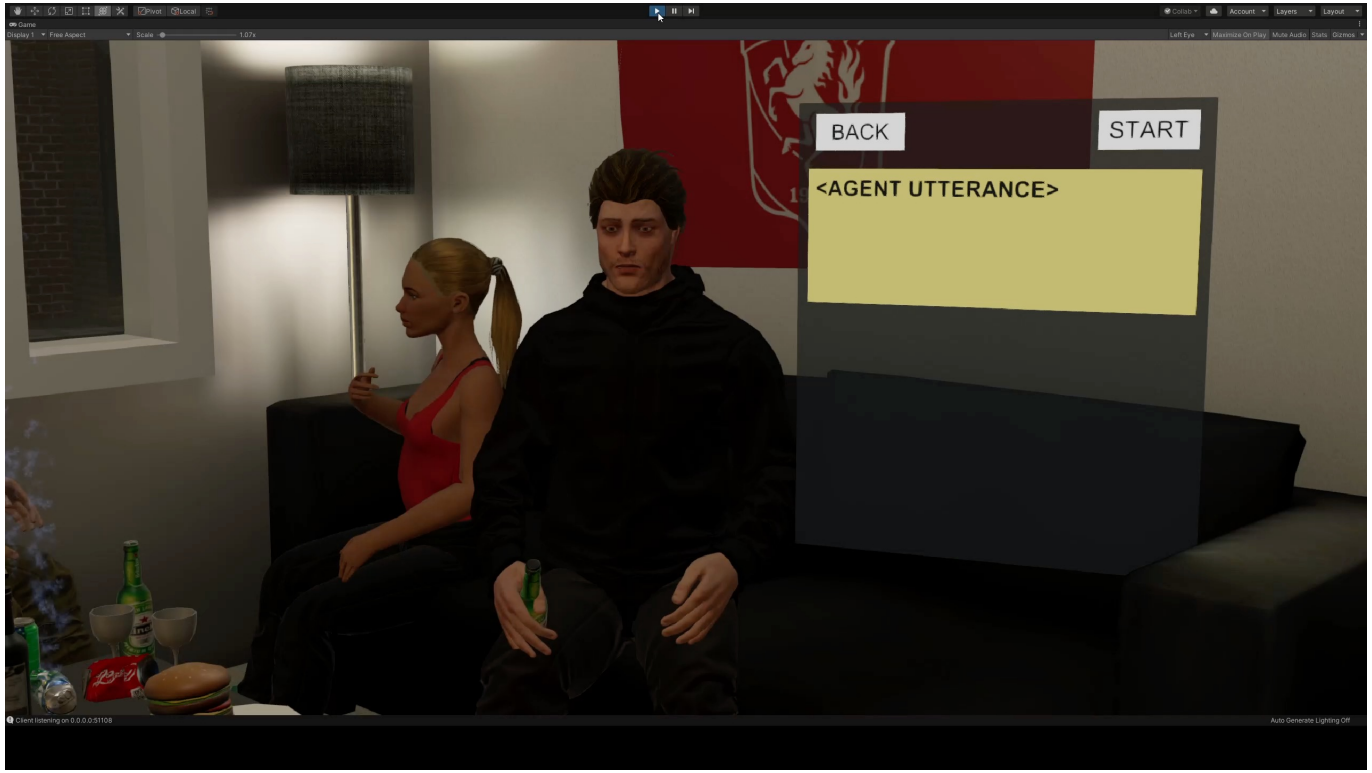


Picture by: Valeriy Kachaev

From 1980's

https://en.wikipedia.org/wiki/File:VP-Info-Sharkbase_example_screen.png

To NOW



Alexa Siri Google Now Cortana

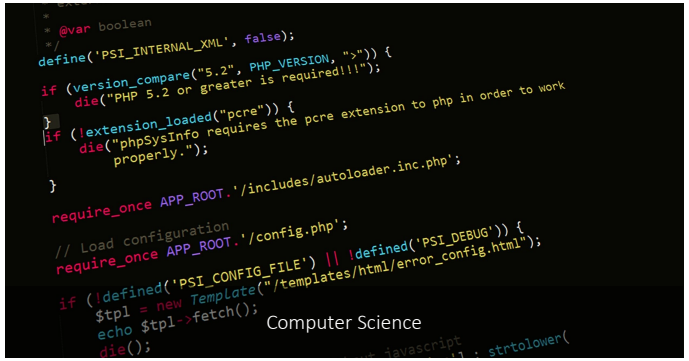
“The old computing is about what computers can do, the new computing is about what people can do”

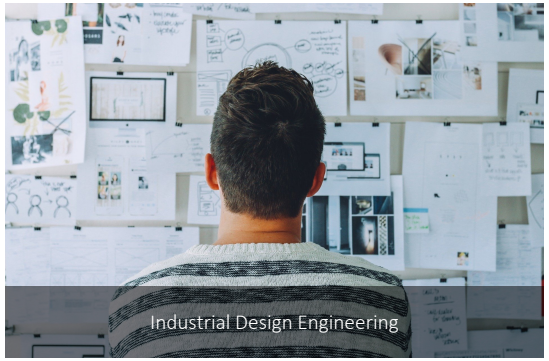
- Shneiderman, 2002

HCI originates from different fields

1. Connect to www.wooclap.com/HCIDESIGNANDEVALUATION
2. You can participate

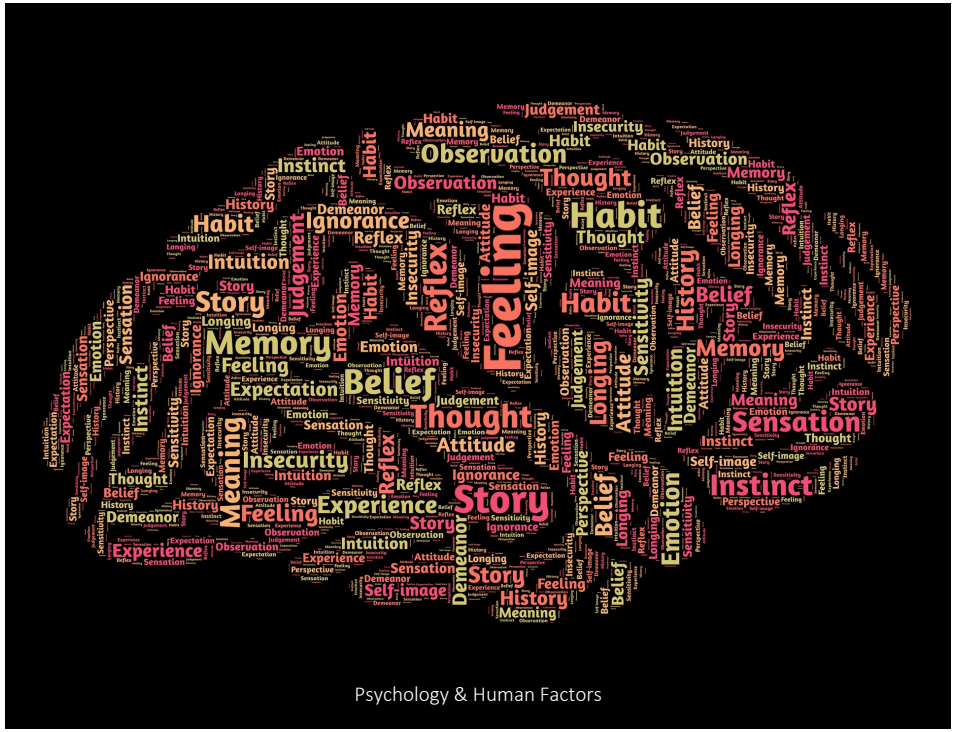
HCI


Computer Science

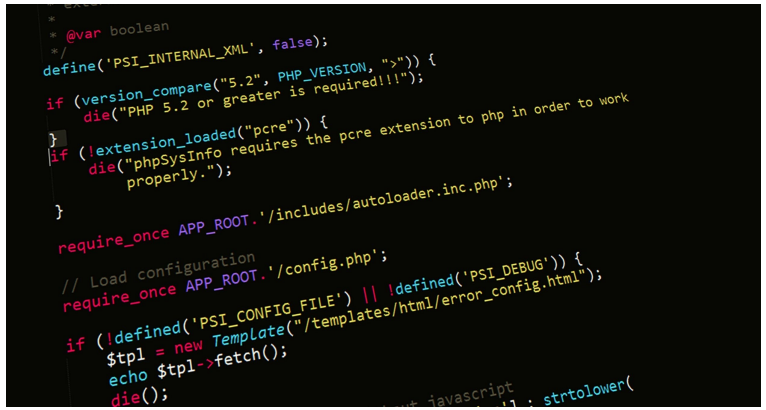

Industrial Design Engineering


Communication Science

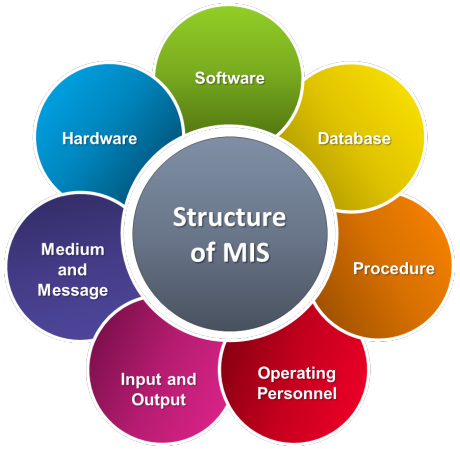

Sociology
(& anthropology)


Psychology & Human Factors

some of HCI's different foci



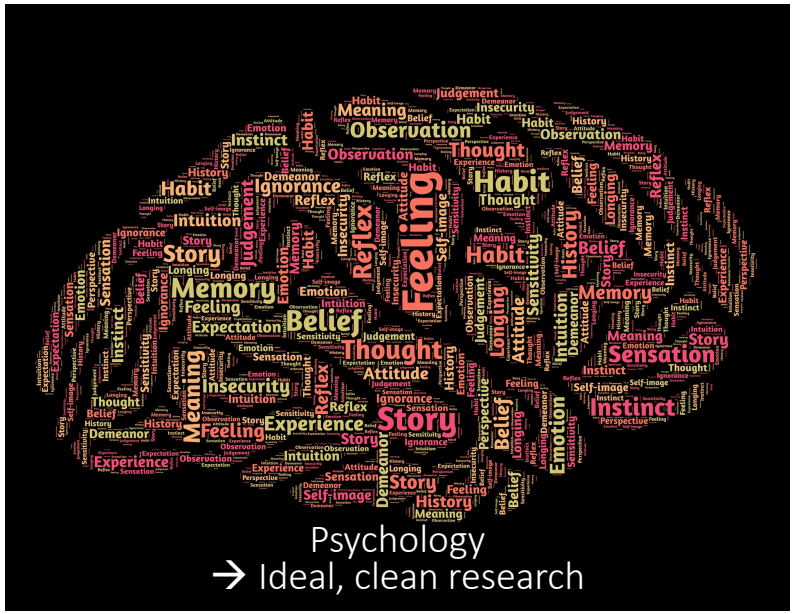
Computer Science
→ Technological underpinnings, how does it work



Management Information Science
→ Theoritical underpinning

Sociology
→ representative demographics

Industrial Design Engineering
→ Why is it as it is, what can we do with it, what can we learn e.g. guidelines (own interpretation)



Psychology
→ Ideal, clean research

Multidisciplinary

Core of theory

“desigining studies

that will lead to answers

and how to intepret those studies”

- Lazar

Core of theory

*"**Answers** are used for*

increased knowledge,

Improve the (design of) products,

better User eXperiences,

in order to increase the Quality of Life"

- teacher(s)

Warning: HCI can be awful to learn ;)

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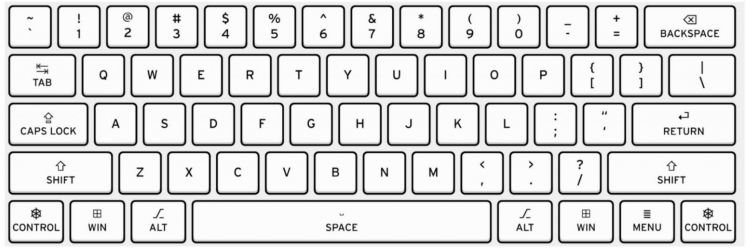
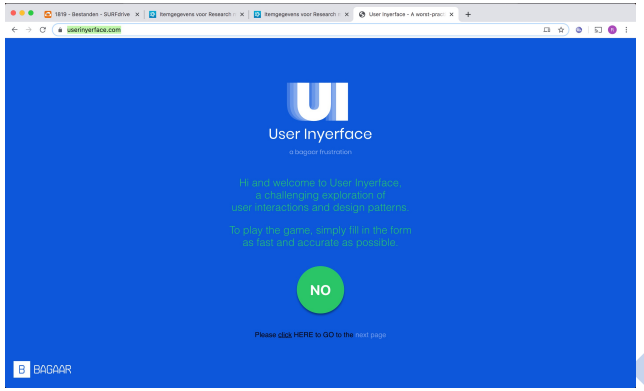


- There is no clear right from wrong (there are definitely wrongs)
- You learn (the most) from failure
  - You will get (harsh) feedback from users (and peers, and teachers)
- It all seems so obvious…
- There is too much to learn
  - You can’t learn all the details as good as the real experts
- It will be hard to pinpoint what you learned

- Applying theory will not be as easy as you think
  - And in the cases that it is, it is also annoying!

it’s all about the user experience



Userinyerface.com

Study tour promotion talk!

- Jelle Maas, Niek Pennings

Theme: Intelligent Assistants

- What is an Intelligent Assistant?

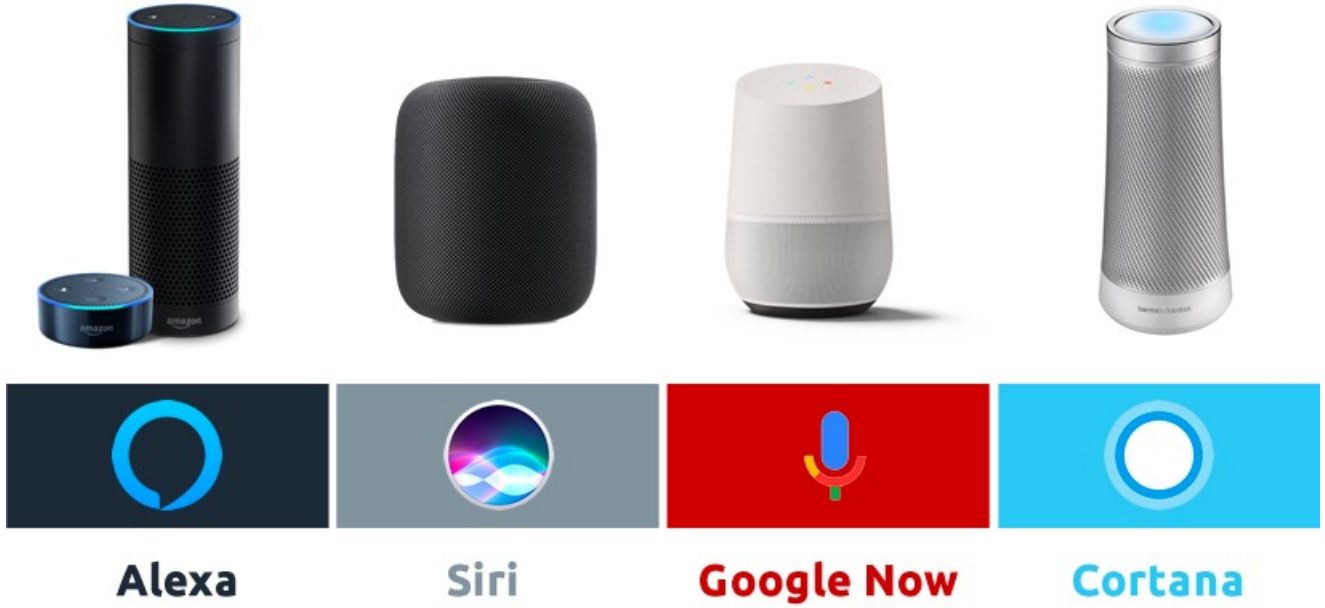
WEBSITE

1 Verbind met www.wooclap.com/KPKMDM

2 Je kan deelnemen

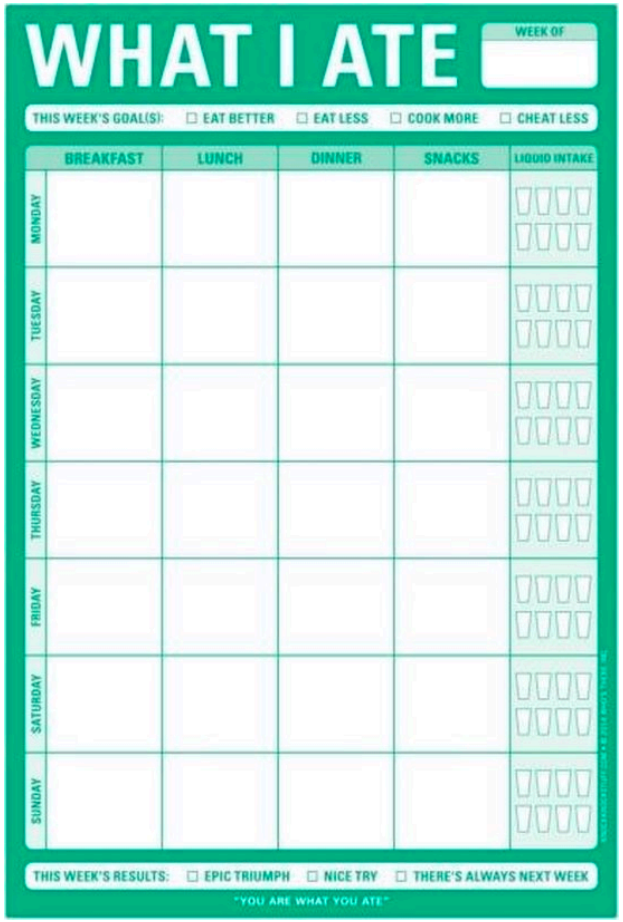
Theme: Intelligent Assistants

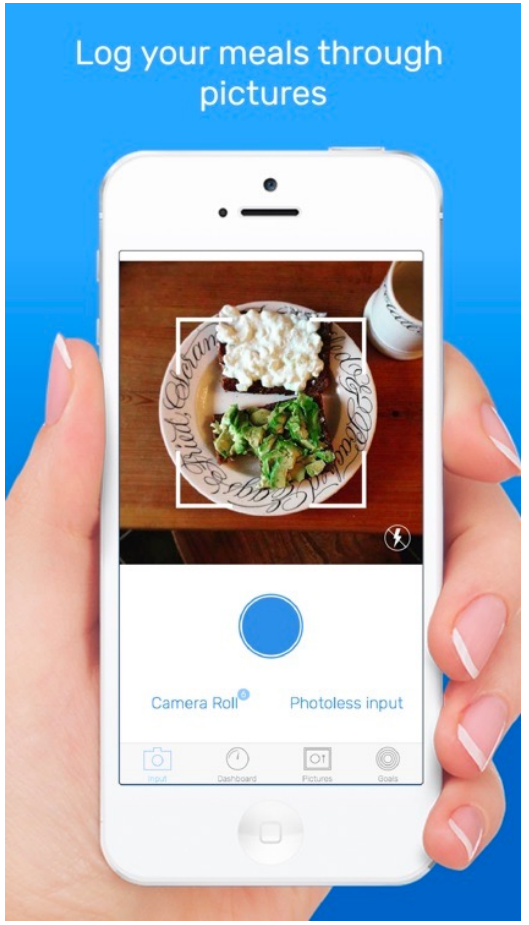
- What is an Intelligent Assistant?



Theme: Intelligent Assistants

- What is an Intelligent Assistant?



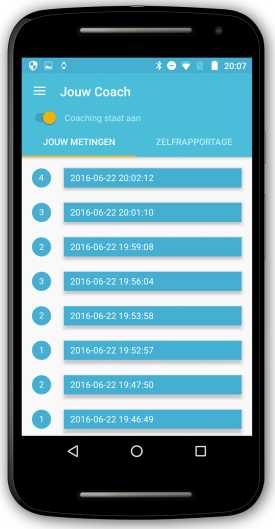


Theme: Intelligent Assistants

- What is an Intelligent Assistant?

Theme: Intelligent Assistants

- What is an Intelligent Assistant?



Theme: Smart Assistants

- What is your Smart Assistant?

- Eating (e.g. diet, dinner, cooking, …)
- Skills training for sports or language
- Sustainability of energy or waste



~~HCI~~ Student ~~Frustration~~ Attitude:

I don't like theoretical "mumbo jumbo"

or

I don't like research

HCI research

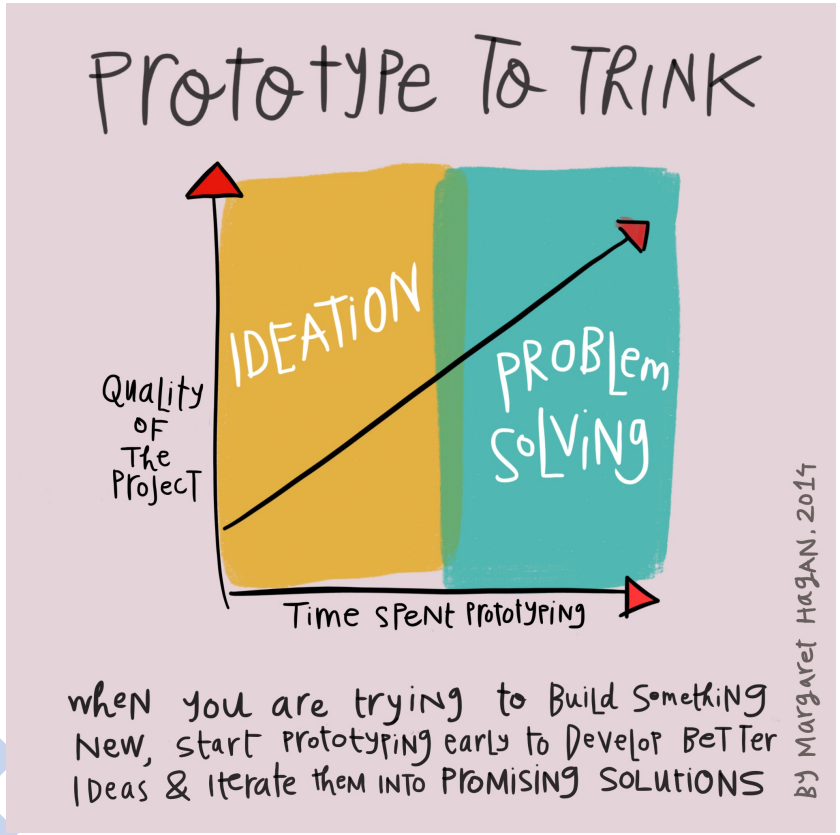
is both research

and practical

and thus (parts of this) research is often used also in practice

Source: Internships (of students), (student's) theses, jobs, "research"-appointments, personal communication, blogs, books, conferences…..

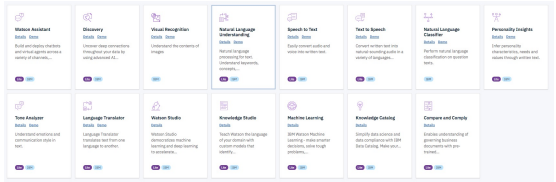
Intelligent hi-fi prototypes



RASA

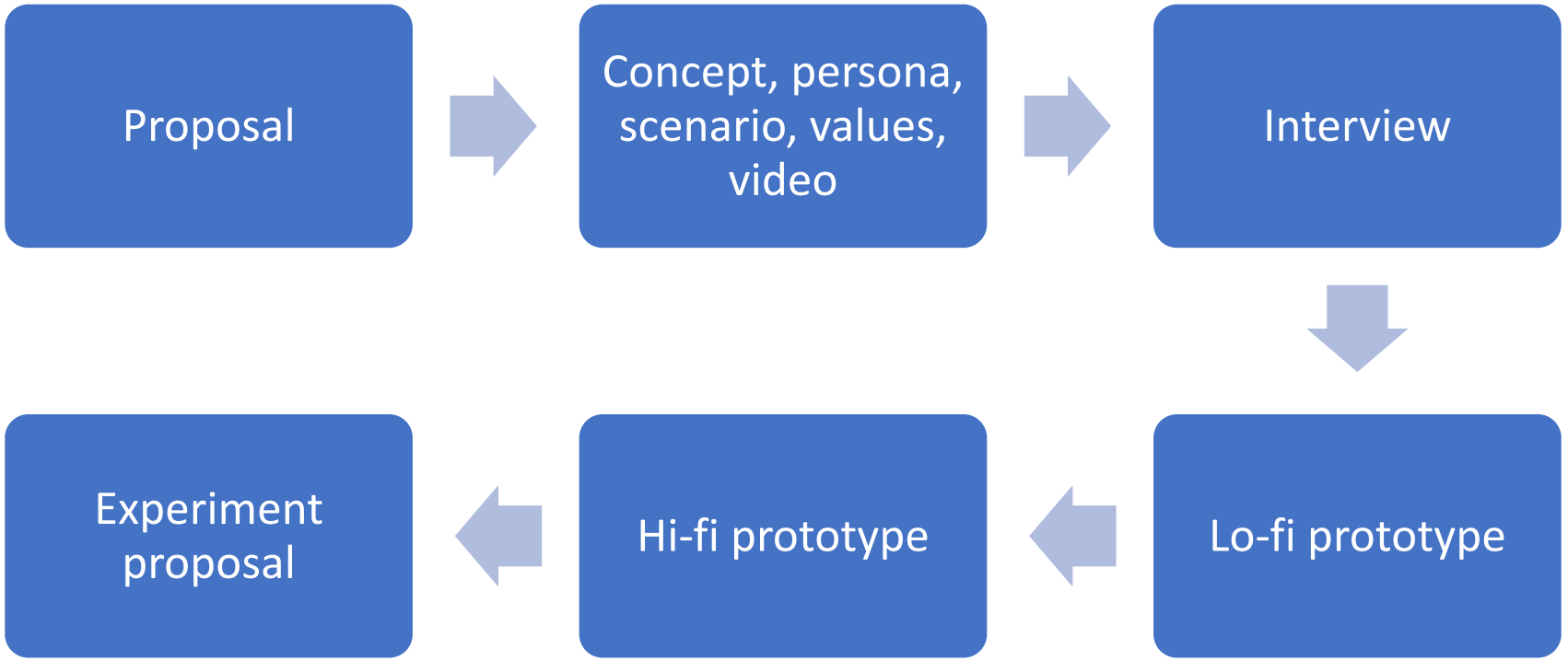
Google APIs

IBM Watson™



And many more

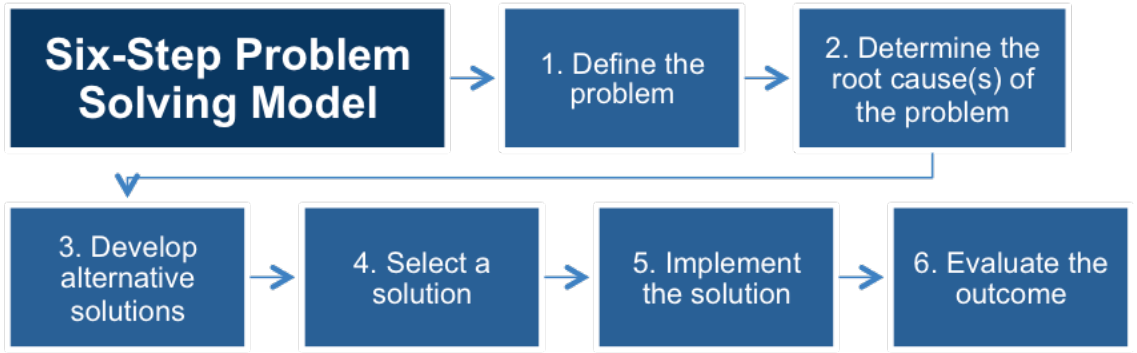
Outline of the course and project



- We will **NOT(!)** implement the complete system. We will prototype parts (key interactions) of your concept to use in user evaluations and learn how we should continue our concept.

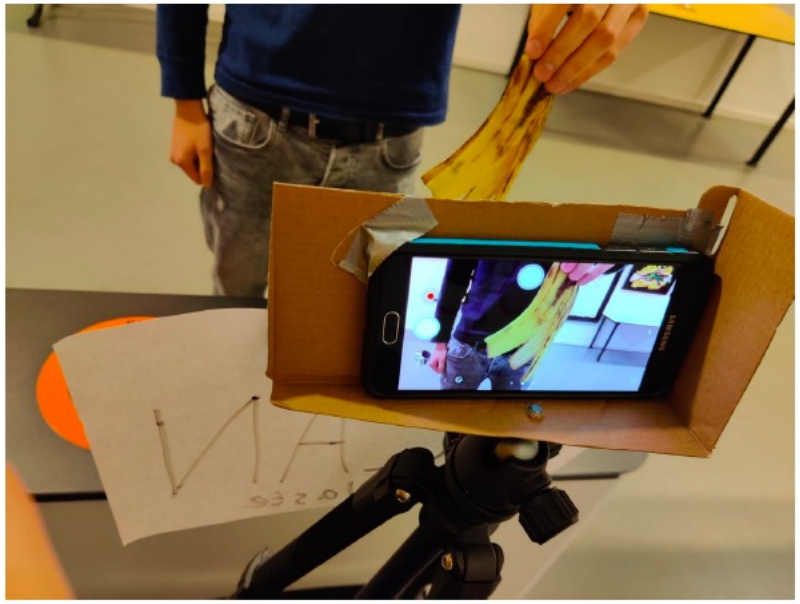
What will you do? – remember (slide 10)

- You will apply those techniques to your own project.
  - The topic of group projects will be ***Intelligent Assistants.***



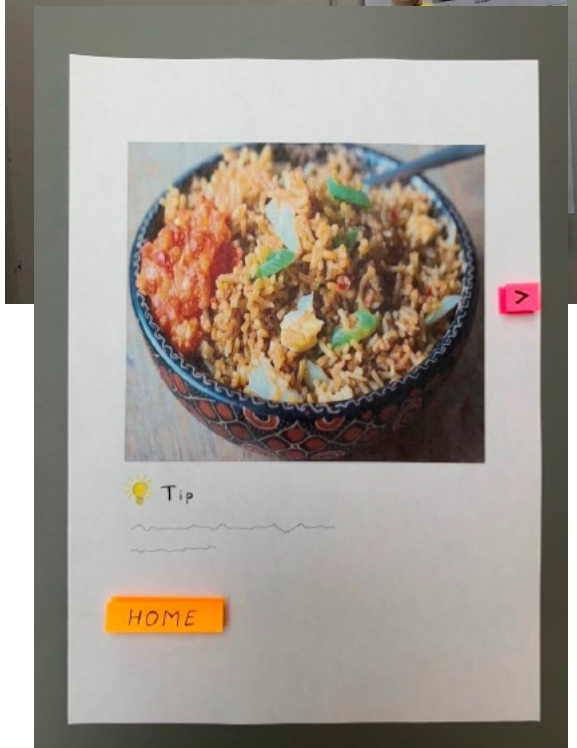
From Yale


SCAN
your Waste
PAPER
ORGANIC
PMD
RESIDUAL




Organic
PMD
PAPER
ORGANIC


SCAN
your Waste
Paper
Organic
PMD
PAPER
ORGANIC
PMD



Home

06/01/2020

Inventory

Fruit

Vegetables

Dairy

Spices

Carbs

Meat & Fish

Drinks

Other

Leftovers

Pasta Pesto

Nasi & Saté

Expires soon

Milk 01-01-2020 | Chicken filet 01-01-2020 | Tomatoes 01-01-2020 | Milk 01-01-2020 | Chicken filet 01-01-2020 | Tomatoes 01-01-2020

Recipe recommendations

Roasted salmon & artichokes

Spanish tortilla

Roasted black bean burgers

Beautiful courgette carbonara

Best-ever Brussels sprouts

Goal

The goal of this assignment is to come up with a project proposal. You will brainstorm about your "Intelligent Assistant". With your Intelligent Assistant you will try to solve a problem in one the following application domains:

1. Eating (diet, dinner, cooking, …)
2. Skills training for …
    a. Sports
    b. Language
3. Sustainability of
    a. Energy
    b. Waste

You will do this by looking at different perspectives:

- What is your application domain about? And what problems and challenges exist within this domain? Formulate your problem statement.
- Who will be your target group?
- What are the current solutions to solve the problem? What are the advantages and disadvantages of the current solutions?
- What type of technologies can help to solve the problems or challenges in a better or smarter way and explain how? Think about how to detect behavior and how to present feedback.

1. During the first **15 minutes**, agree on the application domain as a group.
2. During the **next hour** of the tutorial each group member will work on the above questions **individually**. Look for articles to support your findings. Use the template to fill out the matrix with your findings. After the first hour, present your findings and ideas to each other.

After the presentations in your group, try to make or find (new) combinations of ideas from each other. Combine the individual matrices into one final group matrix. This will be the starting point for the development of your concept of your intelligent assistant.

The problems in your application domain can be solved by more than one concept. By the end of this week you will need to have a top 3 of concepts for your **domain**. Per concept present **one** problem statement, **one** target group, and at least **one** current solution.

Format

Write up the following points. You have to include 10 articles in total (of which max. 5 non-academic articles such as news articles or articles from popular science magazines, completed by academic literature) but at least 3 per concept:

1. The combined matrix with specific problems/challenges, target groups, current solutions and the technologies that can help or support.

2. Your top 3 concepts from the matrix; **for each** of your concepts:

    a. Reputable evidence (at least 1 article) that the problem to address is important (this refers to target application domain and/or general needs of target group)

Literature and related work: HCI Teachers' & researchers'
Frustration continued….

- "I cannot find any related work"

  - anonymous quote from: M6 projects & other projects

- NOT TRUE.

- There is always existing work
  that is close enough that you can learn from it.

Literature and related work: HCI Teachers' & researchers'
Frustration continued….

- "I hate reading literature and finding related work !– today I again discovered that our whole idea has already been done by somebody else"
- *- anonymous quote from: M6 projects, M3 projects, BSc thesis projects, MSc thesis projects, PhD projects, ….*

- DON'T WORRY, BE HAPPY!
- Generally, upon second thought you find they did not quite do it with the twist that you had in mind.
- →Use the similarities to support your work; highlight the differences to make your work more relevant (and maybe slightly change your idea)


WRONG WAY
MY WAY
RIGHT WAY

Thank you!