Interaction Design

Chapter 1 (April 15, 2015, 9am-12pm):
History
History

- Course Overview (Timetable) + Organizational Stuff
- What is Interaction Design?
- The Story of the Mouse
- PARC
- The Desktop Metaphor
- The GUI
Tutorials & Exam

- **Interaction Design** required for Concept Development
- no Podcast, so be here every week :)
- register via UniWorX!

- **tutorials** close to the lecture
- practical exercises to apply theoretical knowledge
- important preparation for the exam
- will be held in breakout sessions during the lecture
- sometimes a bit homework possible

- **Bonus** of 5% in exam possible if you hand in deliverable at the end
- deliverable: sketchbook with works during and inspired by the course / documentation of the course to be delivered at the end of the semester (at the last lecture)
- **Written Exam** will be announced on the website shortly
- exact time and location will be announced soon
Course Overview:

I History & Fundamentals

April / May | June | July
Course Overview:

II Applying Interaction Design

April / May       June       July
Course Overview:

III Beyond the Desktop

April / May
June
July
History

• Course Overview (Timetable) + Organizational Stuff

• What is Interaction Design?
  • The Story of the Mouse
  • PARC
  • The Desktop Metaphor
  • The GUI
Gillian Crampton Smith

-established the first Interaction Design MA program at the Royal College of Art (RCA)
-was the founder and academic director of the Interaction Design Institute Ivrea (IDII)

http://www.designinginteractions.com/img/interviews/GillianCramptonSmith.jpg

source: [2]
705 ALMA ST.

ALL SYSTEMS NORMAL
01:53P Wed 09/04/02
Looking back...  (Discussion Part)
Looking back... (Discussion Part)

-shaping our lives through digital artefacts...
Looking back...

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-good IxD refers to a “mental model”
Looking back...

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- good IxD refers to a “mental model”
- good IxD provides a “map” of where you are in a system, how you can move around and how you get back to the point where you started
Looking back...

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-good IxD refers to a “mental model”
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-languages of interaction design
Looking back...

- shaping our lives through digital artefacts...
- good IxD refers to a “mental model”
- good IxD provides a “map” of where you are in a system, how you can move around and how you get back to the point where you started
- languages of interaction design
- elements of interaction design
Looking back...

-shaping our lives through digital artefacts...
-good IxD refers to a “mental model”
-good IxD provides a “map” of where you are in a system, how you can move around and how you get back to the point where you started
-languages of interaction design
-elements of interaction design
-the part of the interaction designer is to design
the quality on how the interaction is performed, how the system behaves
Designing for Everyday Life

25 years ago

today
Designing for Everyday Life

(1) Professional Tools
(2) Game Machines for Teenagers

25 years ago  today
Designing for Everyday Life

(1) Professional Tools

(2) Game Machines for Teenagers

(1) Larger user groups (e.g. Kids/Parents/Grandparents)

(2) Various Contexts of use (e.g. Work/School/Home/Leisure)

25 years ago

today
"Great design is as much about prospecting in the past as it is about inventing the future."

Bill Buxton
History

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The Story of the Mouse

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The **Beginnings**...(let’s jump back to 1943)
P 38 Lightning Cockpit (1943)

http://www.world-war-2-planes.com/lockheed-p-38.html
EDSAC computer (1949)
"I think there is a world market for maybe five computers."

Thomas Watson, chairman of IBM, 1943
Mid sized ICs

http://upload.wikimedia.org/wikipedia/commons/8/80/Three_IC_circuit_chips.JPG
Douglas Engelbart

“When you were interacting considerably with the screen, you needed some sort of device to select objects on the screen, to tell the computer that you wanted to do something with them.”

Douglas C. Engelbart, 2003, referring to 1964
Looking back... (Discussion)
Looking back... (Discussion)

-reflection of the process (concept generation)
Looking back... (Discussion)

- reflection of the process (concept generation)
- construction of different prototypes (alternative design)
Looking back... (Discussion)

- reflection of the process (concept generation)
- construction of different prototypes (alternative design)
- iterative development of prototypes (prototyping and testing)
Looking back... (Discussion)

- reflection of the process (concept generation)
- construction of different prototypes (alternative design)
- iterative development of prototypes (prototyping and testing)
- tests with users to validate the approach and make decisions (usability testing)
Douglas C. Engelbart: *Augmenting human intellect: A Conceptual Framework*
*Stanford Research Institute (SRI), 1962.*
1. Artefacts—physical objects designed to provide for human comfort, the manipulation of things or materials, and the manipulation of symbols.
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2. Language—the way in which the individual classifies the picture of his world into the concepts that his mind uses to model that world, and the symbols that he attaches to those concepts and uses in consciously manipulating the concepts ("thinking").
1. **Artefacts**—physical objects designed to provide for human comfort, the manipulation of things or materials, and the manipulation of symbols.

2. **Language**—the way in which the individual classifies the picture of his world into the concepts that his mind uses to model that world, and the symbols that he attaches to those concepts and uses in consciously manipulating the concepts (“thinking”).

3. **Methodology**—the methods, procedures, and strategies with which an individual organizes his goal-centered (problem-solving) activity.
1. **Artefacts**—physical objects designed to provide for human comfort, the manipulation of things or materials, and the manipulation of symbols.

2. **Language**—the way in which the individual classifies the picture of his world into the concepts that his mind uses to model that world, and the symbols that he attaches to those concepts and uses in consciously manipulating the concepts ("thinking").

3. **Methodology**—the methods, procedures, and strategies with which an individual organises his goal-centred (problem-solving) activity.

4. **Training**—the conditioning needed by the individual to bring his skills in using augmentation means 1, 2, and 3 to the point where they are operationally effective.
The system we wish to improve can thus be visualised as comprising a trained human being, together with his artefacts, language, and methodology.
1. **Artefacts**—physical objects designed to provide for human comfort, the manipulation of things or materials, and the manipulation of symbols.

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founded 1970 by Xerox
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Stu Card

-joined Xerox Palo Alto Research Center (PARC) in 1974
-aimed at perfecting scientific methods to integrate with creative design
-developed a process to predict the behavior of a proposed design, using task analysis, approximation, and calculation
-proposed a partnership between designers and scientists, by providing a science that supports design.

http://www.designinginteractions.com/interviews/StuCard
Looking back...

-exploration of the design space through the integration of industrial design
Looking back...

-exploration of the design space through the integration of industrial design
-designers and engineers had to work together (interdisciplinary approach)
Looking back...

-exploration of the design space through the integration of industrial design
-designers and engineers had to work together (interdisciplinary approach)
-science served to constrain the design space
Interaction design

User-experience design

Industrial design

Information architecture

Communication design

User Interface engineering

Usability engineering

Human-computer interaction

Human factors

source: [3]
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Microprocessor early 1970s
Tim Mott

- collaborated remotely with Xerox Palo Alto Research Center (PARC) and Larry Tesler
- worked on a new publishing system that included a “desktop metaphor”
- invented a “user centred design process” with Larry Tesler
- later co founded Electronic Arts (EA)

http://www.designinginteractions.com/interviews/TimMott
Indent for paragraph
Begin new paragraph
Eliminate paragraph
Transpose (letters, words)
Use figures (or words)
Spell out (or abbrev)
Uppercase
Lowercase
Remove space
Insert space
Retain original
Delete
Insert word

The injured were taken to MeritCare Hospital, where they were treated. According to Sheriff Larry Costello, none were seriously hurt. The driver of the southbound vehicle the spokesperson MeritCare said about seventeen workers attended sessions the delegate from N.D. came to Moorhead, Minn. majored in English literature at Msum Bachelor's Degree in Mass Communications extra effort will be required according to sources close to the president will be completed in early January the very exciting climax of the film winning the exciting climax of the film
Looking back...

-spending time to understand users (design research)
Looking back...

- spending time to understand users (design research)
- designing by involving the users of the system (participatory design techniques)
Looking back...

- spending time to understand users (design research)
- designing by involving the users of the system (participatory design techniques)
- prototyping parts of the system with non functional elements (wizard-of-oz prototyping)
Looking back...

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- designing by involving the users of the system (participatory design techniques)
- prototyping parts of the system with non functional elements (wizard-of-oz prototyping)
- asking users to “walk” them through the system (think aloud method)
Looking back...

- spending time to understand users (design research)
- designing by involving the users of the system (participatory design techniques)
- prototyping parts of the system with non functional elements (wizard-of-oz prototyping)
- asking users to “walk” them through the system (think aloud method)
- designing the system using mental models user could refer to (metaphors+scenarios)
User-experience design

Information architecture

Communication design

User Interface engineering

Usability engineering

Human-computer interaction

Human factors

Industrial design

Interaction design
Office Schematic / Desktop Metaphor
Xerox Alto 1973

http://dl.maximumpc.com/galleries/25oldpcs/xerox_alto_front_full.jpg

The Xerox Alto boasted the world’s first “what you see is what you get” (WYSIWYG) editor, mouse, graphical user interface (GUI), and bit-mapped display. Its pop-up menu became the model for the Microsoft Windows “Windiows” interfaces of today.

From the collection of The Computer Museum History Center.
"There is no reason anyone would want a computer in their home."

Ken Olson,

president, chairman and founder of DEC, 1977
Now you can create documents with words and pictures

1981 Xerox Star Workstation
1981 Xerox Star Workstation Interface
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Larry Tesler

-involved users also in the software design process
-joined PARC in 1973
-moved to Apple in 1980
-was the core designer of Apples “Lisa” computer
-invented the “copy and paste” function

http://www.designinginteractions.com/interviews/LarryTesler
So it became a kind of contest. An unofficial and completely unacknowledged competition to see which of us was the toughest, the coolest, the hardest to get. (He was, but there were times when he didn't know that.) "Who is smarter, you or me?" he asked me again and again: once as he left the apartment in the morning, me wrapped in a towel; once over our whiskies at the King Cole Bar in the St. Regis. And that became the most important question.
Looking back...

- brainstorming and iterative trying and testing (iterative design process)
Looking back...

- brainstorming and iterative trying and testing (iterative design process)
- constant, quick and efficient tests with users to improve the system (experience prototyping)
Looking back...

- Brainstorming and iterative trying and testing (iterative design process)
- Constant, quick and efficient tests with users to improve the system (experience prototyping)
- Developing products for the users’ core needs (user centred design process)
User-experience design

Industrial design

Interaction design

Communication design

Information architecture

Usability engineering

Usability engineering

Human factors

Human-computer interaction

User Interface engineering
Bill Atkinson

-was hired by Apple as the “Application Software Department”
-invented the “pull down” menu structure
-was the lead designer of the “Lisa” and the initial “Mac”
Looking back...

-alternative designs in a variety (sketches & prototypes)
Looking back...

- alternative designs in a variety (sketches & prototypes)
- proposal of a participatory design approach, creating better UIs
Apple Lisa 1983

http://media.arstechnica.com/images/gui/11-Mac1.gif
Macintosh System 1.0. January 1984
WIMP
-stands for "window, icon, menu, pointing device"
-coined by Merzouga Wilberts in 1980
-is often incorrectly used as an approximate synonym of "GUI".

http://media.arstechnica.com/images/gui/11-Mac1.gif
WYSIWYG
-user interface that allows the user to view something very similar to the end result
-implies the ability to directly manipulate the layout of a document/presentation/3D model without having to type or remember names of layout commands.
October 2007: Mac OS X 10.5
over 25 years in between....
INTERACTION DESIGN

KNOW?

FEEL?

...DO?
“There is an objectivity in the process of letting the user decide, the value of which is a recurring theme in this story of designing the desktop and the mouse. Come up with an idea, build a prototype, and try it on the intended users. That has proved, time and time again, to be the best way to create innovative solutions.”

Bill Moggridge - Designing Interactions
References (Books):


References (Papers):


Articles: