Assessment Guidelines Interaction Design

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Assessment of ITI46318-1 20H Interaksjonsdesign is done using an individual oral exam (50%) and a scientific paper (50%) that is written in groups.

Oral Exam

The oral exam consists of 6-10 questions two of which relate to the project and the rest covering the design process and Interaction Design theory as outlined below. The exam aims to identify whether the student is confident about the material and whether they can use it to demonstrate independent thinking and reach conclusions. To this end, initial questions are followed up to understand the extend to which the student can apply the knowledge to solve problems.

Material to draw questions from

Design Process

Students should be able to enumerate and explain the phases of the design process.

- Informing Students should be able to outline methods that are used in the informing phase, explain the difference between questionnaires, user observation, interviews, and probes and reflect critically on their advantages and disadvantages. Furthermore, students should be in the position to describe the provess of summarizing findings from informing into scenarios, personas, and explain what are the elements of good story boards.
- Designing Alternatives Students should be able to enumerate methods used when designing alternatives. Furthermore, they should be in the position to characterize a sketch and reflect on the use of annotations. Furthermore, they should be in the position to describe what are the elements of a good sketch, what are prototypes and what are they used for, and how can interaction be handled in prototypes. They should know the difference between off-line and on-line prototypes and name some techniques used for prototyping.
- Evaluation Students should be in the position to explain the difference between usability and user experience. Furthermore they should be in the position to explain the role of evaluation in the design process. Students should be in the position to differentiate between field and laboratory evaluation and explain the role of evaluation during the design and prototyping phase, and the importance of longitudinal evaluation. Finally, they should understand what is expert evaluation and name a few techniques.
- Documenting Students should be in the position to explain the process of documenting research in a scientific article, the difference between research and a publication design, the structure of scientific papers. Furthermore, they should be able to name alternative publication formats including pictorials

Theoretical Aspects of IxD

- Conceptualizing Interaction Students should be in the position to explain interaction models and give some examples. They should be able to explain the use of metaphors and mappings in interaction design and give characteristic examples of each. Finally, they should be in the position to name and explain the 5 fundamental interaction types and the four fundamental interaction paradigms as well as classify interfaces accordingly.

- Direct Manipulation, Virtual Reality, and Tangible Interaction Students should be in the position to explain direct manipulation and potential the advantages and disadvantages in relation to conversing interfaces. The should be able to explain how the representation of model worlds are used in direct manipulation user interfaces. Finally, the should be able to explain the main steps of making sense of representations according to Norman's action cycle.

  Students should be able to relate direct manipulation to tangible interaction design and describe its premises and technologies that are typically used when prototyping tangible interactions.

  Students should be able to extrapolate towards augmented and virtual reality and explain the virtuality continuum, name key components for creating a VR experience and explain what operations is necessary in order to obtain augmented reality in a VR headset. Students should be able to contrast VR Headsets versus Cave environments, come up with advantages and disadvantages of each. They should be able to explain what is cyber-sickness and provide a plausible explanation. Finally, students should be in the position to differentiate between immersion and presence and describe techniques for manipulating objects in VR.

- Multimodal Displays Students should be in the position to explain what are the advantages and disadvantages of using sound in the display. The should be able to explain what is sonification and the principal ways of audification, parameter-mapping, and model-based sonification. They should be in the position to describe earcons and auditory icons and how to combine earcons and how these can be used to create auditory direct manipulation.

  Students should be in the position to describe the rationale behind using touch in the display and the difference between vibro-tactile and electro-tactile devices and force-feedback devices. Furthermore, they should be in the position to describe the use of ultrasound to create haptic sensations, surface haptics, and for virtual reality and navigation.

- Mobile and Wearable Interaction Design Students should be in the position to describe the challenges for mobile interaction design through the concept of situationally-induced impairements and give examples of such impairements and explain how users compensate for such difficulties when mobile. Furthermore, they should be able to relate this to fundamentals of resource allocation in dual-task performance. They should be able to explain alternative interaction techniques for mobile interaction.

  Students should be in the position to explain wearable computing and body-area networks, as well as hearables. The should be able to give examples of interaction techniques for wearables.

- Models of User Performance Students should be in the position to describe the three phases in response generation and explain how spatial and semantic interference may influence the process. The should be able to explain what is simple and choice reaction time and how to calculate choice reaction time. They should be able to describe what factors affect movement time to a target and how Fitts' law can be used to calculate movement time. The

should be able to describe what is the Index of performance and how can it be calculated. The should be able to explain the steering law and the concept of control to display ratio. Finally, they should be able to say what is the GOMS Family of Models and introduce the main elements of the Keystrole-Level Model.

- Research traditions in HCI Students should be in the position to describe the differences between the three main waves in HCI research. Furthermore, they should be able to describe what forms of knowledge may emerge from interaction design research and relate this to scientific and desinerly knowledge.

Grading

Grades are awarded according to a grade scale from A (highest) to F (lowest), with E as the minimum pass grade. A pass/fail mark is given for some examinations. Depending on the number of correct answers and the degree of independent thinking the following grades are given.

A - Excellent An excellent performance, clearly outstanding. 89%-100% of questions are answered and the candidate demonstrates excellent judgement and a high degree of independent thinking.

B - Very good A very good performance. 77%-88% of questions are answered and the candidate demonstrates sound judgement and a very good degree of independent thinking.

C - Good A good performance in most areas. 65%-76% of questions are answered and the candidate demonstrates a reasonable degree of judgement and independent thinking in the most important areas.

D - Satisfactory A satisfactory performance, but with significant shortcomings. 53%-64% of questions are answered but the candidate demonstrates a limited degree of judgement and independent thinking.

E - Sufficient A performance that meets the minimum criteria, but not more. 41%-52% of questions are answered, however, the candidate demonstrates a very limited degree of judgement and independent thinking.

F - Fail A performance that does not meet the minimum academic criteria. Less than 41% correct answers are received and the candidate demonstrates an absence of both judgement and independent thinking.

Marking the Paper

The scientific paper is corrected based on the following criteria.

Criteria for Marking

- Quality of Abstract and Conclusion
  - Does the abstract and the conclusion summarise the work adequately?
  - Is the main message communicated?
- Quality of the Introduction

  - Is the motivation described clearly?
  - Is the following material outlined appropriately?
  - Are research questions sketched?
- Quality of Research Questions and Hypotheses
  - Are research questions and hypotheses reasonable and presented clearly?
- Quality of Background
  - Does Background include relevant works?
  - Are more citations necessary or relevant for the work?
- Quality of Methods
  - Are the methods used in the different phases of the project appropriate and described adequately?
  - Is it possible to understand how participants contributed, what they were asked, or what do they do in the different phases?
  - Is the evaluation setup clearly described? Can we see how many people participated and what they did in the evaluation?
- Results and Discussion
  - Are the choices done in the different phases justified?
  - Is the prototype used in the evaluation described sufficiently? Are illustrations included/necessary?
  - Has the prototype been implemented?
  - Are the results of each phase presented adequately?
  - Are pictures and illustrations used appropriately?
  - If appropriate: Are numerical values summarised and presented well, are statistical tests presented appropriately?
  - Are qualitative results summarized in a comprehensible way?
  - Does the discussion of the results relate to the hypotheses and research questions?

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- Formatting and Language
  - is the conference template (Springer LNCS) for the document used appropriately?
  - is the use of language good? are there grammatical and typographical errors?
  - are references formatted in an appropriate way?

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