HUMAN COMPUTER INTERACTION

Lecture 12: HCI Review

- Course Review
- Design Projects
- Exam: Structure
- Exam: Guidelines, Marking Scheme

WHAT IS HCI?

*"A discipline concerned with the **design**, **evaluation** and **implementation** of interactive computing systems for human use, and with the study of major phenomena surrounding them."*

(ACM SIGCHI, 1992)

WHAT IS HCI?

"Interaction design of digital media, physical products and ubiquitous intelligent environments has passed the phase where development was predominantly technology driven. ***Content****,* ***meaning****,* ***insight*** *and* ***experience*** *have become the key design drivers and thus increasingly central competences for designers."*

Aalto University, Finland

EVOLUTION OF HCI

Waves of interaction: mapping of users to devices:

- **First wave**: one device, many users (e.g., mainframe systems)
- **Second wave**: one device, one user (e.g., the personal computer)
- **Third wave**: many devices, one user
- **Fourth wave**: many devices, many users (e.g., pervasive and XR computing systems with multiple interconnected devices embedded in a room and available for anyone to use)

HCI: COURSE OBJECTIVES

Concern is with the total joint performance of user and computer system in the world:

1. Understanding centrality of **Design** effort to HCI success
2. Understanding **human** capabilities
3. Potential & diversity of **computing** technology
4. **Techniques** and models into SDLC
5. Design Thinking
6. Analytical/empirical techniques for **evaluating** systems

HCI: COURSE OBJECTIVES

Interaction Design: interface between technology & people:

- **People**: human cognition and emotion
- **Technology**: sensory and motor systems
- **Interface** / **Interaction**: knowledge of the scientific method and design techniques to perform valid tests of their ideas before deploying them

HCI: COURSE OBJECTIVES

- A combination of ***creative insight*** and ***analytical thinking***
- Course: analysis, design, critique & evaluation
  - What is HCI Success?
  - Design Principles
  - Design Thinking
  - Creative: Design / Idea Generation
  - Implementation: Prototyping
  - Analytical: Evaluation

COURSE REVIEW

- HCI: Interaction Design; Good Design; Design Thinking
- The Interaction: Design Thinking; ID Process; Interaction Models; Frameworks (PACT, DECIDE)
- People: Stakeholders; Users; Human Diversity
- UX: Why, What, How?
- DT / Interaction Design Process:
  - DT: Empathise & Define; Needfinding: user, task
  - DT: Ideate: Conceptual Design; Alternative Designs
  - DT: Prototyping; Physical Design: Different Interfaces, Visual, Information Design
  - Evaluation
- Interaction Developments: Future Interaction

COURSE REVIEW: TOPICS

- HCI: Introduction, Context
- Interaction Design: Design? Good Design?
- UX: Why, What, How?
- Interaction Models & Frameworks
- Design Thinking, ID Process
- Design for whom? Human Diversity / Users / Requirements / Empathy
- Conceptual Design: Ideation
- Prototyping
- Visual Design
- Information Design
- Evaluation
- Interaction Developments
- *Humanity Centred Design?*

DESIGN PROJECTS

Prototype Evaluation:

- Goal: How to find most valuable changes for next design iteration?
- Select appropriate method for your prototype and audience:
  - Prototype: Interactive? If not – can't evaluate user interaction
  - Audience: Ideally with representative users – but if not, e.g. astronauts, personas? Heuristics
- Conduct evaluation
- Analyse results – insights, improvements
- Report: prioritise findings

DESIGN PROJECTS

Design Project Rubric:

- A: Excellent submission, addressing the required elements in a thorough or a thoughtful or innovative & thoughtful manner
- B: Very good submission, with due consideration of the required elements
- C: Satisfactory submission, considering some of the required elements
- D: Minimal coverage of required elements
- F: Inadequate submission, failing to meet requirements

EXAM STRUCTURE

- Two hour paper: manage timing
- Question 1 is compulsory: PACT & interactive system design
- Answer TWO out of other THREE Questions
- Multiparts: marks indicated

EXAM GUIDELINES

- Time management: Question 1
- Make a point; then illustrate with example
- Use examples: personal experience, class examples, examples from your reading etc.
- Additional reading etc. informs your opinion on subjects
- Your opinion is valued – considered reflection - not **waffle!**

EXAM GUIDELINES

Create:

- Interactive system for X (User Needs)
- Evaluation Plan, Techniques
- Visual design / Information design for X

Reflect:

- Which interaction style / posture / user feedback / evaluation technique for X
- Successful Interaction Design: design models, human / computer responsibilities, physical, cognitive & emotional
- Gulfs of execution & evaluation, World & head vectors, Threshold & ceiling, Anthropomorphism
- Future interaction technologies: potential

EVALUATION PLAN

Evaluation Plan:

- DECIDE Framework
- 5W's 1H: Why, Who, What, Where, When and How
- Example: *Wellbeing* App
  - Why? (Exam question!)
  - **Who?**
  - **What?**
  - Where?
  - **When?**
  - **How?**

EXAM GUIDELINES

Apply:

- **Models:** Interaction Model, Laseau's Design Funnel, Mental Models
- **Frameworks:** PACT (Lecture 5), DECIDE, Interaction styles, Interaction Modes, Interaction Metaphors
- Prototyping techniques
- Universal Design
- Memo explaining use of X to colleagues

EXAM MARKING SCHEME