

CS3724 Human-Computer Interaction

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Summer I - 2005

Introduction to the Course



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Topics

- Expectations
- What is HCI?
- Aspects of HCI
- But why HCI?
- Interaction design vs. software design
- Importance of HCI
- What can you gain from this course?
- My approach to HCI
- HCI at VT
- Course information

you'll

RAVE

Great course
coming up!

Expectations

- Why are you taking this class?
- What is your opinion of HCI?
- What is the *talk* about HCI among your peers?
- What do you expect to gain from this course?

What is HCI?

- All aspects of human interaction with a computer system
- A discipline concerned with design, implementation, and evaluation of interactive systems **for human use**
- Two way communication between user and system

Aspects of HCI

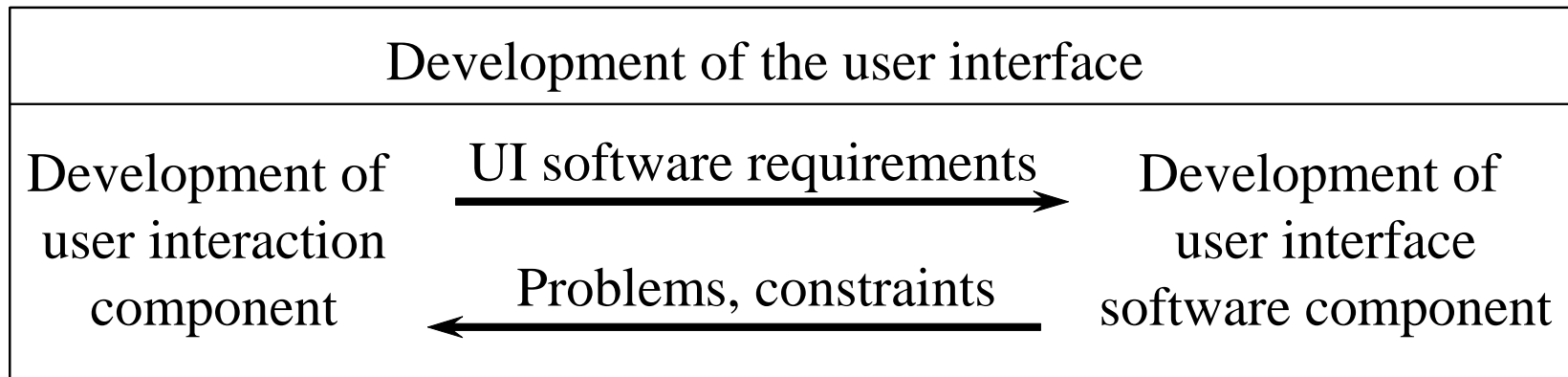
- Computer Science
- Cognitive psychology
- Social and organizational psychology, work activity
- Human information processing
- Ergonomics or human factors of devices
- Graphics, graphic design
- Engineering
- Linguistics
- Artificial intelligence
- Philosophy, sociology, anthropology
- Evaluation
- Implementation (software issues)

But Why HCI?

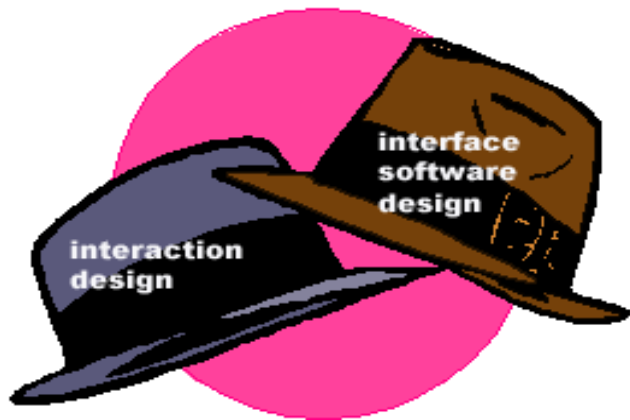
- Historical perspective
 - Software engineering foundations
 - Voids in SE after the GUI revolution
 - Current state of software and web
- Specialized area
 - Interdisciplinary requirements
 - Special skills
 - Difficult problem (human in the loop)

How is HCI Different From SE?

- Developing a GUI or Web user interface involves:
 - *Interaction component* – how a user interface works, its “look and feel” and behavior in response to what a user hears, sees, and does
 - *Interface software component* – code that instantiates the interaction component



How is HCI Different From SE



- Premise: Describing interaction from user's view should result in more usable design than describing it from software or programmer view
- Inherent conflict of interest!
- “One head, two hats” – emphasizes different roles

HCI is Different, But Why is it Important?



- What is age of youngest effective user of a computer?
- Costs of hardware & software vs. “personware”
- To users, the interface *is* the system
- Communication vs. computation

The Need for Good User Interfaces

- Life-critical systems
- Accommodating physical disabilities
- Accommodating individual differences
 - E.g., very young, very old
- Cultural and international diversity

What Can HCI Do To You?

- Job options
- New **user-oriented** perspective (different from other CS courses)
- Critical thinking and analysis about design – example
- Evaluation skills based on scientific theory and fact - example
- Skills to develop more usable interaction designs for GUIs and Web applications

Different Approaches to HCI

- Scenario Based Design
 - Brief coverage in this class
- Product and Process
 - Practical approach
 - Time tested and shown to work
 - Skills based
 - Detailed coverage in this class
- Other approaches

Product & Process: High Level Intro



People who develop UIs don't intentionally make them lousy!

- Evolution of a good GUI or Web design requires:
 - **Product** – application or web site: content, human factors of an interaction design
 - = “what” – general GUI guidelines are largely applicable to web

Product & Process

- Evolution of a good GUI or Web design also requires:
 - **Process** – usability engineering: techniques and tools for developing an interaction design
 - = “how” – ENSURES usability, same process for GUI and Web
 - Significant cause of poor usability in product is the lack of understanding of proper development process

Applications of HCI

- Web development
- Desktop GUIs
- Large displays
- Small displays
- Notification systems
- Multi-modal systems
- CSCW
- Virtual environments
- Ubiquitous computing
- Multimedia
- Visualization
- Automated machines (ATMs, ticket kiosks, etc.)

HCI at Virginia Tech

- One of the pioneers
- Wide range of research interests
- Highly qualified faculty
- Research facilities
- Lots of opportunities for independent studies and MS research

Course Information

- Webpage:

<http://courses.cs.vt.edu/~cs3724/summer1-2005-pyla/>

- Requirements

- “Book of knowledge”
- Printout of notes
- More on the webpage ...

Finally: I am not here to give you a tough time. I want you to learn. For me, grades are secondary. Learning is primary.