

# CS3724 Human-Computer Interaction



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Summer I - 2004

## 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



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## 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?

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## 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

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## 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)

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## 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)

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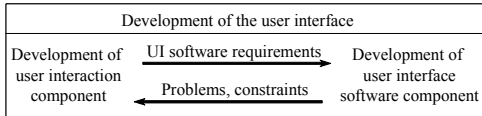
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## How is HCI different from SE?

- 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



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## 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

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## 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

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## 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

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## What Can HCI Do To You?

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

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## 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

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## 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

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## 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

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## 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.)

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## 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

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## Course Information

- Webpage:  
<http://courses.cs.vt.edu/~cs3724/summer1-2004-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.

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