

CPSC 481

Foundations and Principles
of
Human Computer Interaction

Sheelagh Carpendale

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CPSC 481 Administrivia

Sheelagh Carpendale

- Information Visualization
- User Interface Design
- Human computer interaction

Contact information

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Office hours

- one hour after class on Monday and Wednesday
- by email any time
- by appointment: email or phone to arrange one
- drop in for urgent requests (but no guarantees!)

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A Shift in Focus

From system-centred to people-centred

- focus on interaction development
- little about interface software development

User-oriented characteristics

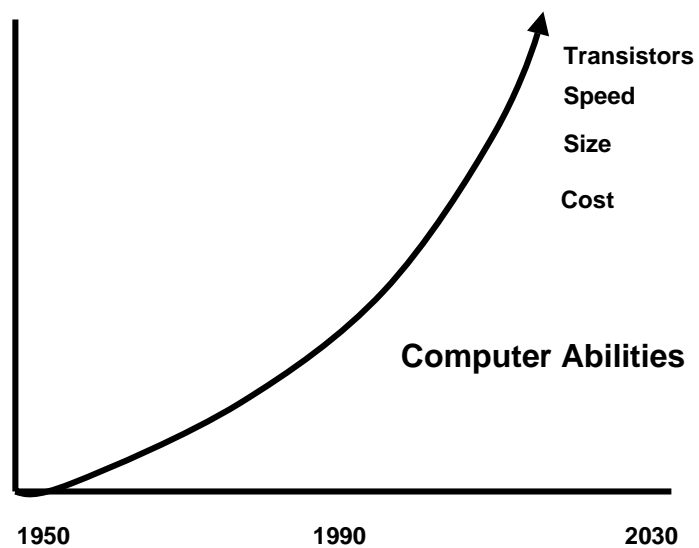
- ease of learning
- speed of user task performance
- low user error rate
- subjective user satisfaction
- user retention over time

Draws on several fields

- cognitive and behavioural science
- human factors
- empirical studies
- graphical design

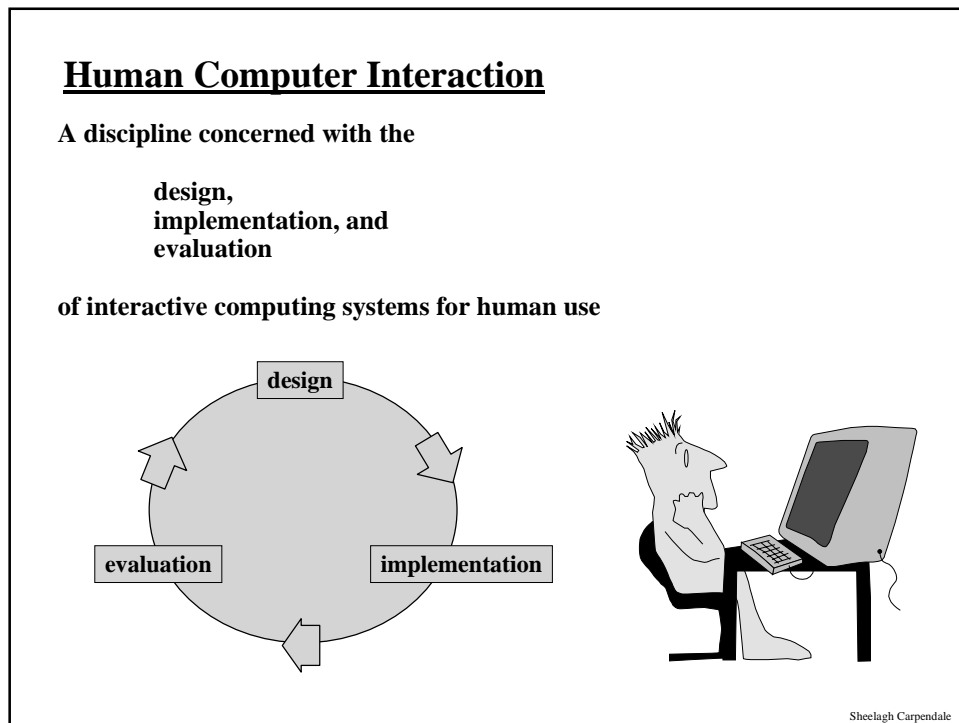
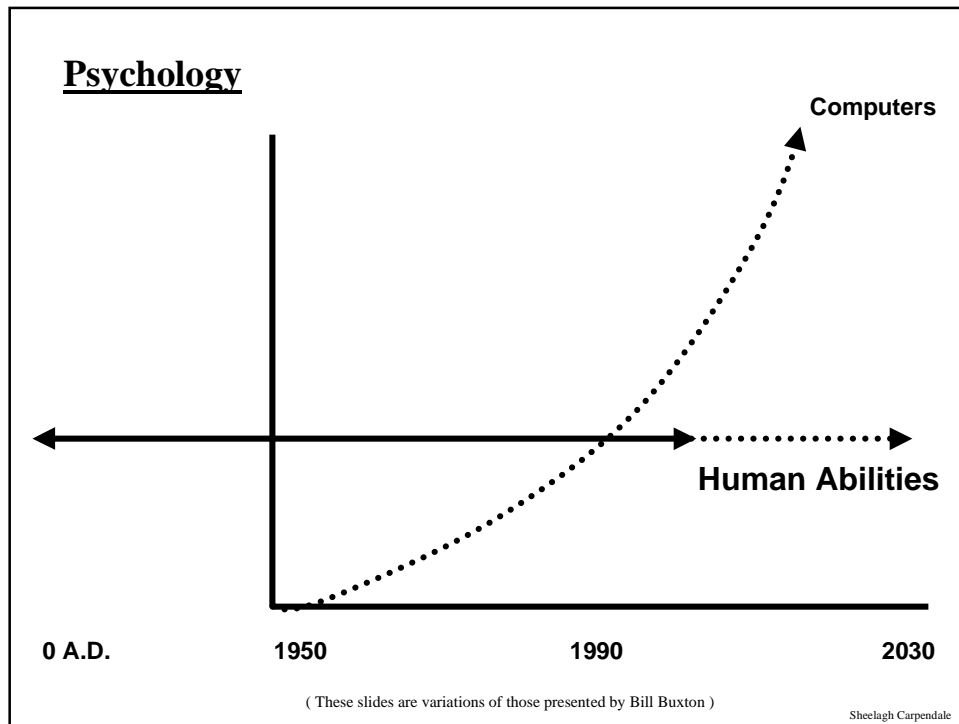
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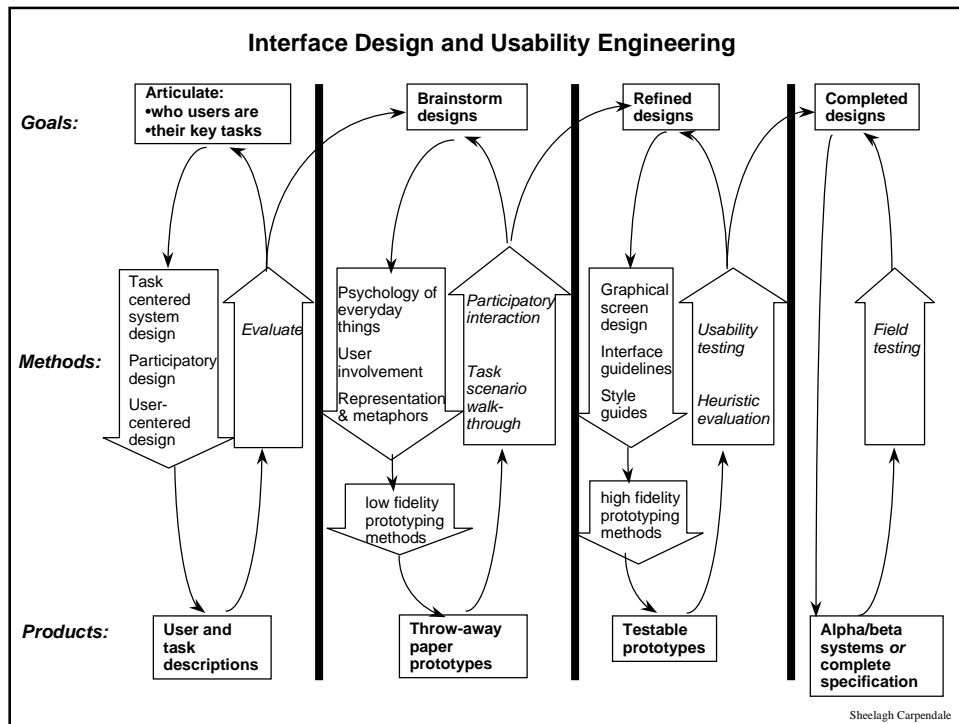
Moore's Law



(These slides are variations of those presented by Bill Buxton)

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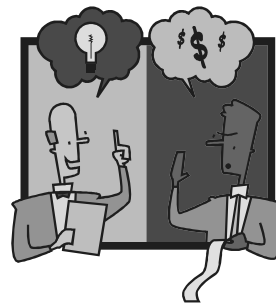




Why an interface design process?

63% of large software projects go over cost

- managers gave four usability-related reasons
 - users requested changes
 - overlooked tasks
 - users did not understand their own requirements
 - insufficient user-developer communication and understanding



Usability engineering is software engineering

- pay a little now, or pay a lot later!
- far too easy to jump into detailed design that is:
 - founded on incorrect requirements
 - has inappropriate dialogue flow
 - is not easily used
 - is never tested until it is too late

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Foundations for designing interfaces

Overview

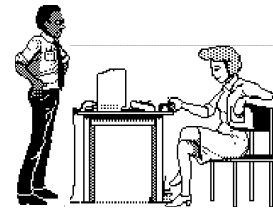
- Introduction to the course and to HCI

Understanding users and their tasks

- Task-centered system design
 - the task-centered process
 - developing task examples
 - task scenarios and walkthroughs

Designing with the user

- User centered design and prototyping
 - user centered system design
 - low fidelity prototyping methods
- Evaluating interfaces with users: Qualitative methods
 - observe people using systems via various methods
 - detect inappropriate design and correct by iterative design



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Foundations for designing interfaces

Designing visual interfaces

- Psychopathology/psychology of everyday things
 - what makes visual design work?
- Beyond screen design
 - representations and metaphors
- Graphical screen design
 - the placement of interface components on a screen



Principles for design

- Design principles, guidelines, and usability heuristics
 - general design guidelines
 - using guidelines as heuristics to discover usability problems

The past and the future

- History of HCI
- Visions of the future

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Objectives

At the end of this course, you will

- know what is meant by good design
- know guidelines and models and how they can be applied to interface design
- know and have applied a variety of methods for involving the user in the design process
- have experienced building applications through various methods and systems
- know and have applied methods to evaluate interface quality
- have sufficient background to
 - apply your training in industry
 - continue your education



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How you will be evaluated

Portfolio: Assignments 1 + 3

- Task centered design and prototyping (13%)
- System redesign, implementation, and evaluation (25%)

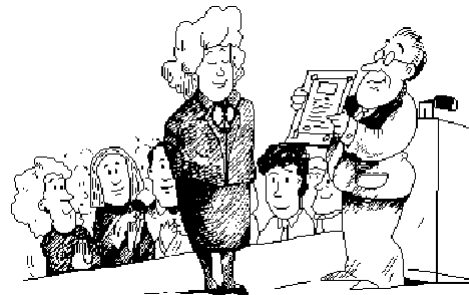
Assignment 2

- Usability evaluation of a large system in everyday use (12%)

Exams (50%)

- mid-term (20%)
- final (30%)

Note: you must pass both exam components and assignment components to pass the course



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Labs

Critical to your success in assignments

- elaboration of details
- learn specific skills
- discuss intermediate results
- class feedback on assignment milestones



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Text and additional references

Lecture notes

- sold at cost by the department
- available on the web

Optional text

- Baecker, Grudin, Buxton, and Greenberg (1995)
“Readings in Human Computer Interaction: Towards the Year 2000”



Optional programming manuals

- as required, your choice of what to get

Other resources

- see the web site <http://www.cpsc.ucalgary.ca/~sheelagh/courses/481/>
- also see the web site <http://www.cpsc.ucalgary.ca/~saul/481/>

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Excellent Books on Interface Design

Understanding design

- Norman (1988): The Design of Everyday Things



Texts

- Baecker, Grudin, Buxton, and Greenberg (1995): Readings in HCI
- Preece (1994): Human Computer Interaction

Usability engineering

- Nielsen (1993): Usability Engineering
- Lewis & Reiman (1993): Task Centered User Interface Design

Graphical screen design

- Mullet and Sano: Designing visual interfaces
- Tufte (1983): Visual display of quantitative information
- Cooper (1994): About face
- Norman: Things that make us smart

Keeping current

- Proceedings of ACM SIGCHI Conferences

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