CPSC 481

Foundations and Principles
of
Human Computer Interaction

James Tam

CPSC 481 Administrative

James Tam
- Human computer interaction
- Computer supported cooperative work
- Change awareness
- Games
- http://www.cpsc.ucalgary.ca/~tamj

Contact information
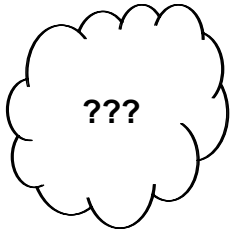- tamj@cpsc.ucalgary.ca
- Phone: 210-9455
- Office: ICT707

Office hours
- Monday and Wednesday (12:00 – 12:50)
- By email any time
- By appointment: email or phone to arrange one
- Drop in for urgent requests (but no guarantees!)

Feedback

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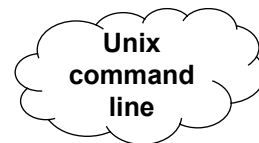Dilbert © United Features Syndicate

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Why An Interface Design Process?

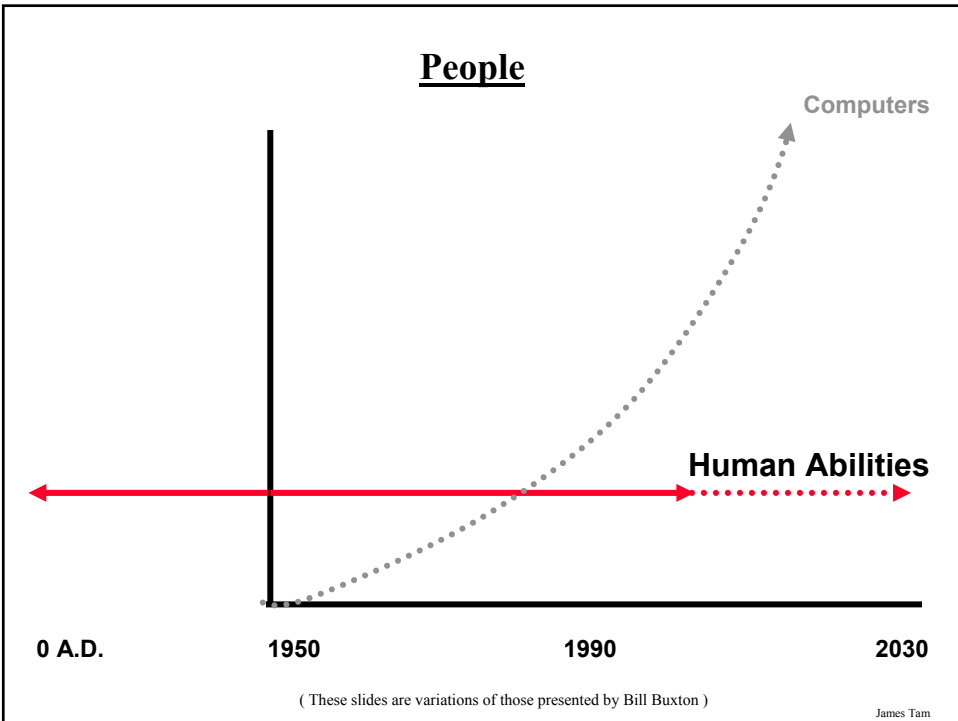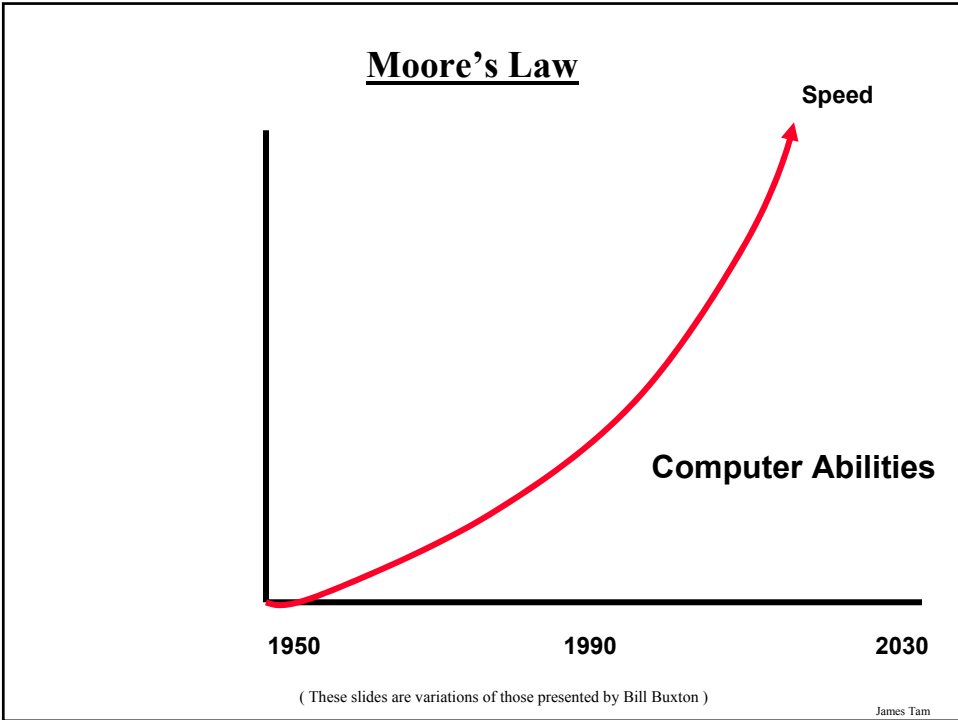**63% of large software projects go over cost**
- Managers gave four usability-related reasons
    - Users requested changes
    - Overlooked tasks
    - Users did not understand their own requirements
    - Insufficient user-developer communication and understanding

Unix command line

Windows GUI

Usability 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

Moore's Law

Speed

Computer Abilities

1950   1990   2030

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

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People

Computers

Human Abilities

0 A.D.   1950   1990   2030

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

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HCI Deals With The Interaction Of A Person With A Computer

Technological perspective

Human perspective

Technological Perspective

Technical constraints

• A reality check does occur but "reality bats last"[2]

• Beyond the mouse the and keyboard?

2 From the reading, The Inmates are running the asylum

Human Perspective

How people process information

•Memory, perception, motor skills, attention etc.
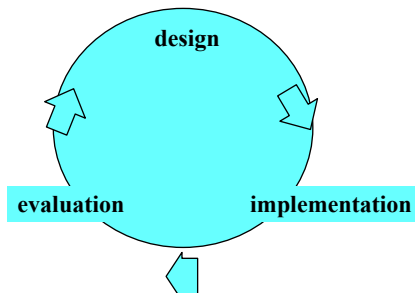
Language, communication and interaction

Ergonomics
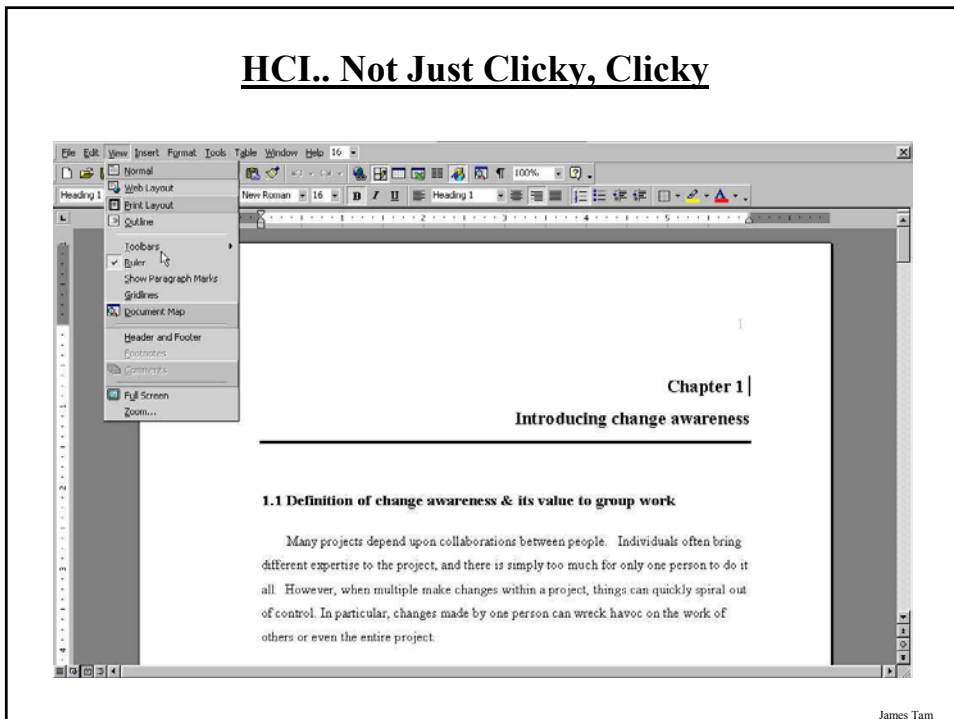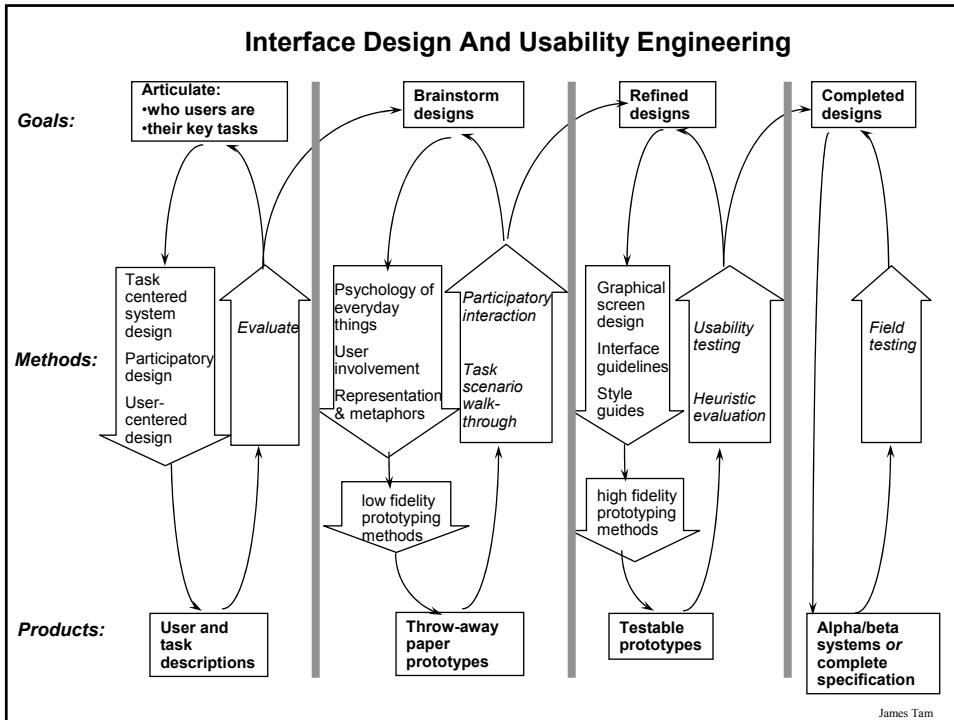

Human Computer Interaction

A discipline concerned with the

> **Design,**
> **Implementation, and**
> **Evaluation**

…of interactive computing systems for human use

Interface Design And Usability Engineering

Goals:

| Articulate:
 •who users are
 •their key tasks | Brainstorm designs | Refined designs | Completed designs |

Methods:

Task centered system design

Participatory design

User-centered design

Evaluate

Psychology of everyday things

User involvement

Representation & metaphors

Participatory interaction

Task scenario walk-through

low fidelity prototyping methods

Graphical screen design

Interface guidelines

Style guides

Usability testing

Heuristic evaluation

high fidelity prototyping methods

Field testing

Products:

| User and task descriptions | Throw-away paper prototypes | Testable prototypes | Alpha/beta systems *or* complete specification |

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HCI.. Not Just Clicky, Clicky

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Objectives

At the end of this course, you will

- Know what is meant by good design (guidelines and models that 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

What 481 Is Not About

The theory and mechanics of GUI programming

How to programming with a GUI language e.g., Visual Basic
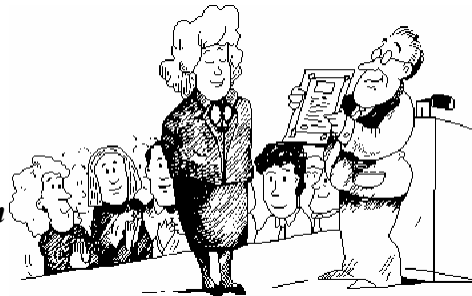
How You Will Be Evaluated

1) Assignments (50%)
  • Portfolio:
   - Assignment 1: Task centered design and prototyping (13%)
   - Assignment 3: System redesign, implementation, and evaluation (25%)
  • Usability study:
   - Assignment 2: Usability evaluation of a large system in everyday use (12%)

2) 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

Text And Additional References

Lecture notes
- Sold at cost by the Copy Center
- Also available on the web
  (http://www.cpsc.ucalgary.ca/~tamj/481/),
- Extra readings (required and optional)

Optional texts
- Interaction Design: Beyond Human-Computer Interaction by Sharp, Preece and Rogers.
- Readings in Human Computer Interaction: Towards the Year 2000 (2nd Edition) by Baecker, Grudin, Buxton and Greenberg

Optional programming manuals
- As required, your choice of what to get