Interaction Design

DECO1200
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Lectures

1000–1100 Eastern Avenue Seminar Room 312

Labs

1100–1300 Wilkinson UG Digital Media Lab Room 313
1400–1700 Wilkinson UG Digital Media Lab Room 313
Suggested Reading

Interaction Design: Beyond Human-Computer Interaction
Jenny Preece, Yvonne Rogers, Helen Sharp
Outline of Lectures

Introduction to Interaction Design
Conceptual & Cognitive Modelling
Collaboration & Communication
User Interfaces & Effects on Users
Prototyping & User-Centred Design
Evaluation, Observation & Testing
Introduction to Interaction Design
Outline

Why bother with Interaction Design?  
What makes interaction design so important?

What is Interaction Design?  
How does it relate to other design & research fields?

What is the Process of Interaction Design?  
How do designers try to design usable products?

What is Usability & User Experience?  
How can we determine if something is usable?
Why Bother with Interaction Design?

What makes the difference between an OK web site/game/phone/mp3 player/computer and a GREAT one?

How many bits of technology do you use every day?
How many are easy, effortless and enjoyable to use?
Please turn ON your mobile phones!

Do you know how all of the functions work? Is your phone as easy to use as you’d like? Do you enjoy using your mobile phone?
I just got the latest Aikon 1337 series mobile. It does it all, mate! Watch, I'll take your picture...

Bugger. That was the built-in tazer... Uhh... Wait! Someone's calling, 'ang on.

'ello? No, that's not right.
Interaction Design is Big Business

Companies know that good interaction design is important to sell their products but they don’t know how to do it!

Specialist interaction design consultancy firms exist to help companies evaluate existing products and to help them design better ones using the principles of interaction design and those of related fields.
What is Interaction Design?

Interaction design is concerned with the design of interactive products that are easy, effective and enjoyable to use.
The Good, the Bad and the Ugly

Voice Mail vs Answering Machine

Voice mail and answering machines are two very different technologies that try to solve similar problems.

Voice mail

Voice mail is used in many organisations, e.g. universities, companies, hotels but is often difficult to use. Why?

Answering machines

Answering machines often have more limited functions than voice mail but can be very intuitive to use. Why?
Marble Answer Machine

Source: Interaction Design, Figure 1.1
Elegance vs Practicality

The Marble Answering Machine is elegant and usable design but not very practical in many situations, e.g. hotel rooms.

Other answering machines would have similar (though possible not so severe) problems of practicality, e.g. cost, reliability, maintenance, etc.

Voice mail is popular in large organisations and public spaces because it is practical to install and maintain for many people.

Many of the problems that people have with voice mail can be addressed with training in large organisations.
IN THE YEAR 2099...

MATE, THAT FILM WAS BRILLIANT!
I RECKON THAT INTERFACE'LL BE
THE INTERFACE OF THE FUTURE!

I'M SORRY MA'AM. YOUR COGNITIVE
SCORES ARE INCREDIBLE BUT YOU
SIMPLY DON'T HAVE THE UPPER BODY
STRENGTH TO DO THIS 8 HRS A DAY.
Some Basic Interaction Design Questions

Who is going to use a product?
Where are they going to be?
What do they want to do?
How do they want to do it?
Why are they going to do it?
More Interaction Design Questions

What are people good and bad at doing?
How can existing activities be supported?
How can experiences be improved?
What do people say about the experience?

User-based design techniques help address these questions during the design process.
What is Interaction Design Related To?

- Academic Disciplines
  - Ergonomics
  - Psychology / Cognitive Science
  - Informatics
  - Engineering
  - Computer Science / Software Engineering
  - Social Sciences (e.g. Sociology, Anthropology)
- Design Practices
  - Graphic Design
  - Product Design
  - Artist-Design
  - Industrial Design
  - Film Industry
  - Information Systems
  - Computer-Supported Cooperative Work (CSCW)
Who is Involved in Interaction Design

Interaction Designers
Product Designers
Graphic Designers
Artists
Animators
Photographers
Film Makers
etc.
Working Together in Multidisciplinary Teams
Interaction Design Jobs

Interaction Designers
   Involved in all aspects of interaction design

Usability Engineers
   Focus on user-based evaluation of products

Information Architects
   Plan and structure interactive products

User-Experience Designers
   Conduct field studies to inform the design of products
MEETING THE BOSS

HI! I'M TOMO, THE NEW HCI GUY.

PERFECT! THEN YOU CAN HELP ME PICK A TIE FOR MY MEETING, RIGHT?

GETTING TO KNOW THE TEAM...

BRILLIANT! THEN YOU MUST READ JAKOB NIELSEN? FRAMES ARE BAD. SOOO BAD.

AND OF COURSE, THE DEVELOPERS.

NICE. I CAN FINALLY GET SOME ICONS FOR THIS TOOL I'M BUILDING.
The Process of Interaction Design

1. Identify needs and establish requirements
2. Develop a set of alternative designs
3. Build interactive prototypes for testing
4. Evaluate designs throughout the process
The Goals of Interaction Design

Usability Goals

- Effectiveness
- Efficiency
- Safety
- Utility
- Learnability
- Memorability

User Experience Goals

- Enjoyability & aesthetics
Usability and User Experience Goals

- Fun
- Emotionally fulfilling
- Efficient to use
- Effective to use
- Safe to use
- Supportive of creativity
- Aesthetically pleasing
- Motivating
- Helpful
- Entertaining
- Easy to learn
- Easy to remember how to use
- Enjoyable
- Satisfying
- Have good utility
Interaction Design Principles

Visibility: Make important information visible.
Feedback: Provide feedback about processes.
Constraints: Restrict interactions in a context.
Mapping: Effects of controls should be obvious.
Consistency: Similar controls, similar effects.
Affordance: Provide clues about use of controls.

Reference: The Design of Everyday Things by Don Norman
Usability Principles

Visibility: Keep the user informed.
Familiarity: Speak the user’s language.
Freedom: Provide easy escape routes.
Consistency: Use appropriate standards.
Helpfulness: Help users recover from errors.
Prevention: Prevent users from making errors.
Recognition: Don’t make users rely on memory.
Efficiency: Provide short-cuts for expert users.
Minimalism: Avoid overloading users with info.
Help: Provide users with helpful documentation.
What’s the Difference?

Design Principles and Usability Principles are very similar but they come from different disciplines and have different uses:

The design principles are intended to be used as prescriptions during the design of interactive product.

The usability principles are intended to be uses as guidelines during the evaluation of interactive products.
Summary

What is Interaction Design?
Designing things that are easy, efficient and enjoyable

Who does Interaction Design?
Teams of specialists from multiple disciplines

Why learn about Interaction Design?
It’ll make you a better designer and it’s big business!

Usability and User Experience
Usability is about designing for ease of use and efficiency, user experience is about making interaction enjoyable
Until Next Week...

Think about the things you interact with and try to evaluate them against the usability principles discussed this week.