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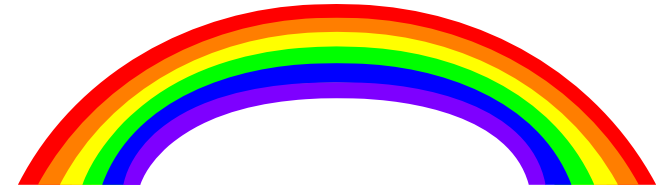
Human-Computer Interaction
”Introduction to HCI”
BSc/CQU

Lecture 1

(November 15, 2001)

Tralvex (Rex) Yeap MAAAI MSCS

Outline



- ✓ N-ways Introduction
 - Personal Information and Background
 - Students' Information and Background
- ✓ Course Outline:
 - Requirements and Expectation
 - Module Assessment
 - Recommended Books
 - Layout of Course
 - Strategies for Local Lectures
 - Virtual Office Hours
- ✓ Course Delivery Methods
- ✓ General Reference for the Course
- ✓ Organization of HCI Website
- ✓ Hollywood and HCI
- ✓ Modules for Lecture 1
- ✓ **M1: Introduction to HCI**
- ✓ M2: Human Aspects
- ✓ Class Activity 1: Reading
- ✓ Class Activity 2: Reading
- ✓ Additional Handouts for L1
- ✓ What's in Store for Lecture 2

Personal Information and Background

✓ **HCI Lecturer (SG):**

Tralvex (Rex) Yeap MAAAI MSCS

E-mail: tralvex@acm.org

Home : <http://tralvex.com>

ICQ no.: 20248177 (<http://www.icq.com>)



✓ **Educational Background:**

- Master of Science (Distinction) in Vision, Visualization and Virtual Environments at U. Leeds
- Read Bachelor Science in Computing (Systems Development) at Monash University.

Personal Information and Background (cont.)

✓ **Current Work:**

- Part-time: Lecturer for CQU, USQ, UOL, UOS, UCE, UOW and TVU.
- Full-time: (1) Inventor (2) Senior Technology Analyst – ICT Domain – Technology, Invention and Patent Analysis/Mapping.
- Three **Internet** patents pending, one **Internet Business Model** patents and two **software** patents in the pipeline and numerous non-patented software inventions.

<http://tralvex.com/inventions>

Personal Information and Background (cont.)

✓ **Past Work:**

- Lecturer for E-Business Strategy (MBA), Information System for Managers (MBA), Electronic Commerce (BSc), Artificial Intelligence (BSc Hons) Strategy Management in IT (BSc), Neural Networks (Mgrs) , Open Systems (BSc) and Website Development (Mgt).
- Patent and invention analysis work in Kent Ridge Digital Labs
- Software Engineer at System Engineering (SysEng) R&D work on real-time embedded systems.
- Games & CAI developer (Champion in National Software Competition 1991' Open Category). <http://tralvex.com/scrablet>

✓ **Future Work:**

- Lecturer: same subjects
- Many more Internet and software inventions.

Other Campus HCI staff



✓ Rockhampton	Kathy Egea (Chief)
✓ Mackay	Neil Young
✓ Gladstone	Brad Hunt
✓ Bundaberg	Angelica Schlotzer
✓ Hong Kong	Alan Kwong
✓ Brisbane	Jennifer Bell
✓ Sydney	Chris Simpson
✓ Melbourne	Suri Lakshmi

Students' Information and Background

- ✓ **Name**
- ✓ **Company**
Which industry?
- ✓ **Internet Access?**
Personal / Company / Not yet
- ✓ **Academic Specialization?**
eg. Multimedia or IT, etc.
- ✓ **IS Exposure?**
Internet / Multimedia / Programming /
Web Design / E-commerce / Security /
Artificial Intelligence / etc



Course Outline: Requirements and Expectation



- ✓ Basic knowledge of **IT**.
- ✓ General **interest** and **belief** in Information Technology.
- ✓ To cultivate a new hobby - **reading** publications and articles.

Course Outline: Requirements and Expectation (cont.)



- ✓ Contingency Plan for those without necessary background, to **learn fast** from:
 - Books
 - IT101 from Strategic Management in IT (UCE) Website
<http://tralvex.com/smit>
 - On-line lecture notes (read Delivery Methods section on URLs - Universal Resource Location or web location).

- ✓ **Internet Access:**
 - You should have at least email access to the Internet.
 - Preferably using Netscape or Internet Explorer.



Course Outline: Module Assessment



- ✓ All assignment based, ie. no exams!

- ✓ Three Assignments:
 - ✓ Assignment One (25%)
 - Presentation on 7 Dec 2001 / 27 Dec 2001 / 10 Jan 2002
 - Group Presentation: L3, L4, L5

 - ✓ Assignment Two (25%)
 - Individual Submission: 7 Jan 2002

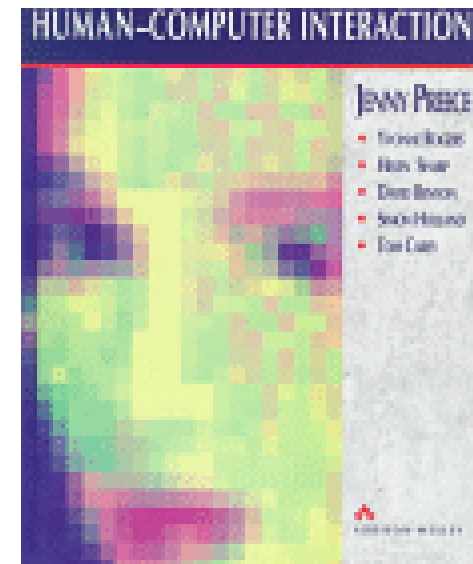
 - ✓ Assignment Three (50%)
 - Group Submission: 11 February 2002 (Presentation on 31 Jan)

Course Outline: Recommended Books



- ✓ **Human-Computer Interaction** by Jenny Preece, Yvonne Rogers, Helen Sharp, David Benyon

Review: An overview of the HCI field, illustrating the benefits of a user-oriented approach to the design of modern computer systems and emphasizing the design of interactive systems. Describes the interplay between people and computers in applications such as multimedia, virtual environments, and computer-supported cooperative work, and includes interviews with leading researchers in the field. For students of computer science, psychology, and cognitive science.



Course Outline:

Recommended Books (cont.)



- ✓ **Human-Computer Interaction** by Alan J. Dix (Editor), Janet E. Finlay, Gregory D. Abowd (Contributor), russel Beale, Janet E. Finley (Contributor), Russell Beale

Review: Extensively revised and rewritten in light of recent advances, this best-selling book is a comprehensive examination of human-computer interaction. It provides a multi-disciplinary approach to the subject through a synthesis of computer science, cognitive science, psychology and sociology, and stresses a principled approach to interactive systems design that fits a software engineering environment.



Course Outline:

Recommended Books (cont.)

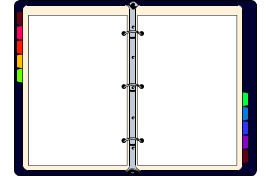


- ✓ **Designing the User Interface : Strategies for Effective Human-Computer Interaction** by Ben Shneiderman

Review: In this revised and updated presentation of user interface design for designers, managers, and evaluators of interactive systems, Shneiderman (computer science, U. of Maryland) discusses the underlying issues, principles, and empirical results, and describes practical guidelines and techniques necessary to realize an effective design.



Course Outline: Layout of Course



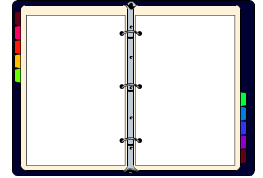
Basic:

- ✓ **Six** local lectures
- ✓ **One** video conferencing
- ✓ **One** on-line discussion

Extra:

- ✓ **Anywhere, Anytime** via Internet email / WWW access
- ✓ 14 weeks of Contact: 6 physical sessions, the rest virtual.

Course Outline: Strategies for Local Lectures



✓ Lecture 1/6

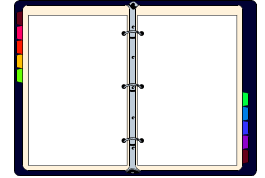
- Getting to know each other (to optimize communications)
- **Module 1. Introduction to HCI**
- **Module 2. Human Aspects**

✓ Lecture 2/6

- **Module 3. Design Methods and HCI**
- **Module 4. Iterative Design, Testing and Evaluation**
- **Module 5. Interaction devices, Response time and Display Rates**

Course Outline:

Strategies for Local Lectures (cont.)



✓ Lecture 3/6

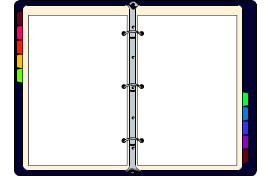
- o **Module 6. Interaction Styles**
- o **Module 7. Multimedia, Hypertext and The World Wide Web**
- o **Assignment 1 Presentation - Group A**

✓ Lecture 4/6

- o **Module 8. Perception, Representation and Windowing Systems**
- o **Module 9. Design and Graphics Design in Computer Human Interaction**
- o **Assignment 1 Presentation - Group B & C**

Course Outline:

Strategies for Local Lectures (cont.)



✓ Lecture 5/6

- o **Module 10.** User Support and Online Information
- o **Module 11. Guidelines, Standards, Prototyping and GUI Software and Support Tools**
- o **Assignment 1 Presentation** - Group D & E

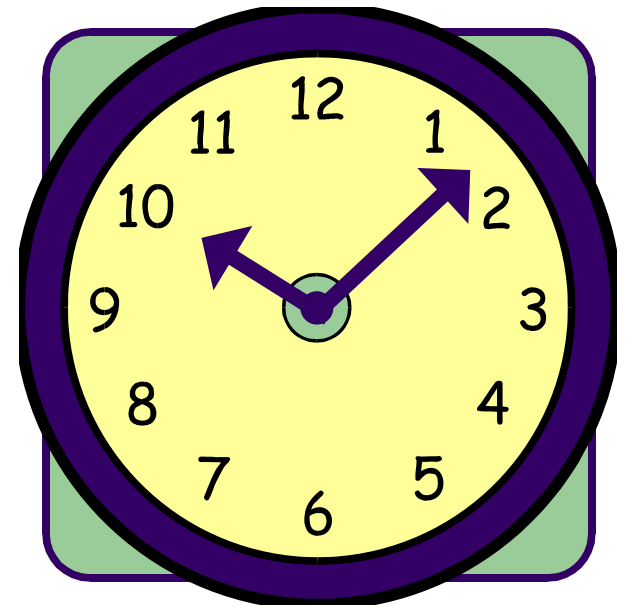
✓ Lecture 6/6

- o **Module 12.** Social and Individual Impact
- o **Module 13. Future Trends & The Road Ahead**
- o **Assignment 3 Presentation** – All Groups

Course Outline:

Virtual Office Hours

- ✓ Via Internet **e-mail** indefinitely
- ✓ Via HCI **Website** indefinitely



Course Delivery Methods



- ✓ **Open** approach to “Human-Computer Interaction”. Welcome all types of questions.
- ✓ **Live lecturing**
- ✓ Maximum use of **Internet**
 - HCI Homepage <http://tralvex.com/hci>
 - Soft copies of notes (in Powerpoint format) can be downloaded from the web.
 - **Past years assignments** are located in the same website.
 - Include many **relevant hyperlinks** to HCI resources.
- ✓ Use of **Internet e-mails**:
Students may submit their queries to me anytime.

General References for the Course



- ✓ Information Systems related information.
- ✓ General computer-related news sources.
- ✓ All web links in the HCI website.
- ✓ Various ezines, catalogued in the web.
- ✓ Whatis.com (Computer Science Dictionary)
<http://whatis.com/>
- ✓ Technology Encyclopedia
<http://www.techweb.com/encyclopedia/>
- ✓ Computing Dictionary
<http://wombat.doc.ic.ac.uk/>
- ✓ Webster Dictionary
http://work.ucsd.edu:5141/cgi-bin/http_webster

Organization of HCI Website

<http://tralvex.com/hci>



- ✓ Course Schedule
- ✓ Recommended Books
- ✓ Selected Articles (soft)
- ✓ Past years assignment papers
- ✓ Miscellaneous Documents, eg. Class list
- ✓ Web Resource:
 - On-line Computing Resources
 - HCI
 - Module 1, 2, ..., 13

Hollywood and HCI

2001: A Space Odyssey (The Movie, 1968)



List 5 aspects
of HCI in
this movie.

Modules for Lecture 1

Corresponding chapters in Textbook/Resource Book



M1.	Introduction	Chapter 1, 2
M2.	Human aspects	Chapter 3, 5

Module 1: Introduction to HCI



- ✓ **Human-Computer Interaction (HCI)** is about designing computer systems that **support people** so that they can carry out their **activities productively and safely**. (Preece, p.1)
- ✓ HCI studies **human performance** in the use of computer and information systems. This is a **rapidly expanding** research and development area.

M1: Introduction to HCI

H... C... I...



✓ Human

- the **end-user** of a program
- the **others** in the organization

✓ Computer

- the **machine** the program runs on

✓ Interaction

- the user **tells** the computer **what they want**
- the computer **communicates results**

M1: Introduction to HCI

Definition of HCI



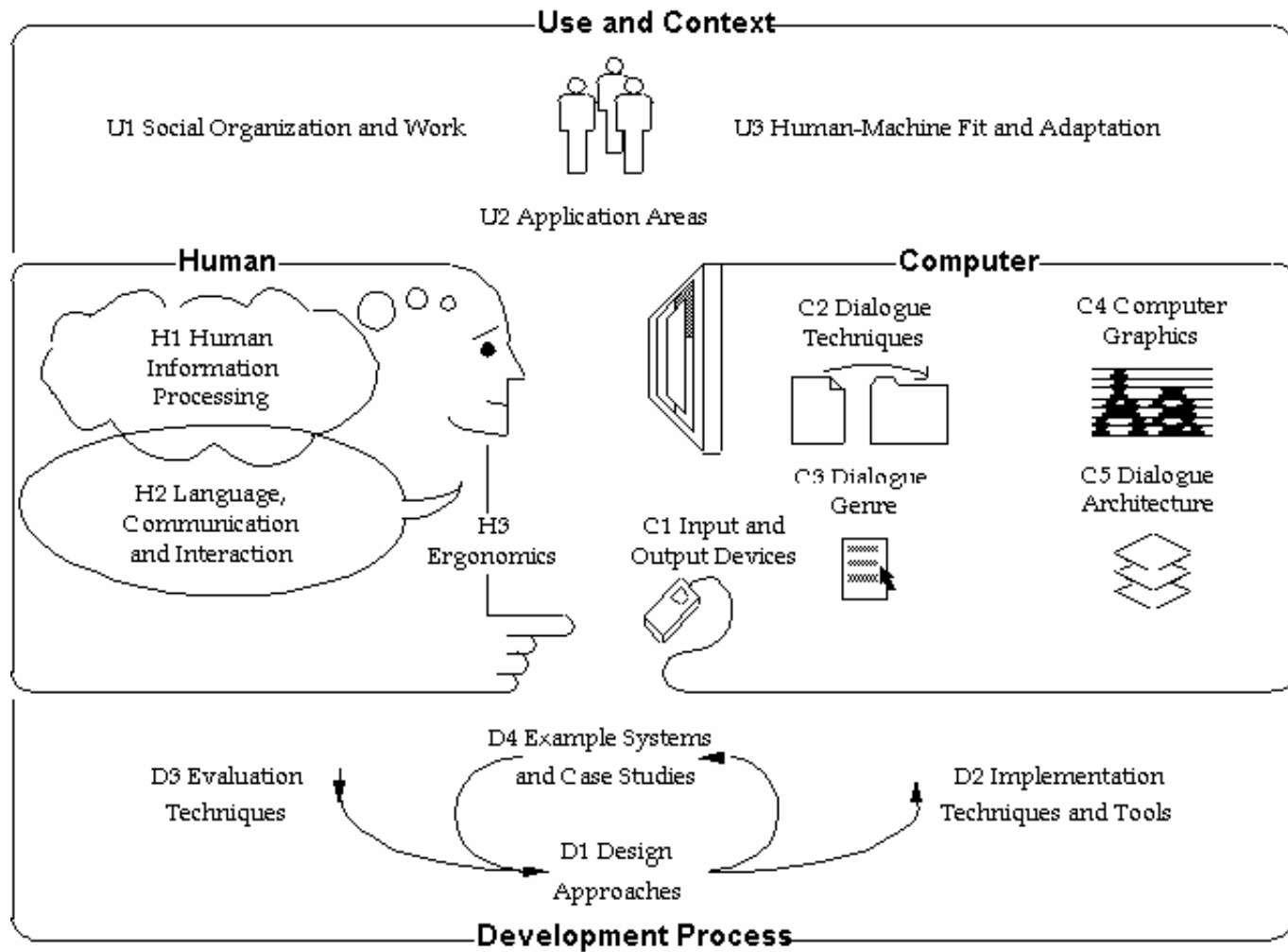
- ✓ **Human-computer interaction** is a discipline concerned with the **design, evaluation and implementation of interactive computing systems for human use** and with the study of major phenomena surrounding them.

(ACM SIGCHI, 1992, p.6)

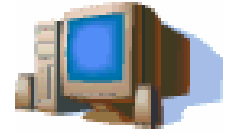
- ✓ **Other terms:** user interface, man-machine interface, ergonomics, human factors

M1: Introduction to HCI

Overview of HCI



M1: Introduction to HCI



Why is HCI Important?

- ✓ HCI has a role in the **design** and **development** of all kinds of computer systems.
- ✓ Harnessing the computer's power is a task for **designers** who understand the technology and are **sensitive to human capacities and needs** (human factors).
- ✓ Applications developers who apply human-factors principles and processes are producing **exciting** and **useful** interactive systems.

M1: Introduction to HCI

A Brief History of Computing



- ✓ From calculation to **information processing**
- ✓ From offline-processing to **online interaction**
- ✓ From house-size to **palm-size**
- ✓ From expert's tools to **end-user computing**

M1: Introduction to HCI

Three Pioneers of Computing and HCI



✓ Vannevar Bush

- ✓ Hypertext and Memex (1945)

- ✓ Retrieval systems

<http://muse.jhu.edu/press/books/landow/memex.html>

✓ Douglas Engelbart

- ✓ Inventor of the mouse (1960s)

- ✓ Interacting computing

<http://160.111.7.240/resource/tours/comphist/englebar.htm>

✓ Alan Kay

- ✓ Personal computing (1970s)

- ✓ Graphical User Interface

<http://www2.awl.com/product/bu/he/beekman/cc/toc/ch016/c16p001.htm>

M1: Introduction to HCI

Specific Human factors Design Goals

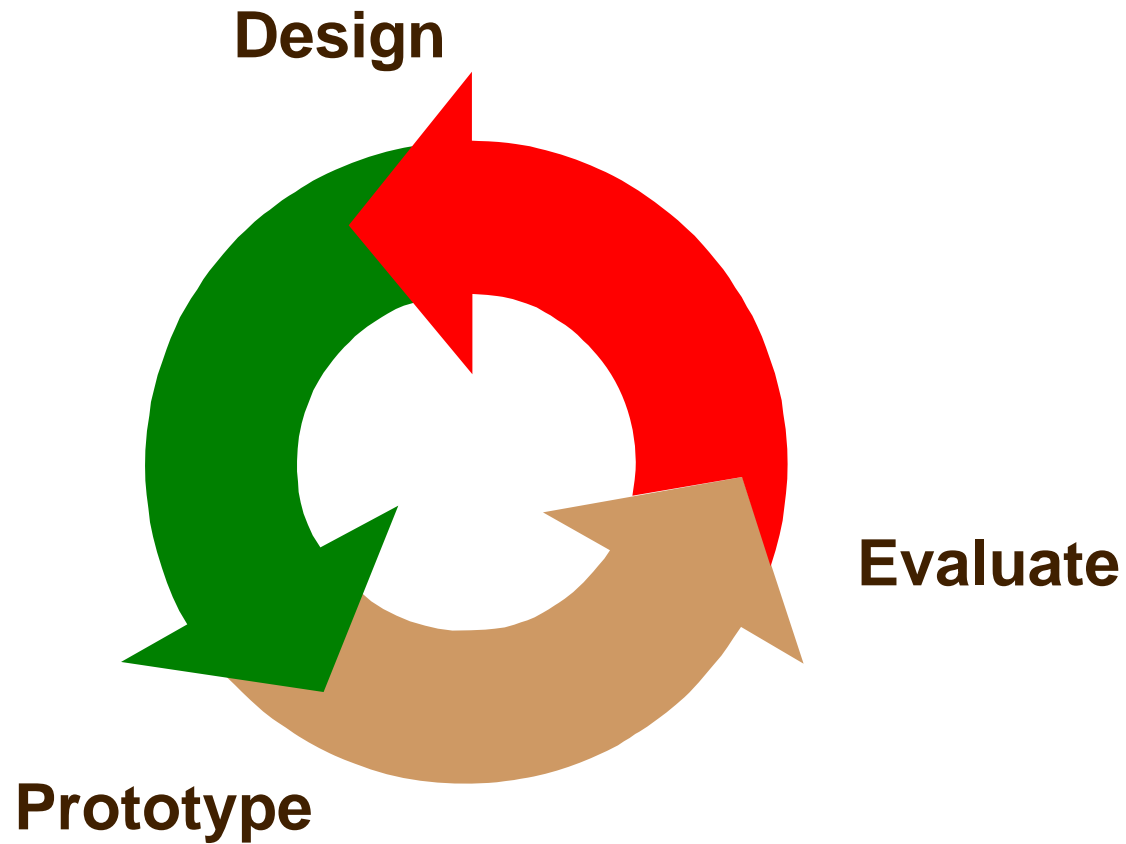


- ✓ Preece (p.14-15) describes “the goals of HCI are to produce **usable** and **safe** systems, as well as **functional** systems”.

- ✓ **Goals** include:
 - o Safety (eg safety-critical systems)
 - o Utility (functionality)
 - o Effectiveness (intuitive)
 - o Efficiency (task achievement)
 - o Usability (easy to learn and use)

M1: Introduction to HCI

HCI/UI Design Cycle



Module 2: Human Aspects



- ✓ Read paper titled “Using Theories of Perception in Computer Design” later.

Class Activity 2: Reading

Using Theories of Perception in Computer Design



Using Theories of Perception in Computer Design

Introduction

How can designers use theories of perception? I think the first question we should ask is - what are they trying to produce? The focus in this essay will be on designing for the computer but I am taking a broad view of design, where the purpose of the designed thing may be concrete such as a map or abstract, e.g. a piece of art. The aspects of research into perception we find interesting and useful will largely depend on what we're trying to create.

The next question is - which theory of perception? There are many theories and there are huge differences between them in terms of what they attempt to explain and how they were arrived at. I think the main issue for both the theorists and designers is one of problem definition. Just as the question for the designers is - what are we trying to make? - for the theorists it is - what are we trying to explain? An acceptable solution will necessarily depend on how the problem is defined. It seems to me that both theorists and designers can benefit from the other group's discoveries and questions (and that they have already done so).

http://www.geog.le.ac.uk/argus/people/Kath_Stuff/VisEssay.html

Additional Handouts for Lecture 1



- ✓ 1. “A Taxonomy of Human Computer Interaction”
- ✓ 2. “Using Theories of Perception in Computer Design”
- ✓ 3. HCI Website
- ✓ 4. US HCI Patents / Inventions
- ✓ 5. Interface – Hall of Shame

What's in Store for Lecture 2



- ✓ **Module 3. Design Methods and HCI**
- ✓ **Module 4. Iterative Design, Testing and Evaluation**
- ✓ **Module 5. Interaction devices, Response time and Display Rates**

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End of Lecture 1

Good Night.