DEPARTMENT OF COMPUTER SCIENCE
UNIVERSITY OF TORONTO

CSC318S

THE DESIGN OF
INTERACTIVE COMPUTATIONAL MEDIA

Lecture 20 — 6 April 1998

RESEARCH FRONTIERS AND REVIEW

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20.1 Introduction

Research frontiers already discussed
      Multimedia interfaces
      Multi-modal dialogues

Other areas
      Interface software development tools
      Cognitive modelling
      Adaptive and intelligent interfaces
      Groupware and computer-supported cooperative work
      Global networking
      3D interfaces and virtual reality
      Ubiquitous computing, incl. mobile computing
      Cyberspace, encompassing previous three

20.2 Global networking

The Internet

The World Wide Web — global hypermedia

Access to all the world's knowledge and people?

20.3 Virtual reality

Simulated entire three-dimensional environments
      The computer becomes the environment

Technology
      Stereoscopic display glasses for both eyes

Head-mounted displays
Data gloves
Force feedback
Even room movements and vibrations

Applications
Military and aerospace
Architecture and planning
Medicine
Entertainment

Guest lecture on 3D applications in architecture, landscape
architecture, design, and planning on Wednesday

20.4 Ubiquitous computing

Computational media everywhere
The environment becomes a computer

Technology
Wall-sized displays
Laptops
Palmtops
Active badges, wearable computers

Applications
Telephone forwarding
Social awareness
Intelligent and adaptive systems

Social issues — Privacy and monitoring

VIDEO — The Active Badge System (Olivetti, SGVR 89, 1993)

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20.5 Review

The focus of this course has been on the design of interactive computational media that enhance and support the creative processes of their users, on user interface design, and on multimedia.

Topics include:

I) Introduction: Interactive computational media. Brainstorming and creativity. Group processes, team building, team management.

II) Design: The user-centred iterative design of interactive systems. Design methodologies and principles. Metaphors and mental models. Interdisciplinary design; the role of graphic design, industrial design, and the behavioural sciences. Rapid prototyping and envisionment.

III) Interactive technologies and techniques: Hardware, software, systems, and techniques.

IV) Observation and evaluation: User testing.

V) Interactive media and modalities: Typography, layout, colour, non-speech audio, video, and multimedia.

VI) The extended interface: training, documentation, error handling, and help; ergonomics and the physical environment; interfaces for special needs.

VII) Research frontiers: speech input/output and natural language interfaces; 3D interfaces.