Wisdom is not the product of schooling but the lifelong attempt to acquire it.
- Albert Einstein

Grander Goals

Gerhard Fischer and Hal Eden
Fall Semester 2008

Chapter 11, Leonardo Book, December 1, 2008
## Final Presentations

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Digital and Social Systems Foundations: Course Announcement

This course will introduce the foundations for Digital and Social Systems (DSS). As computing is changing our lives, this transformation is shaped not only by technology but also by how people express themselves, how they think, how they interact with computational artifacts, and how they collaborate with other humans. The broad-based research area of DSS will prepare students to contribute to this accelerating global process. Students will learn about, design, develop, and assess socio-technical environments that tie together technology with communication, collaboration, and other social processes to address the challenges and opportunities of our future world.

The course will cover practice and research in human computer interaction, design of interactive systems, computer supported cooperative work, computer supported collaborative learning, educational technology, tools that support creativity, user-developed knowledge collections, and gaming.
The Old Computing and the New Computing: Shneiderman’s Book

- Old Computing = What Computers Could Do

- New Computing = What Users Can Do
Some Claims by Ben Shneiderman about the New Computing

- computers will become **invisible**

- movement from independent work to **collaboration** with **distant** colleagues will be seamless

- will provide **exemplars** of excellence for you to build on, templates for getting started, and processes for guiding your creative experience

- will bring more **powerful tools** to enable you to be more creative and then disseminate your work online

Who Should Serve whom?

- 1933 Chicago World’s Fair
  
  Science Finds,
  Industry Applies,
  Man Conforms

- person-centered motto for the 21st century
  
  People Propose,
  Science Studies,
  Technology Conforms

Beyond the Unaided, Individual Human Mind

Power of the collective human mind, aided by technology

- Reading and writing
- Printing press
- Personal computer
- Internet
- Cultures of Participation

Time

2500BC 1500 1980 1993 2008

Socrates
Infrastructure for Computing

- **1950-1960: Large Computers** — used with punched cards

- **1970: Timesharing** — many users use the same computer from a terminal

- **1980: personal computer** — each computer has its own CPU

- **1990: Graphical User Interfaces** — WIMP interfaces: window, icon, menu, pointing device

- **1995: Networks: Internet and World-Wide Web** — communication and collaboration (broadcast architecture); consumer cultures

- **2005: participatory Web or Web 2.0**; participation cultures

- **2010: Cloud Computing** — IT-related capabilities are provided “as a service”, allowing users to access technology-enabled services "in the cloud" (Internet) without knowledge of, expertise with, or control over the technology infrastructure that supports them
AI versus IA

- **Shneiderman, p 224:**
  I’m especially critical of those members of the artificial intelligence community who propose to build machine that do tasks that humans do rather than empower human to do the tasks.

- **AI: Artificial Intelligence** = to replace human beings

- **IA: Intelligence Augmentation** = to empower human beings
AI versus IA: More Claims

- Nicholas Carr: Is Google Making Us Stupid?  
  [Link](http://www.theatlantic.com/doc/200807/google)

- Lewis Mumford (quoted on p 227):  
  If researchers and developers create innovations that empower rather than replace people, they will be more likely to accelerate productive technology revolution.

- Shneiderman’s claim:  
  Educational discussion groups and email exchanges with professors are more likely to spread than intelligent tutoring systems that replace teachers.
EPIC= Evolving Personalized Information Construct

- The Road to 2014 — a Movie about changes in
  - news media and journalism,
  - Amazon,
  - Google,
  - TiVo,
  - Blogger
  - Googlezone
  - personalization
  - copyright law

- more info at:
Leonardo II

- **would be committed to:**
  - technical excellence must be in harmony with user needs
  - great works of art and science are for everyone

Leonardo = the Renaissance Scholar of the 15th century (1452 – 1519)

claim: the Renaissance scholar of the 21st century will be the group, community team composed of knowledge individuals
Gerhard’s challenge to all students in the course

the future is not out there to be discovered

—

it has to be invented and designed

→ and all of you should contribute to creating a desirable future!