

Collaborative Software Design & Development

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ENS 623A

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Today

- ⇒ What the course is about
- ⇒ Introductions
 - ↳ Us
 - ↳ You
- ⇒ Course mechanics
- ⇒ What are collaborative technologies
- ⇒ The landscape of open source software development
- ⇒ Global Software Development

Introductions

⇒ Professors

↳ Dewayne E Perry

⇒ Students

↳ Background

↳ Research/career interest

↳ Goal for class

Course Goals

- ⇒ Identify social, technical and domain challenges in supporting groups with technology & how to overcome them
- ⇒ Examine OSS as an important phenomenon on its own
- ⇒ Examine Global Software Development phenomenon
- ⇒ Provide experience in identifying research questions and designing research
- ⇒ Provide experience in going from observation to design in a team context

Course Requirements

⇒ Class participation (20%)

- ↳ Preparation

- ↳ Discussion

⇒ Short papers & class presentations (35%)

- ↳ 2 presentations per class

- ↳ Perhaps in pairs covering sets of papers

⇒ Term project (45%)

- ↳ 9 teams of 3 people each (=27 students)

- ↳ Project TBD

- 1-page individual proposal

- Progress report & lit review

- Presentation - after finished with individual papers

- Project paper due last day of class

Course Topics

⇒ Interweave with discussions of OSS as task domain with social science background on nature of groups, communities, coordination and communication

↳ **General Introduction**

↳ **Collaboration**

- Teamwork -virtual and real
- Behavior in groups
- Uncertainty & coordination

↳ **Open source development**

- OSS landscape
- Problems of motivation & coordination
- Developing newcomers

↳ **Global software development**

- Formal and informal collaboration
- New opportunities

Course Schedule - Approximately

- ⇒ Weeks 1-4 - Introduction and Overview (Me)
- ⇒ Weeks 5-11 - Paper Presentations (You)
- ⇒ Weeks 12-14 - Project Presentations (You) and Wrap-up (Me)

- ⇒ Syllabus ready by Thursday - watch the class web page on my website.

What is CSCW

⇒ Building information systems that help groups of people accomplish their goals

↳ Applying knowledge from

- Individual cognition and motivation
- Small group research
- Organizational behavior
- Task domains
- Computer science
- Telecommunications
- Design

↳ But

- The reference disciplines are inadequate to the task
- The practitioners don't look deeply enough

⇒ Understanding collaboration and the impact of potential supporting technology

⇒ Developing the underlying science and technology

Why Study CSCW

⇒ Utility

- ↳ Importance of groups
- ↳ Importance of communications as an integral part of computing systems
- ↳ Interpersonal computing is a growth area in computer systems
- ↳ Groups are important, but not perfect
 - Unaided groups don't live up to their potential
 - Current technology constrains what groups can do

⇒ Science

- ↳ Lewin: Nothing is as practical as a good theory
- ↳ Reversed: Nothing generates theory as well as useful application
- ↳ Malone: Challenge is to develop general theories of coordination that transcend type of actor (e.g., human or computational)

⇒ These goals require an interdisciplinary enterprise

The task is crucial

- ⇒ What is needed for group support is strongly influenced by the domain

- ⇒ Broad needs
 - ↪ Synchronous vs. asynchronous
 - ↪ Conceptual vs. artifact

- ⇒ Detailed, task specific needs
 - ↪ Architectural design
 - ↪ Software design
 - ↪ Software development
 - ↪ Co-authored paper/documentation

What Is Open Source?

- ⇒ **Commercial software**
 - ↳ Release binaries only
 - ↳ Protect source with copyright
- ⇒ **Copyleft**
 - ↳ Subversive use of copyright law
 - ↳ Guarantees right to distribute
- ⇒ **Open source is form of licensing**
 - ↳ Free redistribution
 - ↳ Source code
 - ↳ Derived works
- ⇒ **A process of collaborative creation**

Why the Interest in Open Source?

⇒ Some large, visible, hugely successful projects

↳ Linux

↳ Apache

↳ Mozilla, Thunderbird, Firefox

⇒ Complete open source web platform

⇒ Open source software runs the internet

↳ bind

↳ sendmail

Explosion of Open Source Projects

⇒ SourceForge

↳ 105,764 projects; 1,132,505 users (9/1/05)

⇒ Savannah

↳ 2464 projects; 37517 users

⇒ OSDir

↳ Directory only, not hosting environment

↳ "only lists sufficiently developed and stable open source applications that are ready for deployment"

↳ 849 downloads available

⇒ How far will this go?

↳ All software will be developed this way (FSF)

↳ A few niches, primarily infrastructure, tools

⇒ Microsoft views OSS as #1 threat

Just Software?

- ⇒ Oxford English Dictionary
- ⇒ Wikipedia
- ⇒ MIT OpenCourseWare
- ⇒ Design problems: Thinkcycle
- ⇒ What else?

Global Software Development

- ⇒ OSS often geographically distributed
- ⇒ Company specific often geographically distributed
 - ↳ Economic reasons
 - ↳ Legal reasons
 - ↳ Logical reasons
- ⇒ Development organizational models
- ⇒ Informal vs formal interactions
 - ↳ Time zone issues
 - ↳ Geographical issues
- ⇒ Round the clock development
- ⇒ Outsourcing