Collaborative Software Design & Development

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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 a 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