Collaborative Software Design & Development

Dewayne E Perry
ENS 623A
Office Hours: T/Th 10:00-11:00
perry @ ece.utexas.edu
www.ece.utexas.edu/~perry/education/382V-s08/
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

 Buildings 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