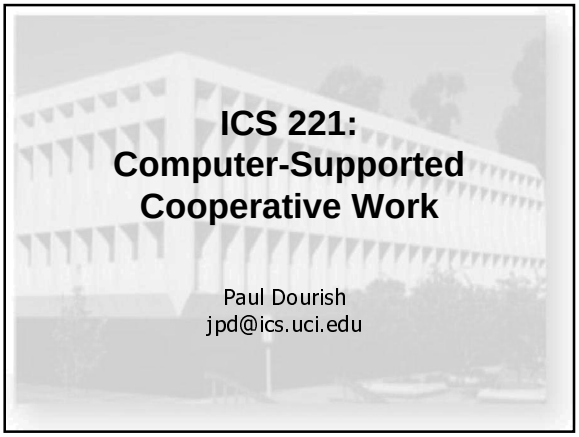

ICS 221: Computer-Supported Cooperative Work

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CSCW and SE

- why study CSCW in the context of software engineering?
  - trends in software systems design
  - technical challenges posed by CSCW
  - SE as CSCW practice

historical perspectives

- 1960s: information systems
  - "organisations"
  - mainframes, databases...
- 1970s: office automation
  - "projects" (e.g. software engineering)
- 1980s: human-computer interaction
  - "users"
- 1984: computer-supported cooperative work
  - "groups"... (but aspects of the others too)

collaborative technologies

shared workspaces, the web

email, the web

databases, respositories (CVS?)

network filesystems

networks

The space of the field

Interact

IJHCS

GROUP

JCSCW

BIT

CHI

CSCW ECSCW

TOCHI

HCI

Problems with the term

- Computer-Supported?
- Cooperative?
- Work?

interdisciplinarity

- computer science
  - consistency techniques, data management, algorithms, user interface design
- sociologists
  - studies of work and social practice
- social psychologists
  - e.g. impact of technology on cognitive and interactional processes
- plus…
  - economics; organisational theorists; educators;

interdisciplinarity

- the influence of the social
  - example: Common Information Spaces
- the perils of interdisciplinary research
  - the danger of glossing the other's point of view
    - Common Information Spaces are a case in point
  - fundamental differences in perspective
    - and language: "implementation", "semantics"

central principles

- relationship between technology and practice
- importance of workplace studies
- organisational context
- awareness as a key feature of work

US/European differences

I listened to a European CSCW researcher criticize an American group's understanding of "task analysis" … To the European, "task analysis" meant an organizational task analysis based on mapping the flow of information from person to person. He thought the term was "nonsensical" in an experimental setting.

areas of research

- tools and technologies
- theories
- empirical investigations
- work practice studies

theories

- situated action
- ethnomethodology
- distributed cognition
- activity theory

tools and technologies

- topics
  - consistency management
    - how consistency techniques interfere with forms of work
    - operational transformation
  - architectures
    - esp. for mobile, adaptive work
  - linking single-user and collaborative tools

work practice studies

- work process and work practice
  - the formal and informal sides of what's going on
  - the informal cannot be eliminated
- ethnography
  - the focus on *experience*
  - detailed, long-term observation
    - but... the "quick and dirty" ethnography

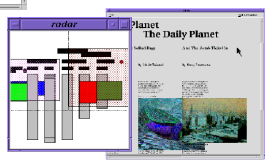
topics

- video in collaboration
- making contact
- privacy and data management
- component-based infrastructures
- instruction and learning
- instant messaging
- expertise and explanation
- mobility
- operational transformation and consistency
- flexibility and constraint

awareness

- origins: video and the London Underground
- arenas
  - shared workspaces
  - distributed workgroups
  - visualisations of work
- the roles of awareness
  - social
  - coordination
- awareness in software engineering

awareness



colocated and distributed work

- distributed work is a fact of life
  - impacts?
  - *[[insert Herbsleb and Grinter figures here]]*
- radical collocation
  - "war rooms" (c.f. "extreme programming")
  - impacts?

expertise and org. memory

- the problem of organisational memory
  - organisations are stable but their membership isn't
  - organisations don't know things, people do
  - how can organisations "learn" and adapt?
- the problem of expertise location
  - someone, somewhere knows something you need
  - how does expertise flow from one place to another?
  - do you need expertise, or do you need an expert?

what's changed since 1994?

- The Internet!
  - the prevalence of network connectivity
    - extending the reach of collaboration technologies
    - moves towards higher bandwidth (e.g. media spaces)
    - organisational changes (virtual teams, etc)
  - new opportunities
    - virtual communities
  - new challenges
    - web-based collaboration
    - presence and awareness in web-based interaction

what's changed since 1994?

- technologies becoming mainstream
  - networked audio and video
  - application sharing
  - workflow and business process automation
  - electronic document & information repositories
- new technical opportunities
  - mobility
  - collaborative virtual environments

what hasn't changed?

- interdisciplinary mix