Course Description

Cooperation Systems

The course Cooperation Systems introduces concepts that allow to model and to discuss collaboration based on the Web. Such concepts come from established disciplines like Computer Supported Collaborative Work (CSCW), Computer Supported Collaborative Learning (CSCL), organization theory, and social-learning theory. A novel perspective on Web collaboration is arising from developments that are being discussed in connection with buzzwords like Web 2.0 and Enterprise 2.0.

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The Big Idea

Many people nowadays routinely use the computer and especially the Web for their day to day communication. They use E-Mail, Chat, videoconferences, and social networks to stay in touch with their friends and family, to plan joint activities, to act in their profession, and to acquire knowledge. One stimulus for this rather new situation is the development of computer-, telecommunications- and software technologies in the recent decades. Another stimulus however is the transformation that the private and the professional life has undergone in many
industry nations. The organization of many enterprises has been transformed from rather static structures in former times to rather dynamic structures nowadays; the exchange of knowledge among professionals has become a far more important factor for success than elaborated management structures. In order to adequately model and evaluate cooperation systems, that support people in such a situation, it is required to embrace a interdisciplinary perspective on the issues: the technological issues concerning Web architectures and communication systems have to be considered in conjunction with questions of organization, methodologies for application development, learning theories, and social impacts.

**Intended Learning Outcomes**

After participation in the course, the students are able to analyze and discuss web collaboration scenarios and the potential for adequate system support. They

- perceive the mutual influences of the social situation, the organization, and the technology as key factors for the successful design of a collaboration system,
- know fundamental principles from the domains Computer Supported Collaborative Work (CSCW), Computer Supported Collaborative Learning (CSCL), organization theory, and social-learning theory
- are able to identify and critically discuss the potential and the risks of the introduction of collaboration systems,
- have pursued a area of interest in the domain based on the literature supplied,
- are able to identify a topic in the domain for further pursuing it in the project part of the module.

**Structure of the Course**

**Cooperation Systems in Socio-Technical Systems**

The notion of socio-technical systems is introduced and the characteristics of systems in the sense of the systems theory, the social subsystem, the technical subsystem and their interaction are discussed. The relevance of these concepts for the domain CSCW and CSCL are analyzed. The scope and relevance of social entities like groups, teams, communities, organizations are defined and discussed. The types and characteristics of human action in such entities are discussed. Study material is available in chapters I to III of the textbook by Coakes[1].

**Social Concepts for Cooperation**

Key concepts of the areas organization theory, and social-learning theory, awareness, and media richness theory are introduced and discussed. Study material can be found in chapter 3 and 4 of the textbook by Hatch et al.[2], chapters 1 and 2 of the textbook by Brookfield[3], in the seminal article by Tevino et al. [4], and the 1992 article by Dourish and Belotti[5].
Architectures

Architectures, that have been defined in recent years in the context of conferencing applications are dealt with in this part. Notions of presence, locating users, messaging, and conference management are introduced. Study material can be found in chapters 1, 2, and 5 of the textbook by Sinnreich et al. [6].

Systems and Platforms

In this part typical application classes of cooperation systems such as Communication Systems and Shared Information Spaces, Workflow Management and Coordination Systems, and Workgroup Computing Systems are introduced. Study material can be found in chapters 6 to 8 of the textbook by Borghoff et al. [7].

Future Prospects

As many people embrace social networking as a essential means for their communication and cooperation, allowing them to stay in touch and find the way through the web, this development has a growing influence on the information flow within and among enterprises. As future prospect, some aspects of this development will be discussed based on material from the collection edited by Buhse and Stamer [8].

Resources

There is a couple of conference proceedings and paper collections establishing a valuable set of resources for the field. Namely:

Journals

- Computer Supported Cooperative Work (CSCW), a bimonthly scientific journal by Springer [9]
- ACM Transactions on the Web, is a journal publishing refereed articles reporting the results of research on Web content, applications, use, and related enabling technologies. [10]

Conferences

- International Conference on Collaboration and Technology, [12]

Collections

- A collection of papers from the COOP Conference, Marseille, France 2008 [13]
- A Collection of papers Intelligent Collaborative e-Learning Systems and Applications [14]
Didactic Concept, Schedule and Assignments

The course is mainly built upon online workshops. They take place on three evenings as synchronous events with a duration of three hours each and with equal emphasis continuously as asynchronous cooperation in the form of discussions and clarifications through E-mail, discussion forums, and other tools in the learning platform.

The learning objectives emphasize the ability to competently take an active part in discourses on issues of Web Collaboration. Therefore the didactic concept emphasize interactions between the student and the lecturer as well as among the students. Of course the interactions require a solid body of knowledge which is to be established based on the referenced resources.

The learning process is organized into two parts. In the first part lasting from the first on site workshop until the middle of the second online workshop, a overview knowledge of the field is being established. In the second part, starting in the middle of the second online workshop and lasting until the concluding on site workshop, each student pursues a topic of interest in depth. The topics are being agreed between the students and the lecturer.

Preparing the Participation

In the sequel material is provided, that could be used to get into the topic before the semester starts. That also puts you into the position to handle some of the "reading workload" in more comfort than is possible during the semester.

Social Technical System

- K. O'Hara: Social Machine Politics are Here to Stay, IEEE Internet Computing, 17(2), March/April 2013. (Available at the library through IEEE XPlore, use VPN) (supplementary material)
- Günter Ropohl: Philosophy of Socio-Technical Systems; available at [Virginia Tech University Library] (supplementary material)

Cooperation Technology

• From the textbook Gary Stahl: Group Cognition: Computer Support for Building Collaborative Knowledge chapter 5 of part I: Collaboration Technology for Communities (main material)
• From the collection From CSCW to Web 2.0: European Developments in Collaborative Design Selected Papers from COOP08 chapter 9: Engineering 2.0: Exploring Lightweight Technologies for the Virtual Enterprise. The collection is available through the library (VPN access required) under [3] (supplementary material)

Design Process

• The seminal article Jonathan Grudin: Why CSCW Applications Fail (main material)
• The article by Hartswood et al. from the textbook by Ackerman et al. [15], available under Media:HartswoodCoRealization.pdf (supplementary material).

Introductory Lesson on Site[edit]

The introductory lesson is used to lay out the objectives and the approach of the course, and to introduce the first part. The topic of the first part are the notions of "sociotechnical system", "social machine", and "awareness".

1st Online Workshop[edit]

The first online workshop is used to clarify and discuss the concepts introduced before. Afterwards important concepts from the domains "learning theory", "organization theory", "cooperation technology", and design process are introduced for further study.

2nd Online Workshop[edit]

In the second online workshop the concepts studied since the first online workshop are clarified and discussed. The process of identifying areas for individual further study is being kicked off.

3rd Online Workshop[edit]

The learning process in the area of interest is being reviewed, and questions are being clarified.

Concluding Workshop on Site[edit]

Key insights and questions are shared in the group.
Examination

The participants are asked to continuously feed a workbook, documenting their learning process and their contributions. Contributions are

- questions, assumptions and hypotheses formulated during the course,
- own studies on specialization of the topic,
- contributions to discussions in forums and in the plenum, and
- contributions to assignments.

Quality criteria for workbooks can be found here.

References


↑ Sinnreich, Henry; Johnston, Alan; Sparks, Robert (2005). SIP Beyond VoIP: The Next Step in the IP Communications Revolution. VON Publishing LLC.


↑ Randall, David; Salembier, Pascal (2000). [http://www.springerlink.com/content/q36h0u/#section=680060&page=1 From CSCW to Web 2.0: European Developments in Collaborative Design]
Selected Papers from COOP08. Springer. [http://www.springerlink.com/content/q36h0u/#section=680060&page=1].


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