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# Context-Adaptive Interaction for Collaborative Work

**Jürgen Ziegler**

University of Duisburg-Essen  
Interactive Systems  
Forsthausweg 2  
47057 Duisburg, Germany  
Juergen.ziegler@uni-due.de

**Jörg M. Haake**

FernUniversität in Hagen  
Cooperative Systems  
Universitätsstr. 1  
58084 Hagen, Germany  
joerg.haake@fernuni-hagen.de

**Stephan Lukosch**

Delft University of Technology  
Faculty of Technology, Policy and  
Management  
PO box 5015  
2600 GA Delft, The Netherlands  
s.g.lukosch@tudelft.nl

**Volkmar Pipek**

University of Siegen  
FB 5  
Hölderlinstr. 3  
57068 Siegen, Germany  
volkmar.pipek@uni-siegen.de

**Abstract**

Context plays an increasingly important role to adapt systems to users' needs and to make access to large information spaces more efficient. Yet, in the area of collaborative work the potential of context-based adaptation of IT systems has so far not been investigated and exploited. There is a lack of methods that take into account the manifold aspects of context such as physical, activity-based, thematic or social context in an integrated fashion. This workshop will discuss models, methods and system design approaches for context-adaptive collaboration support and will outline research directions leading towards comprehensive understanding of context.

**Keywords**

Context-based adaptation, context modeling, cooperation support, collaborative work

**ACM Classification Keywords**

H5.2. Information interfaces and presentation (e.g., HCI): User Interfaces, H5.3. Information interfaces and presentation (e.g., HCI): Group and Collaboration Interfaces

**General Terms**

Design, Human Factors

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### Introduction

This workshop addresses facilitation of collaborative work by context-adaptive techniques. Context-based adaptation can support users in a variety of ways, e.g., by offering the tools most appropriate for a certain type of collaboration, by providing templates for artifacts to be produced, or by filtering content relevant for a joint activity. While adaptive (single) user interfaces have been an area of research for considerable time (see, e.g. [1]) adaptation for collaboration is far less investigated.

The notion of context in collaborative work raises a variety of interesting research issues [2]. So far, attempts to structure and classify the multi-faceted concept of context [3, 4] have been mainly directed at individual, rather than cooperative usage scenarios. The importance of common ground, e.g., for electronically mediated communication has been pointed out repeatedly [e.g. 5], but theoretical concepts have hardly been translated into explicit models or concrete adaptation mechanisms. We also see a major challenge in integrating 'exogenous' physical context such as location, time or device used with 'endogenous' context factors such as the users' roles, topical interests, experience profiles or used collaboration tools. For this purpose, integrated, coherent representations of these context aspects will be needed, making them explicit and exploitable by adaptation mechanisms. Ontology-based context models promise to provide coherent representations but are still in their initial stages [6]. Other important issues are how to combine individual contexts into shared collaborative contexts, and how to combine folksonomy-based bottom-up approaches with the benefits of standardization that ontologies traditionally

provide. Finally, it is largely unresolved how to define effective and acceptable adaptations for groups. While there has been a considerable amount of research into supporting co-located or remote meetings, more general issues of supporting collaboration by adaptations are still open.

### Goals of the Workshop

The workshop aims at identifying and structuring context factors for collaborative work, trying to elaborate a generalized notion of context including physical and tool-related aspects, common ground related to content and process of the collaboration, and other factors. We will also discuss strategies and methods for making these context aspects explicit by representing them through suitable models, e.g., by ontological models of cooperative context. These models will serve as input for discussions on how to manage and use such context in real-world scenarios. These activities will serve laying the groundwork for an initiative to build a shared context ontology for this area.

Workshop participants will also present and discuss different adaptation techniques for systems supporting collaboration with the aim of developing a framework for adaptive system behavior. An overall goal of the workshop will be to identify and articulate issues for future research.

An initial lists of research issues discussed at the workshop comprises the following questions:

- How can the multi-faceted concept of context be structured and classified for cooperative situations?

- What are methods for integrating 'endogenous' physical context with 'endogenous' context factors such as the users' roles, activities, topical interests or experience profiles?
- How to combine individual contexts into group contexts?
- What are suitable models and techniques for representing context for the purpose of adapting cooperation support systems? Is there a perspective for a shared context ontology for cooperative work?
- What are effective and acceptable adaptations at the interaction, tool or content level we can implement in systems used for collaboration?

### **Format and Organization**

#### *Soliciting and Selecting Contributions*

We will solicit contributions from the HCI and CSCW communities as well as from researchers in the area of ubiquitous and context-aware systems, using all usual channels including announcements in mailing lists, conferences and personal contacts.

Prospective participants should submit a 2-page position paper describing their interests and previous work in the topic of the workshop and first comments concerning a list of research issues we will compile and publish on the workshop website prior to the deadline. We will select participants on the basis of the abstract's quality and their response to the list of issues; the diversity of their backgrounds, aiming at an interdisciplinary group. To enable a focussed and

productive discussion, we limit the number of participants to 15.

#### *Pre-workshop activities*

Based on work in [7], list of issues will be developed and distributed through the workshop website. We will ask participants to elaborate their position on these research issues and to propose additional themes before attending the workshop. An initial discussion of the workshop topics will be carried out by a discussion forum before the workshop. The selected presenters will be asked to provide an extended 5-page position paper one month before the workshop. These position papers will be circulated in advance for participants to get an understanding of the mutual views and to provide a starting point for the discussion.

#### *Structure of the workshop*

This one-day workshop is organized to enable creative and productive interaction among participants and to produce outcomes that are valuable for the future work of the participating researchers. Following an initial presentation and brief discussion of each participant's contribution and position, the organizers present an initial framework based on pre-workshop materials and discussions for allocating and structuring the different research issues raised by the participants. Based on the interests expressed by the participants, three breakout groups discuss selected research topics with the aim of producing proposals for structuring the area in more detail, of judging the effectiveness of different methods including interdisciplinary approaches, and of laying out road maps for future research in the selected areas.

The results produced in the breakout groups are reported back to all participants and discussed in

plenary. Finally, the group discusses and decides on follow-up activities, in particular for publishing the results of the workshop and possibly extending them in post-workshop communication.

#### *Plan for dissemination*

Firstly, the results will be made available as an interactive poster during the CHI conference. Secondly, we will write up the results of the workshop in a SIGCHI Bulletin paper. Depending on the quality of the submissions and the workshop results we will consider an edited publication on the workshop topic. We will also make the workshop results available on the Workshop Website.

#### **References**

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