Designing for Attention(2)

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ABSTRACT

As computer system become more complex and computer based activities proliferate people find themselves alone at the computer carrying out a range of what were originally social activities, for example shopping, learning and collaborating. Group dynamics focus attention, and without them attention can be lost.

A significant challenge of human computer interaction research is the design of systems capable of reasoning about users' attention and consequently deciding how to gain and guide user's attention. Attention awareness has the special target of minimizing cognitive load by addressing issues such as: interruption management / notification optimization, individual versus group interaction, and just-in-time information selection. Whilst "disappearing", i.e. minimizing cognitive load, has been a main objective of interface design, we feel that true adaptation to human cognitive abilities requires a better understanding of the reactive, deliberative, social, and aesthetic processes controlling attention allocation and of how they can be supported by technologies. Improving such understanding is the primary objective of this workshop.

Categories and Subject Descriptors

H 1.2 [Information Processing]: User/Machine Systems - *human factors, human information processing* -

General Terms

Performance, Design, Human Factors, Theory

Keywords

Managing attention, modelling attentional states, scenarios, emotion, interruption.

1. INTRODUCTION

The workshop is intended to bring together a multidisciplinary group of researchers and commercial providers who are interested in the many different ways in which users attention can be enhanced at the interface. We take a wide view of attention, including perception and other emotions which

increase the user's involvement in their interaction or task.

The main focus of the workshop will be attentional functionality embedded in scenarios

2. TOPICS OF INTEREST

Topics of interest include:

- Models of human attention and their application to the design of computing environments;
- User modelling for attention support in computing environments;
- Interruption management;
- How to enhance user involvement;
- Management of attention in collaboration (individual versus group cognitive load optimization);
- Devices coordination aimed at attention management;
- Information tagging for attention management;
- Information visualization for attention management;
- Evaluation strategies and methodologies for attention aware systems;
- Experimental measurements of system-induced cognitive load in computing environments;
- Special devices for tracking attention in computing environments.

3. WORKSHOP HISTORY

This workshop follows the successful 'Designing for Attention' workshop run by one of the authors at HCI 2004 [4] which lead to a special issue 'Attention aware system's of the journal *Computers in Human Behavior* [5]. Since then research in attention has moved forward considerably and the time is right to hold a second workshop to bring together current ideas on attention management, attentional interventions and modelling attentional states, using scenarios as a framework within which to describe attention related topics.

4. PROCEDURE

4.1 Using Scenarios

Scenarios are stories which "present possible ways to use a system to accomplish some desired function." [9]. Thinking about and modelling attention is a complex process and for this reason we propose to use scenarios as a means of describing instances of attentional support. This method has been used successfully by the workshop organizers in the EU STREP Project Atgentive [1] to develop a conceptual framework for attentional support in two differing applications [3].

Scenarios provide a useful framework within which to discuss the parameters of attentional support and ultimately provide a specification for software development [2]

4.2 Pre workshop activity

The Call for Papers will be submitted to relevant mailing lists and a micro-site will be developed to support the workshop.

Those interested in participating will be asked to submit a position paper and three short scenarios illustrating practical applications of the issues addressed in the position paper. These will undergo a blind review process.

At most 10 papers with scenarios will be selected for oral presentation in the morning of the workshop. Additionally 10 papers with scenarios might be selected for inclusion in the workshop proceedings (however only the scenarios will be presented and discussed at the workshop, see section "Workshop Format" below).

To facilitate interaction, in advance of the workshop the organizers will analyze the selected scenarios, group them and identify particular attentional issues that arise. They will then develop discussion topics around these issues and collate them into a presentation which will be used to generate discussion. In this way the interests of participants are supported and a structure for discussion is identified to facilitate breakout group discussion during the afternoon of the workshop. The scenarios themselves will also provide a rich framework within which to discuss attention management in computing environments.

4.3 Workshop agenda

The programme for the day will be as follows:

Introduction to submitted scenarios – the organizers will make a presentation on the grouped scenarios and attentional issues that have arisen, together with the framework within which the discussions that follow will take place.

Presentation of selected papers and scenarios – participants will make short (15 mins) presentation of their papers and scenarios.

Group discussion of papers and scenarios – we will break into groups in the afternoon. Each group will be given a discussion topic and asked to further discuss the issues involved.

Report back – Each group will then report back, presenting a summary of its discussion.

Social activity – the group will go out for a social activity in the evening as a step towards building a collaborative community.

5. PARTICIPANTS

The workshop will be of interest to:

- Researchers interested in the support of attentional processes from a wide variety of perspectives including, but not limited to, cognitive psychology, neuroscience, pedagogy, organizational behavior, and human computer interaction.
- System designers including intelligent environments, mobile technologies, location-aware application, in-car guidance, in-flight systems, health monitoring, and entertainment.

- Representative of end-users groups for the above applications

6. THE ORGANISERS

Mary Zajicek is Reader in Computer Science at Oxford Brookes University and leader of the Advanced Interfaces Group, which is engaged in the design and evaluation of a range of non-standard computer interfaces. She currently leads the evaluation component of the EU IST F6 STREP project Atgentive [1] a two-year project, investigating the design of artificial agents to support the management of attention with young and adult learners, and has recently investigated attention and users perception of interruptions [8]

Claudia Roda is a Professor in Computer Science at the American University of Paris. Her current research focuses on models for attention computing. She organized, with Julie Thomas, the first workshop on "Designing for attention" [3]. Claudia was the guest editor for a special issue on "Attention Aware Systems" of the journal *Computers in Human Behavior*. She currently leads the conceptual modelling component of Atgentive [5],[6],[7]

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