Paul De Bra
Wolfgang Nejdl (Eds.)

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Adaptive Hypermedia and Adaptive Web-Based Systems

Third International Conference, AH 2004
Eindhoven, The Netherlands, August 2004
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Preface

On behalf of the AH 2004 Program Committee, we were pleased to welcome attendees to Eindhoven for the 3rd International Conference on Adaptive Hypermedia and Adaptive Web-Based Systems.

Similar to previous years, the number of research groups involved in research and innovative applications of personalization and adaptation functionalities has continued to grow, resulting in a further increase of 33% in the number of papers submitted to the conference, compared to the previous conference. From the 138 submissions we received, the program committee, in a rigorous review process, accepted 27 submissions (i.e., 20%) as full papers and 18 (i.e., 13%) as short papers. The large number of papers submitted generated a tremendous amount of work for the program committee members and the external reviewers, and we are immensely greatful for the effort they put into the process of selecting the very best papers.

Together with three invited talks (by Emile Aarts, Philips Research, Candy Sidner, Mitsubishi Research, and Eric Horvitz, Microsoft Research), the AH 2004 papers provide an excellent view on the successful approaches for innovative personalization and adaptation functionalities in a variety of areas, including eLearning, eCommerce, mobile tourist guides and many more. They also show the integration of personalization functionalities being employed in Web environments, in ambient intelligence and intelligent agent contexts, and building upon adaptive hypermedia and Semantic Web technologies, Web search, Web services, social and peer-to-peer networks, and recommender systems, among others.

In addition, we were able to include four doctoral consortium papers in the proceedings, accompanying two doctoral consortium sessions at the conference, where young Ph.D. students presented promising initial work and got additional feedback on their presentations and ideas for their future research careers. Seventeen additional projects were presented during the AH 2004 poster reception, providing insights into new projects, many of which we expect to yield interesting results in several new innovative application areas in the future.

Many people contributed to the success of the program. First and foremost, we would like to thank all the authors for providing such an excellent set of papers for AH 2004, and the AH 2004 program committee members and external reviewers for their dedication in the review process. The three main professional organizations most related to the field of adaptive hypermedia all endorsed the AH 2004 conference: the International World-Wide Web Conference Committee (IW3C2), the Association for Computing Machinery (ACM), and in particular SIGART, SIGCHI, SIGecom, SIGIR and SIGWEB, and User Modeling, Inc. AH 2004 was actively sponsored by the Eindhoven University of Technology, the School for Information and Knowledge Systems, and the PROLEARN Network of Excellence in Professional Learning.

Last, but not least, the AH 2004 conference was run by a team of enthusiastic organizers, from the Eindhoven University of Technology and the University of Hannover. We wish to mention Ad Aerts, Lora Aroyo, Alexandra Cristea, Nicola Henze, Geert-Jan

Houben, Pim Lemmens and Reinier Post who dealt with submissions, workshops, tutorials, the industrial track, proceedings, registrations, the website and all local arrangements. A special word of thanks goes to Riet van Buul who did all the local coordination and administration.

August 2004

Wolfgang Nejdl
Paul De Bra

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Ambient Intelligence

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Abstract. In the near future our homes will have a distributed network of intelligent devices that provides us with information, communication, and entertainment. Furthermore, these systems will adapt themselves to the user and even anticipate on user needs. These consumer systems will differ substantially from contemporary equipment through their appearance in peoples' environments, and through the way users interact with them. Ambient Intelligence is the term that is used to denote this new paradigm for in-home computing and entertainment. Salient features of this new concept are ubiquitous computing, and natural interaction. Recent developments in technology, the Internet, the consumer electronics market, and social developments indicate that this dream might become reality soon. First prototypes of ambient intelligent home systems have been developed, but the realization of true ambient intelligence calls for much additional research of multidisciplinary teams consisting of technologists, designers, and human behavior scientists.
The presentation will elaborate on some of these aspects and show where we are in the development of ambient intelligence.

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Collaborative Agents for 2D Interfaces and 3D Robots

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Abstract. In this talk I will discuss our several years experience in systems for collaborative interface agents. I will discuss the tool called COLLAGEN(tm) for COLLaborative AGENts. COLLAGEN(tm) is a Java middleware system, that makes it possible to build an agent with a rich model of conversation and collaboration for a set of tasks with a user for an application, provided by the developer using Collagen. I will demo two of the many systems built in our lab and elsewhere, which rely on COLLAGEN(tm): one with speech for a desktop application, and one for a 3D robot (via videclips). I will discuss the way Collagen was developed from theories of conversation and collaboration, how plan recognition plays a role in COLLAGEN(tm), and I will point out new directions of our work, especially given the nonverbal gestural abilities of our humanoid robot.

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A Curse of Riches or a Blessing? Information Access and Awareness Under Scarce Cognitive Resources

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Abstract. The informational landscape of the world has been changing quickly. The fast-paced drop in the cost of storage and bandwidth over the last decade, coupled with the rapid expansion in the number of content sources, has made unprecedented quantities of information available to people. Beyond external sources of content, typical personal stores now rival the size of the entire Web just a short time ago. But we face a challenging bottleneck: In stark contrast to the explosive growth in public and private content, stands our limited time- and unchanging abilities. For increasing numbers of people in the world, the primary informational bottleneck is our scarce attentional and memory resources. I will present research on addressing such informational bottlenecks with tools for searching, browsing, remembering, and staying aware. I will review challenges and opportunities of employing automated learning and reasoning methods, including efforts to construct and leverage models of attention and memory. Finally, I will touch on the promise of developing new designs for interaction and display informed by psychological findings on visual attention and spatial memory.

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Supporting Metadata Creation with an Ontology Built from an Extensible Dictionary

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Abstract. This paper describes Metasaur, which supports creation of metadata about the content of learning objects. The core of Metasaur is a visualisation for an ontology of the domain. We describe how we build lightweight ontologies for Metasaur automatically from existing dictionaries and how a user can enhance the ontology with additional terms. We report our use of Metasaur to mark up a set of audio lecture learning objects for use in a course.

1 Introduction

Metadata tagging is a problem, especially in systems with many existing documents and a large metadata term vocabulary [1]. This task is challenging and non-trivial because it is hard to be thorough and consistent, and the task is both demanding and boring. The task becomes even harder when the documents might be multimedia objects such as an audio clip.

A reflection of the importance and difficulty of metadata markup is the growing number of tools which are exploring ways to support the task. For example, one such tool, Annotea [2] builds on Resource Description Format (RDF) technologies, providing a framework to allow users to add and retreive a set of annotations for a web object from an "annotation server".

Since it is such a tedious task to add the metadata by hand, there is considerable appeal in finding ways to automate part of the process. Even in this case, there is likely to be a need for human checking and enhancing of the metadata. We need interfaces that can support both the checking of metadata, which was created automatically, as well as hand-crafting of metadata. We call this the *metadata-interface problem.*

We believe that ontologies will provide an important tool in allowing people to create metadata by providing a common vocabulary of terms and relationships for a domain. It makes sense to exploit the technologies and standards developed as part of the Semantic Web initiative [3] for this task, for example using the Ontology Web Language (OWL) [4]. Ontologies can provide a common vocabulary to describe a particular domain.

However, there are also problems in exploiting ontologies. One is that ontologies are often time consuming to construct [5]. It is, therefore, appealing to find ways to

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