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J.UCS Special Issue

Hypermedia – State of the Art 2002

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The objective of this special issue is to give an overview of the state of the art in hypermedia in the year 2002. A variety of papers was carefully chosen to reflect the main stream of research in this field. All papers were presented at the pre-conference workshop of the Know-Center's annual knowledge management conference I-KNOW. With the after-workshop publication, the authors had the possibility to improve their contributions through the integration of the results of the fruitful discussions which took place during the workshop.

Compared to the eighties and early nineties when hypermedia was still treated as "stand-alone" field of research, the World Wide Web plays today an important and always visible role in hypermedia research – this is maybe one of the most important even though not surprising results of the workshop. The nine contributions published in this special issue reflect pretty well what is going on in hypermedia research in 2002. The contributions fall into two categories. The first category addresses research at a conceptual and methodological level while more application-oriented contributions fall in the second category.

David Hicks et al. address the new area of structural computing which is one of the latest research trends to emerge in the field of hypermedia. Many of the ideas that lead to the formulation of the structural computing field originated in the open hypermedia systems area of research. The paper shows how open hypermedia and structural computing are related to one another.

Design-for-all is the context in which Volker Mattick addresses hypermedia. His idea is to develop hypermedia concepts which are related to the barrier-free Internet. The development of such concepts is of particular value for system and application developers.

A traditional approach to formalize model hypermedia concepts is taken by Alexander Fronk. He uses algebraic specifications to model hypermedia structures such as links, nodes etc. His work, however, is different from previous approaches in that field as he places a strong emphasis on object-oriented models for hypermedia structures.

In their system TrailTRECer, Erich Gams et al. apply open hypermedia concepts to trails. Their idea is to prevent users from information overload by providing users with trails. Trails are made up of information about a user's browsing paths and activities. This information assists users when navigating through vast hypermedia spaces.

In the light of linguistic theory Alexander Mehler introduces systemic functional hypertexts to establish a stratified context layer as the proper source for text linkage. His idea is to overcome the theoretical poverty of many approaches to link generation.

Jörg Westbomke and Gisbert Dittrich's paper is the interface between the conceptual contributions and the more application-oriented contributions of this special issue. They describe hypermedia concepts using XML, a mark-up language which is already widely used for hypermedia applications.

Gisbert Dittrich shows by example how hypermedia can support teachers in teaching complex algorithms. He uses commercial hypermedia tools to model the mathematical function "factorial".

The contribution of Jutta Becker et al. focuses on the application of XML and MPEG-7 for interactive annotation and semantic retrieval of multimedia data. Their paper is based on the observation of an increasing availability of multimedia data on the Web for which only little retrieval support is provided.

Finally, Helmut Mülner presents how existing hypermedia concepts are integrated in a commercial multimedia encyclopedia.

I hope that the variety of contributions ranging from very conceptual papers to linguistic perspectives to application-oriented and finally to even commercial products provides the reader with a comprehensive overview of the many different facets of hypermedia in 2002.

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