

User Modeling: The Quest for Personalisation and Attention Support

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Abstract

This paper aims to elaborate on the role of user modelling for personalization and enhanced attention support. User modelling is an important element in the management of personal profiles and identity of users, but also a key element for providing personalised interaction. In general, the goal of personalisation is to improve the efficiency of the interaction with users, to simplify the interaction, and to make complex systems more usable (Fischer, 2001). Personalisation, and more recently contextualisation and attention management (Roda & Nabeth, 2008) are key issues for achieving intelligent features in advanced interactive applications. Personalisation can be defined as the process that enables interface customisation, adaptations of the functionality, structure, content and modality in order to increase its relevance for its individual users (Razmerita, 2005).

A distinction can be made between the utility function that personalisation could bring to the users of a system and a conviviality function with “high-touch” impact for the users. From the utility perspective, personalisation is important as significant differences between users can be observed. Actual applications include certain customisation features based on the user’s preferences. An important form of personalisation is interface customization, usually initiated by the user. Personalisation techniques make it possible to change the structure and content delivered to the users in order to match the needs and preferences of users based on a user model which is stored and updated dynamically. A first step in achieving personalised interaction is the creation of the user model. User models or user profiles can be created either (1) by people explicitly specifying it (setting their preferences); (2) by automatic extraction (profiling) or (3) through a combination of the two methods. However, the user modeling processes are a complex task, and the whole process of collecting personal data is subject to legal regulations in many countries and states. Both user concerns about the use of personal data and privacy regulations frequently impact on what personalisation methods can be used (Kobsa, 2007). The paper surveys personalisation techniques and provides concrete examples of personalised interaction. One can distinguish two main types of personalisation techniques, based on software agent intervention or based on adaptation technologies. In particular, the paper focuses on the role of user modeling for enhanced, personalised user support within interactive applications. The key contribution of the paper is to propose a taxonomy of personalisation techniques and to identify new forms of personalisation.

- Fischer, G. (2001). User Modeling in Human-Computer Interaction. *User Modeling and User Adaptive Interaction*, Kluwer Academic Publishers, 69-85.
- Kobsa, A. (2007). Privacy-Enhanced Web Personalization. In P. Brusilovsky, A. Kobsa & W. Nejdl (Eds.), *The Adaptive Web- Methods and Strategies of Web Personalisation* (Vol. 4321, pp. 628-670): Springer.
- Razmerita, L. (2005). User Modeling and Personalization of Knowledge Management Systems. In S. Y. Chen & G. D. Magoulas (Eds.), *Adaptable and Adaptive Hypermedia* (pp. 225-245): Idea Group Publishing.
- Roda, C., & Nabeth, T. (2008). Attention management in organizations: Four levels of support in information systems. In A. Bonfour (Ed.), *Organisational Capital Modelling, measuring and contextualising* (pp. 214-233): Routledge.