Chapter 2: Reasoning for Personalization and Recommendation

The huge amount of information, in combination with the dynamic and heterogeneous nature of the Web, makes information retrieval a hard task for the average user. This situation is known as the “information overload problem”. Informed decisions based on automatic reasoning processes and adapted to the user characteristics is the answer to this problem. Recommender systems proved to be an efficient way of combining reasoning and personalization by providing proactive and personalized suggestions. In such a system online users receive recommendations from other users with similar information needs and preferences. Getting the best of a recommender system requires a careful design of its technical characteristics (similarity estimation, reasoning, timely suggestions) along with implications of the actual work, Vafopoulos et al. provide an interesting article on this aspect. Extending and adapting the capabilities of recommender systems to digital TV systems is another area of interest which tries to minimize the digital divide. The TV, digital or not, is a more familiar medium to the older population rather than the Internet. Blanco-Fernández et al. explore new ways of developing e-commerce services through digital TV. Modern e-commerce websites are multilingual environments which are further enriched by the comments of users. Saloun et al. investigate ways of enhancing multilingual websites with automated navigation services, while at the end Paralic et al. present and compare experiences with two different approaches to the utilization semantic technologies for the personalized access to web services.

Article 2.1

Title: Recommendation Systems: Bridging Technical Aspects with Marketing Implications

Authors: Michalis Vafopoulos and Michalis Oikonomou

As the Web matures and becomes social and participatory, collaborative filters are the basic complement in searching online information about people, events and products. In Web 2.0, what connected consumers create is not simply content (e.g. reviews) but context. This new contextual framework of consumption emerges through the aggregation and collaborative filtering of personal preferences about goods in the Web in massive scale. More importantly, facilitates connected
consumers to search and navigate the complex Web more effectively and amplifies incentives for quality. In this article a joint review of the basic stylized facts of relevant research in recommendation systems in computer and marketing studies is presented in order to share some common insights. The focus of analysis is on the fields of one-to-one marketing, network-based marketing Web merchandising and atmospherics and their implications in the processes of personalization and adaptation in the Web while Market Basket Analysis is investigated in context of recommendation systems.

**Article 2.2**

**Title:** Exploring New Ways for Personalized E-Commerce through Digital TV  
**Authors:** Yolanda Blanco-Fernández, Martín López-Nores, José J. Pazos-Arias, and Manuela I. Martín-Vicente

The advent of new devices (e.g., Digital TV receivers, mobile phones or media players) and usage habits (e.g., social networking) is progressively rendering the classical search engines of the Internet insufficient to support users in their grasp of an ever-expanding information space. This fact has brought about a new paradigm of recommender systems, which aim at proactively discovering the items that best match the preferences, interests and needs of each individual at any time. In settings where the user is not focused on the kind of items that may be recommended to him/her (e.g. in delivering publicity while he watches TV programs), one could expect the recommender to select the best offers from among various providers, to look for the pieces of information that describe each item in the most complete or accessible way, to arrange the most suitable interfaces to place an order, etc. In other words, with the user around the marketplace, the recommender should be responsible for building the shop in which the user will feel most comfortable to browse the suggested items. Obviously, this is not a task for human developers, because no workforce would suffice to provide specific applications for all the different users, items and devices in all possible contexts.

**Article 2.3**

**Title:** Towards Automated Navigation over Multilingual Content  
**Authors:** Petr Saloun, Zdenek Velart, and Jan Nekula

Web-based multilingual, adaptive and personalized systems are becoming standards on the web. This article describes the main features of such systems emphasizing to the domain of education where multilingual content is a key characteristic. As a case-study, XAPOS, a web-based adaptive personalized system is described in more detail. XAPOS's design is independent of the language of closed content and is used in a multilingual environment while XAPOS's language-independent navigation feature is based on the domain ontology and principles of semantic web.
Article 2.4
Title: Personalized and Adaptive Access to Services – The Semantic Web Services Approach
Authors: Marek Paralič, Peter Bednár, and Ján Paralič

Semantic web services are main concern of this article. The authors present and compare experiences with two different approaches to the utilization semantic technologies for the personalized access to services, where services are considered both web services accessible online and traditional services provided by business or government organizations. Based on state of the art of frameworks and ontologies for semantic description of web services they describe two different ways of achieving personalization for services. The authors follow their experiences from two projects, where applications in different areas, such as e-government, e-business and crisis management have been implemented.