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**SPECIAL ISSUE  
ON  
*Web-based Recommender System***

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**Przemyslaw Kazienko, Ngoc Thanh Nguyen, and Janusz Sobecki**

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## Editorial

Web-based recommender systems have become a very popular tool that enables to deliver personalized information for every Internet user. However, most of the recommender systems focus on support user decision making at selection of various products or services in e-commerce. There are also some other systems that recommend a user the most suitable interface layout, relevant content or following steps in navigation. Recently, we can observe that "Recommender Systems" have formed the separate interdisciplinary research domain that overlaps with many others like Artificial Intelligence, Information Retrieval, Human Computer Interaction as well as Natural Language Processing, Psychology or Sociology. Hence, much research has been carried out on recommender systems that adopt and develop different recommendation algorithms and systems as well as result in numerous practical applications.

We can distinguish three basic approaches to recommendation: content-based, collaborative and demographic. Nevertheless, the other ones are also extensively developed, such as: knowledge-based, utility-based as well as the recently most popular hybrid ones that combine several basic approaches.

In this special issue, we can find description of five web-based recommender systems. They present not only different application areas but also diverse, mainly hybrid, recommendation methods.

The first paper by Bert van den Berg, Colin Tattersall, José Janssen, Francis Brouns, Hub Kurvers, Rob Koper entitled "Swarm-based Sequencing Recommendations in E-learning" presented an implementation of Open and distance Learning (ODL) environment enriched with recommendation of the sequencing of e-learning modules for distance learners based on self-organization theory. Architecture, which supports the recording, processing and presentation of collective learner behavior designed to create a feedback loop, was described. In consequence, the system informed learners of successful paths towards the attainment of learning goals. Some large-scale experiments were performed to validate the proposed method.

The next paper "Personalized Integration of Recommendation Methods for E-commerce" by Przemyslaw Kazienko and Pawel Kolodziejcki was addressed to the problem of personalized adaptation in the integration of diverse recommendation methods. The presented hybrid recommender framework was able to tailor the importance of each method according to the

user preferences by means of the appropriate monitoring of user selections as well as the assignment of separate weights for each method individually for the user. The carried out experiments, in which five recommendation methods were used, revealed the advantage of association rules as the method of recommendation compared to all other methods.

The third paper by Manolis G. Vozalis and Konstantinos G. Margaritis entitled "Applying SVD on Generalized Item-based Filtering" presented another implementation of hybrid recommendation approach that combined a matrix factorization technique called Singular Value Decomposition (SVD) applied to reduce the dimension of the active item's neighborhood (the first algorithm) and to item-based filtering (the second algorithm) along with demographic information in item-based collaborative filtering. Not only precise description of the proposed algorithms but also step-by-step descriptions of the series of experiments that exhibit reduction of the item neighborhood, were presented in the paper.

The fourth paper by Janusz Sobecki entitled "Implementations of Web-based Recommender Systems using Hybrid Methods" focused on another approach to hybrid recommender systems that made use of consensus methods to support users at their selection of interface layout. Six selected implementations of hybrid web-based recommender systems applied to distinct areas together with some experimental results investigating their usability were presented in the paper as well.

The practical implementation of the recommender system in the specific web-based real estate cadastre system was considered in the last paper "The Recommendation Mechanism in an Internet Information System with Time Impact Coefficient" by Dariusz Król, Michal Szymanski, and Bogdan Trawinski. The authors included time factor to the personal recommendation of web pages that contained daily-predefined queries characteristic for this particular system. This enabled the recent activities of the individual user to have more influence on the final query ranking in opposite to the older user selections.

#### **Special Issue Guest Editors**

Przemyslaw Kazienko

Ngoc Thanh Nguyen

Janusz Sobecki

Wroclaw, August 2006