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## GUEST EDITORIAL PREFACE

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Great technological and research developments regarding multimedia content customization and adaptation, knowledge acquisition and management, as well as semantic-driven, intelligent, multimedia content search and retrieval have been recently made. The need for efficient, user-centered services and media management is more than evident in many applications such as entertainment, security, education, cultural or even technical documentation. The growing number of rich web applications provide users with the ability of creating and sharing more and more multimedia content. Intelligent processing and management of this huge amount of content together with the introduction of personalization aspects in these multimedia services is considered to be of great importance towards the goal of efficient content organization and retrieval. It is the goal of this special issue to collect and report on recent high-quality research that addresses the problem of managing and adapting multimedia content according to its underlying semantics.

Research in this area is multidisciplinary and combines the fields of multimedia processing and artificial intelligence, especially knowledge representation, semantics and reasoning, and knowledge engineering for content adaptation. The very limited understanding of the semantics of multimedia content and, hence, the limited ways in which such content can be personalized and adapted to end-users, constitutes the need for the development of efficient

adaptation methods and techniques. This special issue addresses those members of the community interested in extending their content analysis, indexing, retrieval, and delivery methods by leveraging adaptation and personalization technologies. The benefit is to explore how these technologies can be used to efficiently increase the level of semantics extraction from the content, e.g. by using social networks, folksonomies, ontologies and context to assist adaptation, namely personalization.

Acknowledging the significant role of semantics in the multimedia analysis and personalization value chain, the editors of this special issue, representing four academic institutions from three different countries, namely National Technical University of Athens (Greece), Slovak University of Technology (Slovakia), Centre for Research and Technology Hellas (Greece) and EURECOM (France), decided to bring together a selection of top-quality contributions in the field. Thus, this special issue explores emerging advances in the area set by the Semantic Media Adaptation and Personalization (SMAP) initiative started back in 2006 and which results in the establishment of the SMAP international workshop series and the foundation of a new and dedicated community of researchers and practitioners ever since.

This special issue consists of three selected papers from height submissions. All papers underwent a thorough reviewing process composed of two successive reviewing rounds and extensive

discussion among the editors. The selection process was particularly difficult because a number of high-class contributions were up for consideration for the special issue and guest editors had to spent significant effort to select papers of maximum quality. All accepted papers cover a wide range of techniques for semantic media adaptation and personalization and promote understanding of the wider problems and issues which are pursued by researchers working in the area.

Vassileios Tsetsos, Antonis Papadimitriou, Christos Anagnostopoulos and Stathes Hadjiefthymiades of the University of Athens, Greece discuss a novel approach with respect to interactive TV services in *Integrating Interactive TV Services and the Web through Semantics*. The key characteristic of their approach is the formal modeling of multimedia and user semantics that enables novel TV services. They go beyond the current state-of-the-art in the sense that they exploit typical Web elements and characteristics and apply them successfully to the TV domain. In that manner, they manage to differentiate from typical Electronic Program Guide approaches and advanced program recommendation, offering at the same time a personalized and proactive content delivery to the end users. In this paper, they adapt their research work to the framework of a specific implementation platform called POLYSEMA, by employing Semantic Web methodologies, such as utilization of custom-made ontologies and rules, while remaining compatible with standards.

In *Enhancing Folksonomy-based Content Retrieval with Semantic Web Technology*, Rachanee Ungrangsi and Chutiporn Anutariya of the Shinawatra University, Thailand and Vilas Wuwongse of the Asian Institute of Technology, Thailand focus on the enhancement of still im-

ages content retrieval from the application side. In this context, they have developed and present SemFlickr, an application which provides an additional semantic query suggestion feature to Flickr™, thus boosting the search capabilities of photos. In order to achieve this, they employ SQORE, an ontology retrieval system that allows retrieving relevant ontologies from the Semantic Web and then derives term suggestions from those ontologies. Relations among user queries and folksonomy tags are also taken into consideration to ensure that highly-related photos will appear at the top of the retrieved results. The outcome of this work is promising and reveals a number of useful insights for developing applications that integrate both the Semantic Web and Web 2.0 together.

Finally, Annett Mitschick, Stefan Pietschmann and Klaus Meißner of the Dresden University of Technology deploy a more context-oriented approach in *An Ontology-Based, Cross-Application Context Modeling and Management Service* to address the shortcomings of applications within heterogeneous and networked environments. They present an ontology-based, cross-application context modeling and management service, called CROCO that allows for cross-application context gathering, modeling, and provision. The key novel characteristic that differentiates this approach with respect to numerous approaches dealing with application-independent context management is the fact that none of them sufficiently supports the vision of cross-application context handling. Practicability of the proposed approach has been validated by using it successfully within three “orthogonal” application scenarios, namely personal multimedia document management, adaptive co-browsing and the context-aware composition of user interface mashups.

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