

GUEST EDITORIAL PREFACE

Special Issue on Semantic Social Media Dynamics

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As social media keep extending over the Web as we know it, new innovative dynamics are constantly formed in the sense of media content acquiring and sharing trends. Research in this area advances current state-of-the-art and among its more important aspects lies the combination of semantics and knowledge engineering fields within social media platforms, mainly because of the overwhelming amount of disseminated information and different contextualization types currently available throughout them over the Internet, as the latter became an integral part of human life.

Within this context, the role of “social media” has been growing over the last few years, providing users the ability to create and share their own multimedia content through a variety of networked platforms, such as micro-blogs (e.g., Twitter), blogs, collaborative wikis, multimedia sharing sites (e.g., Youtube), social networking sites (e.g., Facebook), etc. As a result

new challenges have been emerged with respect to the social context and semantics surrounding the production, consumption, and sharing of user-generated multimedia content, taking also into account the unique characteristics of the latter within this framework of rather subjective (i.e., personal), interactive, less formal and unmediated, communication formats.

Above observations form the main core of the requirements and aspects of research related to both semantics and social media addressed by the papers published in this Special Issue.

THE ARTICLES

The Call for Papers of the Special Issue received a strong response from various communities, including multimedia semantics, user modeling, personalization, artificial intelligence and multimedia analysis. High quality contributions

addressing related theoretical and practical aspects were summoned, resulting into a total of 16 manuscripts submitted for consideration. Of these submissions, 6 papers were accepted following a rigorous two-stage review process, coordinated by the guest editors, resulting into an overall 37,5% acceptance rate. In the following, a short description of each paper is provided, summarizing the aims of each article and how the work described, is related to the Special Issue topics.

The first paper of the Special Issue, entitled “*Semantic Characterization of Tweets Using Topic Models: A Use Case in the Entertainment Domain*”, prepared by *Andres García-Silva, Victor Rodríguez Doncel and Óscar Corcho*, studies the use of different representation models for the automatic characterization of Twitter data. In particular, it addresses the problem of tweet classification with respect to three different categories: expectation, opinion and advertisement, in contrast to traditional approaches where the usual categories are positive, negative or neutral reactions. An experimental evaluation is performed in the entertainment domain, where different representation models, including bags of words and probabilistic topic models, are tested to provide a classification of Twitter data involving shows. The results show that topic-based representations produce better classifiers than representations based on term frequency.

Marta Sabou, Arno Scharl and Michael Föls in “*Crowdsourced Knowledge Acquisition: Towards Hybrid-genre Workflows*” deal with several aspects related to the use of crowd-based social collaboration platforms for knowledge acquisition. During their initial survey, the authors show that the game-based genre is the most popular among crowdsourcing genres, although a trend of moving towards mechanized labour platforms is currently noticeable. Towards this direction, they introduce Climate Quiz for acquiring environmental domain knowledge from non-experts. In order to address noisy input data and task complexity, the authors propose embedding the game into a hybrid-genre workflow, which supplements the game

with a set of tasks outsourced to microworkers. Experimental evaluations prove that such workflows are feasible and have positive effects in respect to the enjoyment of the game, as well as to the quality of its output.

Pierre Andrews, E. Javier Paniagua and Silvia Torsi in their paper ““*Katie’s Swiss trip*”: *A Study of Personal Event Models for Photo Sharing*” present a study of the behavior of camera users during the organization of multimedia data in social communities, i.e. how people organize and share their personal pictures. The final goal is checking if the event information influences the organization and tagging of photos for the sharing purpose. The experiments can be divided in two parts: firstly the authors perform a survey by asking random user to fill a questionnaire, and then they make a study on a collection a dataset of albums shared on Flickr and Picasa. The results show that photo takers tend to use an event mental model for photo sharing: even if the current sharing tools do not directly support events, users still share their media around personal events by providing spatio-temporal metadata as free text in tags, titles or descriptions of the photos.

The fourth paper of the issue entitled “*Opinion Bias Detection with Preference Learning in Social Data*”, prepared by *A-Rong Kwon and Kyung-Soon Lee* propose a novel method to calculate the preference of one selected topic over a second topic using tweets. The main contribution of the work regarding other similar approaches is that it considers an estimation of the global social preferences to measure the bias of an opinion, rather than only the information extracted from the tweet itself. This process involves three stages: unsupervised polarity classification of tweets for learning social preferences, target extraction to emphasize opinionated targets in tweets, and learning of social preferences on the targets. The proposed techniques are evaluated using Korean Twitter data and the results of the experiments show that they improve the current state of the art in the area.

Steven Van Canneyt, Steven Schockaert and Bart Dhoedt in their paper entitled

“Discovering and Characterizing Places of Interest using Flickr and Twitter” tackle the issue of how geographically annotated information obtained from social media can be used to improve or even correct the content of existing databases of places. The authors firstly determine potential places of interest by clustering the locations in which Flickr photos have been taken. The information from Flickr, as well as related terms from Twitter messages posted in the vicinity of the obtained candidate places of interest, are then used to rank them based on the likelihood that they belong to a given type. It is shown that for several place types, the authors’ approach finds places that are not yet indexed in several famous and widely used databases (e.g. Foursquare, Google, LinkedGeoData, Geonames

Finally, *Ioanna Lykourantzou, Dimitrios J. Vergados and Yannick Naudet*, in the paper entitled *“Improving wiki article quality through crowd coordination: a resource allocation approach”*, propose a crowd coordination mechanism to increase the quality of articles produced in wiki systems. More specifically, they show that wiki article quality optimization can be formulated as a resource allocation problem, where contributors are selected from the wiki community crowd according to their skills, and matched to the articles they can improve the most. A model of the English Wikipedia is provided, while experimental results indicate that the proposed mechanism can lead to the production of wiki articles of higher quality, compared to the respective results achieved by the fully self-coordinated wiki.

As depicted by above contribution analysis, among the goals of this publication effort was to collect and report on recent high quality research that addresses the problem of mass digital media content generation and sharing; we believe that this Special Issue managed to demonstrate the broad diversity of state-of-the-art approaches, as well as the dynamics that hide within current semantic social media, a topic of active research. It is also clear that there is a lot to be gained by bringing both semantics and social research communities together and combining their approaches. Thus, we do hope that this Special Issue will form and contribute a small step towards this direction.

Finally, we would like to express our gratitude to the reviewers of this special issue for their valuable time: Carlos Bobed, Silvia Calegari, Iván Cantador, George Caridakis, Claudia D’Amato, Vania Dimitrova, Mario Döller, Muriel Foulonneau, Panagiotis Germanakos, Juan Gómez-Romero, William Grosky, Martin López-Nores, Vasileios Mezaris, Yannick Naudet, Viviana Patti, José J. Pazos-Arias, Amaryllis Raouzaïou, Evaggelos Spyrou, Jiao Tao, Nicolas Tsapatsoulis, David Vallet, and Manolis Wallace.

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Phivos Mylonas was born in Athens in 1978. He received his Diploma in Electrical and Computer Engineering from the National Technical University of Athens (NTUA) in 2001, his Master of Science (M.Sc.) in Advanced Information Systems from the National & Kapodestrian University of Athens (UoA) in 2003 and earned his Ph.D. degree (with distinction) at the former University (NTUA) in 2008. He is currently a Senior Researcher by the Image, Video and Multimedia Laboratory, School of Electrical and Computer Engineering, Department of Computer Science of the National Technical University of Athens, Greece and has been elected and is to be appointed as an Assistant Professor by the Department of Informatics of the Ionian University, Greece. His research interests include content-based information retrieval, visual context representation and analysis, knowledge-assisted multimedia analysis, issues related to multimedia personalization, user adaptation, user modeling and profiling. He has published articles in 28 international journals and book chapters, he is the author of 55 papers in international conferences and workshops, he has edited 9 books and is a guest editor of 6 international journals, he is a reviewer for 19 international journals and has been actively involved in the organization of 39 international conferences and workshops. He is a member of the Technical Chamber of Greece since 2001, a member of the Hellenic Association of Mechanical & Electrical Engineers since 2002 and a member of W3C since 2009, whereas he is a past member of IEEE (1999-2010) and ACM (2001-2010).

Ioannis Anagnostopoulos was born in Athens, Greece, in 1975. In 1998, he received his diploma in the field of Electrical and Computer Engineering from the University of Patras, Department of Electrical Engineering and Computer Technology, and his PhD in the field of Internet Information Management from the National Technical University of Athens, School of Electrical and Computer Engineering (February 2004). He has worked as an assistant researcher in the Multimedia Technology Laboratory, National Technical University of Athens, School of Electrical and Computer Engineering. He currently serves as an Assistant Professor at the Department of Computer Science and Biomedical Informatics, School of Sciences, University of Thessaly. His research interests include Internet technologies and services, web search and retrieval software methodologies, social networks, intelligent multimedia and communication systems. Dr Anagnostopoulos serves as editorial board member in 3 international journals, and counts more than 50 TPC memberships in international conferences. He has also served as reviewer in more than 30 different journals of several scientific publishers. Finally, he is author of more than 30 articles in international journals, as well as more than 70 papers in international refereed conferences, while he participated in 10 European and National funded research projects. Dr Anagnostopoulos Ioannis is a member in several societies and working groups of IEEE, IEE/IET, and ACM.

Fernando Bobillo was born in Granada, Spain, in 1981. He received his Bc. degree in Computer Science in 2004, and his Ph.D. degree in 2008, both from the University of Granada. He is currently an Assistant Professor at the Department of Computer Science and Systems Engineering, at the University of Zaragoza, Spain. His research interests include context management, user personalization, Description Logics, Semantic Web applications, ontology engineering and their applications to uncertainty representation and reasoning. He is coauthor of more than 55 scientific papers published in international journals, book chapters or international conferences and workshops, and has coedited 7 proceedings and 1 book. He is a reviewer for 33 international journals and has been actively involved in the organization of 45 international conferences and workshops, being one of the organizers of the series of International Workshops on Uncertainty reasoning for the Semantic Web (URSW). He is involved in the development of several Semantic Web applications, such as the fuzzy Description Logic reasoners “fuzzyDL” and “DeLorean”,

or the Protégé plug-in for the fuzzy ontology language “Fuzzy OWL 2”. He is or was member of the W3C Uncertainty Reasoning for the World Wide Web Incubator Group (URW3), the Working group on Mathematical Fuzzy Logic (MathFuzzLog), and the IEEE Intelligent Systems Applications Technical Committee (ISATC) on the Semantic Web.

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Geert-Jan Houben is full professor of Web Information Systems at the Software Technology department at Delft University of Technology (TU Delft). His main research interests are in Web Engineering, in particular the engineering of Web information systems that involve Web and Semantic Web technology, and User Modeling, Adaptation and Personalization. He is managing editor of JWE, the Journal of Web Engineering, chair of the Steering Committee for ICWE, the International Conference on Web Engineering, and member of the Editorial Board of ACM TWEB, ACM Transactions on the Web. Previously, he studied computing science, got his Ph.D. with a thesis on complex objects databases, had several consultancy jobs with consultancy firms in the Netherlands (e.g. Bakkenist, BSO, Origin), held a position in the ADREM group in the Computer Science department of the University of Antwerp, was leading the Architecture of Information Systems (AIS) group in the Computer Science department of the Technische Universiteit Eindhoven, served between 2001 and 2004 as the chairman of the board of the Computer Science department in Eindhoven, was associated with the INS2 group at CWI in Amsterdam, was a guest-professor at the University of Antwerp, was the director of the Business Information Systems (BIS) master program in Eindhoven, was between 2005 and 2008 full professor of information systems at the Vrije Universiteit Brussel (VUB) and co-director of the WISE laboratory for Web & Information System Engineering, and was at VUB member of the board of the faculty of Sciences. In 2008 he joined TU Delft.