

GUEST EDITORIAL PREFACE

Special Issue on Cognitive-based Text Understanding and Web Wisdom

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Recent years, many new theories and technologies for Web Wisdom have made the Web much wiser. Among these technologies, Cognitive-based text understanding (CTU) is one of the newest directions of Web Wisdom and should be paid more attention to. The machine understanding of Web resources is the basis of Web Wisdom. Cognitive Informatics (CI) is an emerging discipline that studies the natural intelligence, internal information processing mechanisms of the brain and the processes involved in perception and cognition as well. CTU simulates the cognitive process of human brain understanding text, so it takes advantage of cognitive theories to make the machine understanding of Web resources effectively and promotes Web Wisdom to a great extent.

In this special issue on *cognitive-based text understanding and web wisdom*, we are pleased to present six papers.

The first paper, “*Measuring the Semantic Relatedness between Images using Social Tags*,” by Zheng Xu, Chen Liang, Fenglin Zhi and Lin Mei, measures the semantic relatedness of Flickr images by measuring the semantic relatedness of tags and removing the noise and redundancy using bipartite graph.

The second paper, “*Extracting Visually Presented Element Relationships from Web Documents*,” by Radek Burget and Pavel Smrz, proposes a formal generic model of logical relationships in a document based on an interpretation of visual presentation patterns in the documents. The model describes the visually expressed relationships between individual parts of the contents independently of the document format and the particular way of presentation.

The third paper, “*Semantic Relatedness Estimation using the Layout Information of*

Wikipedia Articles,” by Patrick Chan, Yoshinori Hijikata, Toshiya Kuramochi, and Shogo Nishida, applies regression to word frequency, its location in an article, and its text style to calculate the relevance to improve the relevance estimate of low-frequency words and concepts.

The fourth paper, “*Improving the Compression Efficiency for News Web Service using Semantic Relations among Webpages*,” by Xiao Wei, Xiangfeng Luo, and Qing Li, proposes a webpage compression mechanism to improve the efficiency of compression and decompression simultaneously by taking advantage of the semantic relations among webpages.

The fifth paper, “*Semantically Linking Information Resources for Web-based Sharing*,” by Junsheng Zhang, Yingfan Gao, Yanqing He, Hongjiao Xu, Chongde Shi, and Peng Qu, proposes an approach to enhance the semantic associations among digital information resources

for realizing a semantic linked web by adding implicit and missing semantic links.

The sixth paper, “*Measurement of Textual Complexity based on Categorical Invariance*,” by Lixiao Zhang, and Jun Zhang, proposes a method to measure the textual complexity based on the categorical invariance in human concept learning.

The guest editors would like to thank the Editor-in-Chief, Prof. Yingxu Wang, for his support, and advice on this special issue.

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Xiangfeng Luo is a professor in the School of Computers, Shanghai University, China. Currently, he is a visiting professor in Purdue University. He received the master's and PhD degrees from the Hefei University of Technology in 2000 and 2003, respectively. He was a postdoctoral researcher with the China Knowledge Grid Research Group, Institute of Computing Technology (ICT), Chinese Academy of Sciences (CAS), from 2003 to 2005. His main research interests include Web Wisdom, Cognitive Informatics, and Text Understanding. He has authored or co-authored more than 50 publications and his publications have appeared in IEEE Trans. on Automation Science and Engineering, IEEE Trans. on Systems, Man, and Cybernetics-Part C, IEEE Trans. on Learning Technology, Concurrency and Computation: Practice and Experience, and New Generation Computing, etc. He has served as the Guest Editor of ACM Transactions on Intelligent Systems and Technology. Dr. Luo has also served on the committees of a number of conferences/workshops, including Program Co-chair of ICWL 2010 (Shanghai), WISM 2012 (Chengdu), CTUW2011 (Sydney) and more than 40 PC members of conferences and workshops.

Qing Li is a Professor at the Department of Computer Science, and concurrently the Director of MERC -- a newly established Research Centre at City University of Hong Kong where he joined as a faculty member since Sept 1998. He received his B.Eng. from the Hunan University, and M.Sc. and Ph.D. degrees from the University of Southern California (Los Angeles), all in computer science. His research interests include database modeling, Web services, multimedia retrieval and management, and e-learning systems. He has authored/co-authored over 300 publications in these areas. He has been actively involved in the research community, and is serving/has served as an editor of several leading technical journals such as IEEE Transactions on Knowledge and Data Engineering (TKDE), ACM Transactions on Internet Technology (TOIT), World Wide Web (WWW), and Journal of Web Engineering, in addition to Conference and Program Chair/Co-Chair of numerous major international conferences including ACM RecSys, ER, CoopIS, WISE, PAKDD etc. Prof. Li is a Fellow of IET (UK), and a senior member of IEEE (US) and a distinguished member of CCF (China). He is also a Steering Committee member of ER, ICWL, DASFAA and U-Media.

Qun Jin is a professor at the Networked Information Systems Laboratory, Department of Human Informatics and Cognitive Sciences, Faculty of Human Sciences, Waseda University, Japan. He has been engaged extensively in research works in the fields of computer science, information systems, and social and human informatics. He seeks to exploit the rich interdependence between theory and practice in his work with interdisciplinary and integrated approaches. He has published several academic books and more than one hundred refereed papers in journals and proceedings, including ACM and IEEE Transactions. His recent research interests cover ubiquitous computing, human-centric computing, human-computer interaction, behavior and cognitive informatics, user modeling, information search and recommendation, e-learning, and computing for well-being.

Feifei Xu received her PhD in Pattern Recognition and Intelligence System from Tongji University, Shanghai, China in 2009. With the support of China Scholarship Council, she was chosen as a visiting student to University of Regina, Canada from October 2007 to September 2008. She is currently a lecturer in the Department of Computer Science, Shanghai University of Electric Power. Her research interests include granular computing, fuzzy rough sets, knowledge spaces and formal concept analysis, feature selection, web intelligence, question answering, and sentiment analysis. She has authored or co-authored more than 30 publications in Chinese AI leading journals, refereed international journals, books, and conferences in these areas. She is a member of Shanghai Association for Artificial Intelligence, reviewer of some international conferences, e.g., the international conference on Fuzzy Systems and Knowledge Discovery (FSKD), the IEEE international conference on Cognitive Informatics (ICCI), and the international conference on Rough Sets and Knowledge Technology (RSKT).