

Intelligent Web Interactions

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Abstract— Since the interaction between Web systems and users is important, it has been studied by many researchers from different fields. The goal of this special issue is to present Intelligent Web Interaction as a new and promising research field.

Index Terms— interaction, user interface, clustering.

I. INTRODUCTION

Various Web systems/services are currently providing a great deal of benefits for users, and Web interaction is becoming especially important both for research and business. Web interaction has been realized through related technologies including interactive information retrieval, intelligent systems, personalization, user interfaces and so on. However, each study and development has been done independently in different fields, which might discourage us from studying Web interaction from unified view of human-system interaction and making Web interaction more intelligent by applying machine learning and soft computing.

Guest editors (T. Murata and S. Yamada) organized 2010 International Workshop on Intelligent Web Interaction (IWI-2010) at Toronto to bring together a variety of researchers in diverse fields like Web systems, AI, computational intelligence, human-computer interaction and user interfaces. The workshop was collocated with 2010 IEEE/WIC/ACM International Conference on Web Intelligence (WI-2010). More than 20 papers were submitted to the workshop, and active discussions were made among participants.

The purpose of this special issue is to present Intelligent Web Interaction as a new and promising research field. Presenters of the above workshop were encouraged to submit papers to this special issue. All submitted papers are equivalently reviewed in terms of relevance, originality, significance and presentation based on review criteria of Journal of Emerging Technologies in Web Intelligence. This special issue is composed of three papers.

“Investigating User Behavior in Document Similarity Judgment for Interactive Clustering-based Search Engines” (Minghuang Chen, Seiji Yamada and Yasufumi Takama) investigates the behavior of users judges of the similarity of documents in order to examine the user’s

feedback cost for interactive document clustering. The aim of this paper is to study the effective interface design that is suitable for interactive clustering-based search engines. An experiment is conducted with 21 participants, who were asked to judge the similarity of document pairs based on three conditions: viewing snippet, topic terms, or original text. Those conditions are compared in terms of judgment time and accuracy with statistical tests. The typical judging behaviors of the participants are also investigated by eye-tracking system. The results will contribute to the design of interface for interactive clustering-based search engines for the next generation.

“Detecting a Multi-Level Content Similarity from Microblogs based on Community Structures and Named Entities” (Swit Phuvipadawat and Tsuyoshi Murata) presents a method for finding the content similarity for microblogs. The method gives two levels of collections. In the first level, similarity is defined by TF-IDF. Since contents in microblogs have short lengths, the authors emphasize on specific terms called named entities. Messages groups are obtained in the first level. In the second level, the authors construct a network from messages groups and named entities and perform community detection. The authors evaluate and visualize the community results based on several community detection algorithms.

“An Interactive Tool for Human Active Learning in Constrained Clustering” (Masayuki Okabe and Seiji Yamada) describes an interactive tool for constrained clustering that helps users to efficiently select effective constraints during the constrained clustering process. This tool has several functions such as the 2-D visual arrangement of a data set and constraint assignment by mouse manipulation. In this paper, the authors show an overview of the tool and how it works, especially for the functions for display arrangement by using multi-dimensional scaling and incremental distance metric learning. In the experiments, the authors investigate the performance of the sampling heuristics found by observing the interaction between the users and the tool.

As mentioned above, Intelligent Web Interaction is a new and promising research field. Guest editors hope this special issue will motivate many other researchers to join this growing study field.



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