

## Editors' Introduction to the Special Issue on "Advances in Semantic Information Retrieval"



Semantic technologies and information retrieval hold a firm place among topical research directions of modern computer science. Advances in this field define the ways we use computers in the age of Internet and mobile technologies. We see high level of interest to semantics and information retrieval at

our annual International Workshop on Advances in Semantic Information Retrieval (ASIR) workshop that continues to attract researchers from different parts of the world.

In this special issue of Informatica journal we introduce four revised and extended papers, presented at the workshop.

The first paper entitled *Automatic Detection of Antisocial Behaviour in Texts* by Myriam Munezero, Maxim Mozgovoy, Tuomo Kakkonen, Vitaly Klyuev, and Erkki Sutinen is devoted to detection of antisocial behavior (ASB) manifestations in written documents. The authors search for linguistic features that pertain to ASB in order to use those features for the automatic identification of ASB in text. They used a collected ASB text corpus as a machine learning resource and approach the detection of ASB in text as a binary classification problem. The results from the experiments show that by exploiting the emotional information together with Bag-of-Words (BoW) the accuracy of over 90% in the classification of ASB in text is reached. These findings will have positive implications in the early detection of potentially harmful behavior.

The next paper entitled *Leveraging User Experience through Input Style Transformation to Improve Access to Music Search Services* by Marina Purgina, Andrey Kuznetsov, and Evgeny Pyshkin addresses the problems of music searching and main tasks the developers face in the domain of music information retrieval. The authors introduce the architecture of the software and the data model for integrated access to existing music search web services. The authors illustrate their approach by developing a mobile accessed software prototype that allows the users of Android-running touch screen devices to access several music search engines including Musipedia, Music Ngram Viewer, and FolkTuneFinder. The designed application supports various styles of music input query. The authors pay special attention to input style transformation aimed to fit well the requirements of the supported search services.

The third paper entitled *User Annotations as a Context for Related Document Search on the Web and Digital Libraries* by Jakub Ševcech, Róbert Móro, Michal Holub, and Mária Bielíková proposes a method for query construction enabling search for other documents related to the currently studied one using not only the document's content, but also user created annotations as indicators of user's interests. In the proposed approach, annotations are used to activate nodes in a graph created from the document's content employing spreading activation algorithm. The authors evaluate the proposed method in Annota — a service for bookmarking and collaborative annotation of Web pages and PDF documents displayed in a web browser. Along with its main purpose, Annota is designed to support scenarios useful for a novice researcher working together with his or her mentor. Based on Annota usage data the authors also analyzed properties of various types of annotations. Discovered annotation properties served as a basis for simulation performed to determine optimal parameters of the query construction. The authors compared the proposed method to the commonly used tf-idf based method that was outperformed with the method introduced in the paper. Therefore, annotations proved to be a viable source of information for user's interest detection.

The fourth paper entitled *SOAROAD: an Ontology of Architectural Decisions Supporting Assessment of Service Oriented Architectures* by Piotr Szwed, Paweł Skrzynski, Grzegorz Rogus, and Jan Werewka describes SOAROAD (SOA Related Ontology of Architectural Decisions) developed to support the evaluation of architectures of information systems based on the Service-Oriented Architecture (SOA) approach. The main goal of the ontology is to provide constructs for documenting architecture. However, it is designed to support future reasoning about architecture quality and fulfilling the nonfunctional system requirements such as scalability, ease of maintenance, reuse of software components, etc. Another important reason is building a common knowledgebase. When building the ontology, the Architecture Tradeoff Analysis Method (ATAM) was adopted which was chosen as a reference methodology of architecture evaluation.



As ASIR chairs, we are strongly committed to our basic aim: to create an atmosphere of friendship and cooperation for everyone, interested in computational

linguistics and information retrieval. The workshop is firmly established as an event within Federated conference on computer science and information systems (FedCSIS), annually organized by the System Research Institute of the Polish Academy of Sciences and the Polish Information Processing Society, and sponsored by the IEEE.

In its turn, ASIR is supported by the University of Aizu (Japan), known as Japan's first university solely dedicated to computer science engineering. The University of Aizu is a major center of international education and the home of several conferences, sponsored by the ACM and the IEEE.

We would wish to acknowledge selfless efforts of our committee members and FedCSIS conference organizers, who ensured high quality of publications and flawless arrangement of the forum. We would like to specially mention professors Marcin Paprzycki, Maria Ganzha, and Halina Kwasnicka, responsible for FedCSIS.

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In 2014, we are organizing ASIR workshop within FedCSIS in Warsaw, Poland. We will continue to maintain high standards of quality and organization, set by the first workshops. We welcome all the researchers, interested in semantics and information retrieval, to join our event.

*Vitaly Klyuev  
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Editors of the special issue*