
Editorial

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Biographical notes: Lorna Uden is Professor of IT Systems in the Faculty of Computing, Engineering and Technology at Staffordshire University. Her research interests include technology learning, HCI, activity theory, knowledge management, web engineering, multimedia, e-business, service science and innovation, semantic web, and problem-based learning.

Welcome to V6N1 issue of *IJWET*. This issue covers a range of different topics in web technology. The first paper, 'Interaction protocol mediation in web service composition' is by Ardissono, Furnari, Petrone, and Segnan. According to these authors, the setup and management of a composite service is challenged by the heterogeneity of the services to be integrated. Although service oriented computing abstracts from the details of the execution platforms, it does not address protocol mismatches, which are solved by developing ad hoc adapters. In a composite service, this limitation makes web service replacement a hard task because it requires developing a different adapter for each alternative service.

In order to address such issues, Ardissono, Furnari, Petrone, and Segnan have proposed a mediation framework supporting the conciliation of interaction protocol mismatches. Their work is built on the idea that a general model for composite service management can be developed by abstracting from the flow details imposed by message-oriented coordination. The framework is thus based on:

- a declarative description of the synchronisation constraints which the web service participants have to respect, and of the mappings to be applied in order to conciliate the mismatches
- the runtime management of web services as event-driven systems coordinated in a loosely-coupled way, by means of a shared context.

They have assessed the flexibility and applicability of their framework to real world cases by using it in the development of an orchestrated and choreographed e-commerce application. It would be helpful to have more data on the evaluation of their uses.

From service services, we move to meta-searching by Naz, Dorn and Poulouvassilis. Their paper, 'Configurable meta-search in job domain' is concerned with a search engine for human resources. According to these authors, traditional search engines are based on keyword or phrase search, without taking into account the semantics of the word or phrase, and hence, may not provide the desired results to the user. Other traditional searches tools suffer from low recall and precision. To overcome these problems, meta-search engines aim to offer topic-specific search using multiple heterogeneous

search engines. Meta-search engines provide access to information from multiple search engines simultaneously. They increase coverage of the web by combining the coverage of several search engines. They also make the user's task much quicker and easier by allowing users to submit just one search query, rather than several and by automatically retrieving and ranking results from multiple search engines.

The focus of these authors' paper is to address the problems of searching for job vacancies from multiple job search engines by the construction of a job meta-search engine. To aid job seekers searching for job vacancies, they have developed a new configurable meta-search engine for the human resources domain. In this paper, they describe the three main components of the meta-search engine – the query interface generator, query dispatcher and information extractor – which collectively support the meta-search engine creation and usage. These authors argue that one of the important challenges in accessing heterogeneous and distributed data via a meta-search engine is schema/data matching and integration. They describe an approach to schema and data integration for meta-search engines that helps to resolve the semantic heterogeneities between different source search engines. Their approach is a hybrid one, in that they use multiple matching criteria and multiple matchers. A domain-specific ontology serves as a global ontology and allows one to resolve semantic heterogeneities by deriving mappings between the source search engine interfaces and the ontology. The mappings are used to generate an integrated meta-search query interface, to support query processing within the meta-search engine, and to resolve semantic conflicts arising during result extraction from the source search engines. Experiments conducted in the job search domain show that their hybrid approach increases the correctness of matching during the automatic integration of source search interfaces. The use of domain ontology and multiple matchers helps in the semantic understanding of job descriptions and provides a job seeker with integrated access to jobs from a variety of websites.

The idea of new configurable meta-search engine for the human resources domain is a good one and has potential benefits for many users. It would be good to see more empirical studies on this to validate its effectiveness. Perhaps the use of it in a real world situation.

Paper three is 'Towards a comprehensive assessment for selectivity estimation approaches of XML queries' by Sherif Sakr. According to Sakr, modern implementations of query processors are heavily reliant on the efficient performance of sophisticated optimiser components to achieve a proper selection of many optimisation decisions such as access paths, join orders and materialisation strategies. Estimating the sizes of query results and intermediate results is a crucial part of any effective query optimisation process. Sakr argues that due to several reasons, the selectivity estimation problem in the XML domain is more complicated than that in the relational domain. Several research efforts have proposed different selectivity estimation approaches in the XML domain. One of the main reasons that prevented a real assessment and comparison between the approaches to be conducted is the lack of a suitable benchmark. This paper is a first step towards a comprehensive assessment of the available selectivity estimation approaches of XML queries along with their strengths and weaknesses. Sakr provides a survey of the state-of-the-art of selectivity estimation approaches of XML queries and proposes a selectivity estimation benchmark for XML queries, XSelMark. The proposed benchmark consists of a set of 25 queries organised into seven groups and covers the main aspects of selectivity estimation of XML queries. These queries have been designed with respect to an XML document instance of a popular benchmark for XML data management, XMark.

In addition, Sakr also suggested some criteria of assessing the capability and quality of the selectivity estimation approaches for XML queries. It is essential to perform a more detailed assessment of the selectivity estimation approaches of XML queries in terms of their accuracy, performance and memory requirements.

The last paper is by Konstantinou, Spanos, Stavrou and Mitrou, entitled 'Technically approaching the semantic bottlenecks'. These authors argue that despite the maturity of the semantic web, the average web user has not yet taken advantage of its full potential. In this paper, they introduce the semantic web bottleneck, analyse the main problems that preserve it and suggest ways to overcome it. In particular, they discuss the issues involved in deploying, maintaining and using semantically rich web applications, decomposing this process into two primal ones: publishing and exploiting semantic content. Konstantinou, Spanos, Stavrou and Mitrou analyse the role of key players such as the web industry, the search engines, the academia, the web user, and the web engineers that essentially materialise and use these technologies. These authors have provided a roadmap in order for the semantic web to gain further acceptance, based on three major axes: simplicity, mainly entailed by automation; integration with the existing technologies and practices; and adoption by the web industry driving forces. Although a roadmap has been provided, it is important that we verify it.