
Editorial

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Biographical notes: Lorna Uden is Professor Emeritus of IT Systems in the Faculty of Computing, Engineering and Technology at Staffordshire University. Her research interests include technology learning, HCI, big data, mobile learning, activity theory, knowledge management, web engineering, multimedia, e-business, service science and innovation, semantic web, internet of things, software as a service (SaaS) and problem-based learning.

Welcome to V9 N3 of this journal. There are three papers in this issue. The first paper ‘A multi-agent system for web services discovery in a UDDI cloud’ is by Fayçal M’hamed Bouyakoub, Abdelkader Belkhir and Mohamed Amine Mellal. These authors argue that generally, web services search engines return several results, most of which are likely to be non-appropriate to users’ requirements. The discovery process must be able to increase the relevance of the results in order to approach the user requirements as much as possible. Thus, it is necessary to automatically select services and introduce them to the user so that he/she does not have to go through the difficulties of discovering similar services. They have proposed a framework, based on a distributed architecture, offering a solution in searching services according to the client context and his QoS preferences.

The evaluation of the similarity rate between the client context/QoS requirements and the service context is carried out using a new quantitative similarity measure. They divided the discovery process into two layers by applying filters at each layer to reduce the response time of the discovery process. It is a great pity that there was no empirical study carried out to validate the work. More evaluations are needed.

The second paper is by Jingyu Han, Kejia Chen, Zhu Zheng and Yanying Yang entitled, ‘Assessment of web article’s completeness by capturing discussed topics’. In this paper, the authors propose a novel approach to assess a web article’s completeness by capturing existing topic distribution. In particular, they propose to construct topic-coverage and topic-depth baselines with the LDA model. Through the constructed baselines, they not only measure completeness, but also predict what should be discussed.

Given a target article, they use a generative probabilistic model, latent Dirichlet allocation (LDA), to generate its topic-coverage and topic-depth baselines by leveraging knowledge from Wikipedia. It consists of two phases, the baseline construction and the completeness calculation. During the baseline construction, they extract Wikipedia knowledge to construct baselines using the LDA generative process, which present what should be covered and how deeply each sub-topic should be discussed. During the completeness calculation, the completeness is quantified by comparing the article with its

topic-coverage and topic-depth baselines. These authors argue that experiments demonstrate that their approach can effectively rate completeness and predict content. There are many limitations to this approach. Firstly it does not cover all topics. Secondly, more computationally efficient algorithms are needed to construct baselines.

The final paper is 'Towards optimal discovery of web services for multiple QoS constraints and preferences' by Guobing Zou, Yanglan Gan, Sen Niu, Mei Zhao and Bofeng Zhang. According to these authors, quality of service (QoS) is mostly applied to represent non-functional properties of web services and differentiates those services with the same functionality. Therefore, when those services provide the same functionality and have different QoS values, the question of how to effectively filter out the services that cannot satisfy the QoS constraints posed by a service requester on each QoS criterion and rank the remaining services using their QoS values is still a problem.

In this paper, they propose an integrated approach that allows a service requester to specify a functionality request, multiple QoS constraints and their preferences on QoS criteria. Their method discovers a set of the most appropriate ranked services, each of which can ensure high quality of service by QoS utility aggregation, while satisfying the specified functionality request. By conducting empirical experiments on simulated web services and their QoS information, the authors validate the feasibility of their proposed web service discovery approach. The running example shows that, the proposed approach can find more appropriate services by the satisfiability of multiple QoS constraints and the ranking of aggregated QoS.

An extension to support service functionality matchmaking in semantic level would be useful. More experiments to further validate the effectiveness and efficiency of the approach in large-scale and real-world service repositories are necessary.