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Using assumptions in service composition context

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Using Assumptions in Service Composition Context

A thesis submitted in fulfillment of the
requirements for the award of the degree

Master of Computer Science by Research

from

UNIVERSITY OF WOLLONGONG

by

Zheng Lu

School of IT & Computer Science
June 2006

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by

Zheng Lu

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Dedicated to
My Parents

Declaration

This is to certify that the work reported in this thesis was done by the author, unless specified otherwise, and that no part of it has been submitted in a thesis to any other university or similar institution.

Zheng Lu
November 8, 2006

Abstract

Service composition aims to provide an efficient and accurate model of a service, based on which the global service oriented architecture (SOA) can be realized, allowing value added services to be generated on the fly. Unlike a traditional software module, which runs within a predictable domain, Web Services are autonomous software agents running in a heterogeneous execution environment. Because of distributed responsibilities, ownership and control, it is often not feasible to acquire all information needed for the service composition. These characteristics of autonomy and heterogeneity are fundamental to service oriented computing but make it inherently difficult to avoid service conflicts. To reason about and adapt to a changing environment, in this work, we will extend current OWL-S by introducing the concept of service assumptions which allow reasoning with incomplete information. Furthermore, together with the proposed service assumptions, a sequence of rule conditions are proposed to describe all permitted behaviors in service composition context.

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List of Publications

This is a list of referred papers that is related to this research work.

- Zheng Lu, Shiyang Li and Aditya K. Ghose, Web Service Conflict Management, Proceedings of the First International Workshop on Design of Service-Oriented Applications (WDSOA'05), in conjunction with Third International Conference on Service Oriented Computing 2005, Amsterdam, The Netherlands, 2005.
- Zheng Lu, Aditya K. Ghose, Peter Hyland and Ying Guan, Using Assumptions in Service Composition, In Proceedings the 2006 IEEE International Conference on Services Computing, SCC 2006, Chicago, USA, September 2006. To Appear in proceedings of SCC 2006
- Zheng Lu, Aditya K. Ghose, Peter Hyland, Adopting Default Reasoning in Service Composition Context. To appear in Proceedings of The 4th IEEE European Conference on Web Services (ECOWS) (ECOWS 2006), Zurich, Switzerland, 2006. IEEE Computer Society Press.
- Zheng Lu, Shiyang Li and Aditya K. Ghose and Peter Hyland, Extending Semantic Web Service Description by Service Assumption, Web Intelligence Conference, Hong Kong 2006. To appear in Proceedings of the 2006 IEEE/WIC/ACM International Conference on Web Intelligence (WI'06). Hong Kong, China, 2006.

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