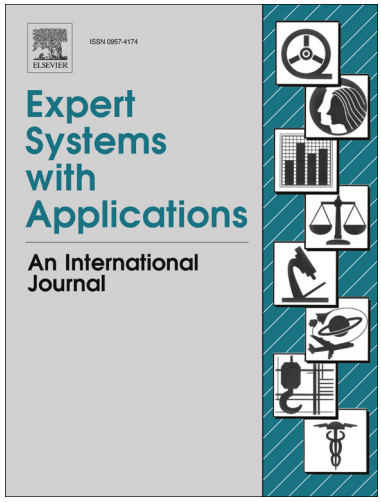

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Modeling and Classification of Service Behaviors

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Abstract

With the drastic increase in the number of services, there is an urgent need to devise techniques that facilitate services selection. The behavior of a service is a key factor in such selection. One of the major challenges in this regard is to be able to model and recognize such behavior, especially when the service is a black box (i.e. no architectural details are provided). In this paper, we propose a new approach for modeling and classification of service behaviors. The proposed approach captures service performance through some predefined behavioral patterns. Each pattern is a typical sequence of observations in which an observation denotes the quality of a service for one interaction. We then follow a rough set based approach for the classification of services into different patterns. To prove the applicability of the proposed approach, a comparative study with existing rule-based classification algorithms is also provided.

Keywords: Services, Behavior, Pattern, Classification, Rough set

1. Introduction

In recent years, the desideratum for adopting services (such as Web services) as the defacto technology to make applications available on the internet has increased. In this paradigm shift, services having different business logic and quality of service, provide users with a large spectrum of potential