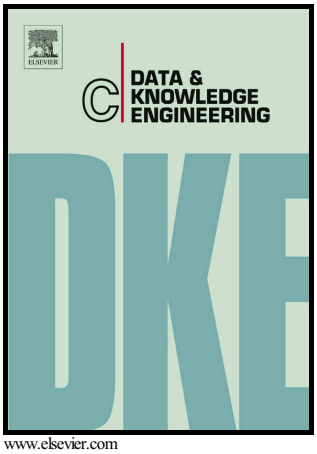
Author's Accepted Manuscript




# Ontology-Based Context Modeling in Service-Oriented Computing: A Systematic Mapping

Oscar Cabrera, Xavier Franch, Jordi Marco

PII: S0169-023X(16)30138-0
DOI: http://dx.doi.org/10.1016/j.datak.2017.03.008
Reference: DATAK1588

To appear in: *Data & Knowledge Engineering*

Received date: 8 August 2016
Revised date: 28 February 2017
Accepted date: 3 March 2017

Cite this article as: Oscar Cabrera, Xavier Franch and Jordi Marco, Ontology Based Context Modeling in Service-Oriented Computing: A Systematic Mapping, *Data & Knowledge Engineering* http://dx.doi.org/10.1016/j.datak.2017.03.008

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

# Ontology-Based Context Modeling in Service-Oriented Computing: A Systematic Mapping

Oscar Cabrera*, Xavier Franch, Jordi Marco
Universitat Politècnica de Catalunya – BarcelonaTech, ESSI – UPC. 08034 Barcelona, c/Jordi Girona 1-3, Spain

ocabrera@essi.upc.edu,
franch@essi.upc.edu,
jmarco@cs.upc.edu

*Corresponding author. Address: Universitat Politècnica de Catalunya – BarcelonaTech, ESSI – UPC. 08034 Barcelona, c/Jordi Girona 1-3, Omega Building S-208, Spain.

**Abstract**

**Context**
Service-oriented computing and context-aware computing are two consolidated paradigms that are changing the way of providing and consuming software services. Whilst service-oriented computing is based on service-oriented architectures for providing flexible software services, context-aware computing articulates different phases of a context life cycle for changing the behavior of such services. The synergy between both paradigms provides the context to this study.

**Objective**

This study analyzes the current state of the art of context models, specifically: (1) which are these proposals and how are they related; (2) what are their structural characteristics; (3) what context information is the most addressed; and (4) what are their most consolidated definitions. Given their dominance on the field, the study focuses on ontology-based approaches.

**Method**

We conducted a systematic mapping by establishing a review protocol that integrates automatic and manual searches from different sources. We applied a rigorous method to elicit the keywords from the research questions and selection criteria to retrieve the papers to evaluate.

**Results**

Overall, 138 primary studies were selected to answer our research questions. These proposals were studied in depth by analyzing: 1) distribution along time and their relationships; 2) size correlated with the number of classes and levels of the context model, and coverage of the definitions provided as indicator of quality provided; 3) most addressed context information; 4) most consolidated definitions of context information.

**Conclusions**

The contribution of this survey is to make available a unified and consolidated body of knowledge on context for service-oriented computing that could be instantiated and used as starting point in a variety of use cases. This sweeping view on the anatomy of context models may help avoiding the postulation of new proposals not aligned with the current research.

**Keywords**
Context-aware computing; context modeling; ontology; service-oriented computing; systematic mapping.

## 1. Introduction

Accepted manuscript

Download English Version:

https://daneshyari.com/en/article/4942429

Download Persian Version:

https://daneshyari.com/article/4942429

Daneshyari.com