

# Accepted Manuscript

Domain content querying using ontology-based context-awareness in information systems

Vinícius Maran, Alencar Machado, Guilherme Medeiros Machado, Iara Augustin, José Palazzo M. de Oliveira



PII: S0169-023X(17)30142-8

DOI: [10.1016/j.datak.2018.03.003](https://doi.org/10.1016/j.datak.2018.03.003)

Reference: DATAK 1638

To appear in: *Data & Knowledge Engineering*

Received Date: 19 March 2017

Revised Date: 7 February 2018

Accepted Date: 18 March 2018

Please cite this article as: Viní. Maran, A. Machado, G.M. Machado, I. Augustin, José.Palazzo.M. de Oliveira, Domain content querying using ontology-based context-awareness in information systems, *Data & Knowledge Engineering* (2018), doi: 10.1016/j.datak.2018.03.003.

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 proof before it is published in its final 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.

# Domain Content Querying Using Ontology-Based Context-Awareness in Information Systems

Vinicius Maran<sup>a,b,\*</sup>, Alencar Machado<sup>a,c</sup>, Guilherme Medeiros Machado<sup>a</sup>,  
Iara Augustin<sup>c</sup>, José Palazzo M. de Oliveira<sup>a</sup>

<sup>a</sup>*Institute of Informatics. Federal University of Rio Grande do Sul (UFRGS). Av. Bento Gonçalves, 9500. Porto Alegre - RS - Brazil*

<sup>b</sup>*Academic Coordination. Federal University of Santa Maria (UFSM). Av. Presidente Vargas, 1958. Cachoeira do Sul - RS - Brazil*

<sup>c</sup>*Center of Technology. Federal University of Santa Maria (UFSM). Av. Roraima, 1000. Santa Maria - RS - Brazil*

---

## Abstract

Ubiquitous computing technologies have been applied in several areas. However, it still presents a number of challenges, both for the full implementation of technologies and for the integration with existing information systems. One of the main mismatches evidenced by recent works is how context-awareness, a widely used capability in ubiquitous computing and actual information systems with relational databases may be integrated to allow ubiquitous and traditional systems to query relational data sources without the necessity to modify the schema of the database. This paper presents an integration model relating context and domain information allowing relational data to be retrieved in context without the necessity to change the originally used relational queries. A set of linking rules and algorithms are formalized in a model and this model is implemented in a prototype. The evaluation of the model is performed by applying it in a case study in a Massive Open Online Course (MOOC) platform. The evaluation of the model by the application of it in a case study in a MOOC platform demonstrated the possibility to use an ontology frequently used in ubiquitous middleware as an extra filtering layer for information systems without the necessity to recreate queries or make a re-engineering in the relational database schema. The results of the queries after the application of the model showed an aver-

---

\*Corresponding author. Email: [vinicius.maran@ufsm.br](mailto:vinicius.maran@ufsm.br)

Download English Version:

<https://daneshyari.com/en/article/6853934>

Download Persian Version:

<https://daneshyari.com/article/6853934>

[Daneshyari.com](https://daneshyari.com)