

Ontology-Driven Software Engineering

Sergio de Cesare

Brunel University
United Kingdom

sergio.decesare@brunel.ac.uk

Guido L. Geerts

University of Delaware
U.S.A.

geertsg@lerner.udel.edu

Grant Holland

Sun Microsystems
U.S.A.

grant.holland@sun.com

Mark Lycett

Brunel University
United Kingdom

mark.lycett@brunel.ac.uk

Chris Partridge

BORO Program
United Kingdom

partridgec@borogroup.co.uk

Abstract

This workshop represents the 6th in a series of OOPSLA workshops focusing on the impact of semantics on the development and re-engineering of software systems. These workshops include three on ‘Semantics of Enterprise Integration’ (2001-2003), one on ‘Legacy Transformation’ (2004) and one on ‘Semantic-Based Systems Development’ (2007).

The main theme of this workshop is Ontology-Driven Software Engineering (ODiSE). ODiSE here refers to the different ways in which ontologies (i.e., formalized conceptual models of real world domains) can contribute to improving Software Engineering – its processes and its artifacts. This use of the term encompasses different and interrelated aspects of Software Engineering as a discipline. For example: (1) ontological principles can be used as the basis of improved development languages; (2) ontologies can help improve the way in which software development projects are organized; and (3) ontological domain models can drive or refine typical development phases, such as requirements, design and implementation.

The motivation for organizing a workshop on ODiSE derives from the increased interest that ontologies have generated in recent years within the software community. The relevance of ontologies in Software Engineering is exemplified, for instance, by the successful OOPSLA 2007 workshop on ‘Semantic-Based Systems Development’, various OMG and W3C initiatives [1-3], and commercial products based on ‘semantic technologies’. However, regardless of such developments, these efforts still represent pioneering initiatives in the field of Software Engineering. As the state-of-the-art stands, ODiSE is still in its infancy. The adoption of theory and technologies developed by the Semantic Web community to enhance Software Engineering appears promising, with many areas that are worth investigating and exploring.

This workshop aims to bring together researchers and practitioners with diverse cultural and professional backgrounds in order to discuss and analyze the different perspectives, issues and challenges of Ontology-Driven Software Engineering. Topics include, but are not limited to the following:

- Novel ODiSE lifecycle models (for example, dual-lifecycles as in domain engineering)
- Project/risk management of ontology-based software systems
- Ontology-driven guidance of software processes
- New methodologies, techniques and tools or specializations of existing ones
- Languages: RDF, OWL, UML and novel ontology-based development/programming languages
- Integrated modeling (e.g., UML and OWL)
- Ontological modeling paradigms (e.g., endurantism vs. perdurantism) and resolution of their semantic mismatches
- Persistence, indexing and mapping of semantic models
- Relationships between ontology, epistemology and system behavior/performance
- Semantic discovery from legacy sources
- Model Driven Architecture/Development with ontologies
- Automated ontology generation and management for software development purposes
- Traceability of software artifacts with ontologies.

Categories and Subject Descriptors D.2.13 [Software Engineering]: Reusable Software – domain engineering, reusable libraries, reuse models.

General Terms: Algorithms, Management, Measurement, Documentation, Design, Languages, Theory.

Keywords: Ontology; software engineering; semantics; model development and transformation.

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