

Guest Editorial

Special issue: Selected papers of KES2012 – Part 2 of 2

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Abstract. The papers in this issue are a selection of the papers presented at the 16th International Conference on Knowledge-Based and Intelligent Information and Engineering Systems (KES2012) held on 10, 11 and 12 September 2012, in San Sebastian, Spain. The main bias for the selection of the papers has been the proposition of foundational works or reviews that focus on some specific issues of intelligent systems and knowledge engineering. The variety of the papers collected is great going from some abstract mathematical topics up to more close to the earth applications of knowledge engineering such as information retrieval.

Keywords: Ontologies, knowledge management, semantic modelling

1. Overview

The paper by Abe et al. deals with the very abstract concept of Curry Algebras, which have been proposed as a generalization of the logical systems algebraic formulations. They are useful in the case of non-standard logics. Enrichment of the Curry Algebras lead to many other logical modeling approaches, to the point that it can be said that any mathematical treatment of logic is a Curry system.

The paper by Stankov et al. introduces innovative document clustering algorithms by a semantically enhanced spherical k-means algorithm to improve conventional information retrieval algorithms. Obtained clustering works well on cross-domain repositories where most conventional clustering techniques are confused. The semantic text normalization is shown to be robust to noise introduced at the index aggregation stage.

The paper by Shi et al. deals with the basic ontological representation for information retrieval purposes,

proposing the use of ontology matching as the tool for information retrieval, and ontology composition and decomposition as the mean to build up representations of documents. The empirical tests give encouraging results that compete with state of the art approaches.

The paper by Krbalek et al. deals with the introduction of teleological concepts in the ontological modelling of organizations, where objectives can be individual or collective, and such an ontological approach may allow to harmonize them to obtain their cooperative satisfaction. The authors use ontologies to filter folksonomies, which are characterized by uncontrolled vocabulary, to learn about the actual behavior of individuals in corporations (what people do) and foster collaboration.

The paper by Saga et al. applies FACT-graph, a visualization technique developed for text analysis, to the analysis of the e-commerce site from the point of view of web accesses. The system mines the web access log to obtain trends of the site usage in order to increase their value. The sequential probability ratio test is used for detecting the structural changes, and the FACT-graph for the simultaneous visualization of trends and relationships

The paper by Horvat et al. proposes the use of WordNet as a semantic repository of image annotations with

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emotional content, as a mean to index databases of images for accessing and retrieval. Annotation can be made easy by the support of the WordNet, and it is endowed with semantic value from the point of view of ontologies supported by WordNet glossary. Retrieval is performed on the basis of semantic relatedness measured by node distance metrics. The long term research goal being the creation of a collaborative web based multimedia repository of human emotion.

The paper of Song et al. deals with the problem of ontology matching, which is a crucial problem for data interoperability. The approach is based on the use of core words for the measuring the semantic similarity. The core words are learned from the investigation of parts of speech and linguistic knowledge, using pattern recognition. In the situation when no corewords can be recognized, the system resorts lexical and structural matching of the ontologies.

The paper by Bravo proposes the use of metaconcepts for the support of building knowledge repositories, establishing the corresponding development stages. The approach builds the high level domain concepts that define the structure of the domain space where the concepts are living. The approach is instantiated in an Architecture domain, dealing with civil construction techniques and materials.

The paper by Graña et al. provides a review of the models and applications of trust in communication systems and multi-agent systems. Trust is presented as a key concept in the development of many automated and autonomous systems, ranging from the establishment of ad hoc communication networks, up to portfolio management systems. There are a number of computational models in the literature which are commented in the paper, as well as some of the most salient applications.

The Guest Editors

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