Guest Editorial

Special issue: Selected papers of KES2012 – Part 1 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 & Engineering Systems (KES2012) held on 10, 11 & 12 September 2012, in San Sebastian, Spain. The main bias for the selection of the papers has been the use of ontologies for knowledge modeling and their applications. There have been contributions ranging in all aspects of ontology processing, construction and application which shows the vitality of this field, one of the most ready to advance in computer science.

Keywords: Ontologies, semantic modelling applications, knwoledge engineering

1. Overview

The paper by Briola et al. proposes the application of ontologies for the management of railway services with a natural language interface. The aim of the proposed system is to enhance the interrogation of the actual state of the facilities, allowing to create more easily rules for reasoning and inferring new knowledge. Facilities dealt with are trains and items in the railway system which includes stations and tracks.

The paper by Rybicki proposes a method of ontology recomposition to achieve reduction in size allowing easy implementation in mobile devices. Target ontologies describe and combine services on the fly, from a general service description in a common ontology. The system allows several levels of enrichment in a hierarchy of descriptions.

The paper by Dragos proposes a formal ontology for intelligence in military environments, that is for the management of strategic information in the chain of command. Ontologies have been applied in the mili-

tary field for situation awareness, military coalitions, control and command. The application to intelligence analysis is innovative way to create richer descriptions of events and actions, providing additional means to asses their accuracy.

The paper by Angole et al. applies ontologies to the formalization of the knowledge stored in the traditional african medicine, looking to fill the gap between it and conventional western medicine. Patients simultaneously attend both kind of medical practices, therefore the need to harmonize the treatments, creating synergies that may finally benefit the patient. The authors resort to the Basic Formal Ontology as the best suited framework for their work.

The paper by Martinez-Romero et al. applies ontologies to the development of a system for intelligent drug administration in critical care units. The system is intended to adapt to the rapidly changing physiological parameters of the patients, which can change their status in minutes. The ontology formalizes the knowledge of the clinical expert on the diagnosis and treatment of the situations that the patient can traverse. The system is specialized in cardiac intensive care.

The paper of Bertrand de Beuvron et al. applies ontologies to capture the expert knowledge used in the interpretation of urban environment satellite images.

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The paper provides a taxonomy of urban objects and their spatial organization to bridge the semantic gap between low-level and high-level descriptions of the image contents. The paper addresses the symbol anchoring problem using the notion of embedding. The ontology may be useful for exploration of images and search in databases.

The work of Bobed et al. focus in the application of ontologies which are modeling the content of data repositories and databases, such as Wikipedia, to support the user queries and navigation over these data. The approach allows several views of the dataset without changing the original semantics. The system helps the user to perform efficient keyword search over a specific domain, and to refine the user searches.

The work of Yan et al. applies ontology reasoning and semantic relatedness to support the inventive problem solving approach, which is a general approach to problem solving and innovation generation in diverse industrial fields. Ontologies are used to reason about the state of the problem solving process, and to find required information and knowledge sources for the advance of the innovation process.

The Guest Editors
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