Ontology Applications that used in a Various Domains in Knowledge Engineering: Survey

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Abstract

Knowledge representation and reasoning are important component in knowledge engineering. In most information systems knowledge capture and then processed using different method like classified and compute...etc. One of the methods for a processing knowledge is Ontology. Ontology is an organized means of representing the knowledge detailed to the domain of interest. This survey focused to get a clear understanding of what Ontology? . And how to building Ontology in various domains Like intelligent system ?E- learning ? software engineering and discuss new approaches for ontology in a various domains in knowledge representations. And tools that used in building ontology for example, (UML) Unified Modeling Language this is an associated languages to build ontology.

Index terms— knowledge engineering, ontology, knowledge representations, UML.

1 Introduction

pplications of Ontology are ubiquitous in this world. And use for almost applications that uses for decision making and for solutions, diagnosing, interpreting, and predicting results. There are some definitions of ontology in field of computer science and environment of WWW (world wide web). Ontology is an explicit specification of a conceptualization and semantic meaning. Ontology is known to provide syntactic and semantic meanings of concepts in a concerned domain using different techniques, one of them being OWL (Ontology Web Language). In computer science Ontology researchers agree that capturing domain knowledge is the most important task to build large, powerful and complex artificial intelligence system. And also Ontology is a way to confine knowledge in a machine-understandable form. It yields and used tools for building ontology in various domains of knowledge representation and software engineering. This survey about how to used ontology in a various domains and how to build or create new method or approaches that is used for extracting knowledge for a decision making. And then show tools and software that used for ontology. This survey organized in five sections section one include brief introduction about the ontology. Section two related works in different domains

2 Related Work

This section will discuss some issues related to ontology. Starting with the descriptions for ontology in a various domains. And survey about how to uses ontology applications in knowledge representations . And then go through some of applications for uses ontology in knowledge representations. 1) Rashmi S R and R Krishnan. [1] methodology Case (study in education domain). 3) Tatiana V. Avdeenko, Natalia V. Pustovalova [3] presents a knowledge -based approach to requirements engineering process. This approach used when creating system requirementscorrectness, completeness, consistency, unambiguity and proposed hyper model based on ontology frame and production rules. And can be used for testing traceability, completeness and consistency properties of the requirements specification. And then used UML (Unified Modeling Language) object oriented analysis for modeling and annotation the process. And Protégé software is free and open-source supported frame-based

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Ontology. 4) Jiayao Gao, Buyang Cao, Hongfei Fan. [4] Contribute to the novel approach for storing Points Of Interest (POIs) data by using ontology. And capable of building unified data structures and integrated data as well as providing a unified query approach. And design POIs in ontology model to demonstrate the integration of data and structures of classes and descriptions and used Protégé software for design ontology. 5) Supavas Sitthithanasakul and Noppon Choosri. [5] Proposed new method to create the ontology applied in software requirements engineering process(SREP) in requirement elicitation, requirement analysis, requirement specification, requirement validation. Although there are already many methodologies to create the ontology, some of them are difficult to understand and apply by other people. And we have presented the ontology information extraction form this form creates for (SREP). And generate the ontology component. This form separates into four parts. Each part used different type of ontology component and considered a guideline to build ontology systematically using UML. 7) Suma T, Kumara swamy Y S. [7] Proposed Ontology Extraction engine on the fuzzy rules and define the information and extracts based on fuzzy rules and self-clustering techniques for email classification and use the similarity and match the words. in case a word is not found to match the similarity with existing cluster than a new cluster is formed for that word and also conducted experimental result shows that classification and fuzzy rule set against ontology creation with better efficiency by using values of mean and deviation. Methodologies that used are analytical for email processing and extraction of fuzzy rules. 8) Maedeh Mosharraf and Fattaneh Taghiyareh. [8] presents an automatic approach to enrich E-Learning domain in specific ontology based on two method the integration of graph and clustering techniques in addition external knowledge resources like WordNet and Wikipedia . And generated ontology as integration used model education activities. and showed experimental results that in the case of simple words the dictionary of WrodNet can add acceptable connections to the ontology. methodologies and tools that used Wikipedia and WordNet tool to specify the application domain and semantic features of the input terms. 9) ABADI Asmae, SEKKAT Souhail, ZEMMOURI El Moukhtar, BENAZZA. [9] Hussein Propose a new approach for production and informatics system based on ontology and the concept of agent in software engineering to automate the development of a new product. And achievement of the interoperability requirements and informatics system using UML language and also modeled strategy of the system during the development of a new product. 10) Janejira Somchart, Patitta Suksomboon Garcia and Pattara Aiyarak.

3 Discussion
Ontology applications are large domains so you must select and determine the requirements for ontology design and used for other domains.

4 Conclusion
This paper review several topic about ontology applications that uses in different domains in knowledge representation in E-learning, expert system, and how to select the tool for ontology analysis and software we use to build ontology or propose new method to build a systematic approach for ontology and modeling and extracting knowledge for decision making.

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5 Recommendations
Through this survey I recommend for this points Integrating models for ontology to fit for all application in specific domain. Reuse the ontology model to adapt any action when the application is changing. New approaches to help the modelers to use a suited framework to design the ontology. Interoperability and matching are a challenge is open research issues in ontology processes.

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Figure 1:

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