



## Poster and Demo Program

### Poster session 1 – September 30<sup>th</sup> 14.00-15.30 (Bellini room)

#### *Supporting Subject Experts with Ontology Maintenance*

Claudio Baldassarre.

**Abstract:** Semantic technologies are an emblematic example of technological shift particularly interesting in the field of knowledge management. We specifically look in the scope of knowledge maintenance at the problem of how hard can be to re-address knowledge workers to maintain different knowledge model types. In this paper we describe the vision of a knowledge maintenance framework whose objective is to set up a network of maintenance spaces where to re-render knowledge modifications according to the formality of the local knowledge model. We illustrate an example of applicability in the case of AGROVOC thesaurus.

#### *Janus: Automatic Ontology Construction Tool*

(DEMO)

Ivan Bedini, Benjamin Nguyen and Georges Gardarin.

**Abstract:** The construction of an ontology for a large domain still remains an hard human task. The process is sometimes assisted by software tools that facilitate some parts of the ontology construction life-cycle. But often they do not propose a methodology that considers the automation of the entire process. In this paper we present a method for deriving an ontology automatically. Then, we introduce Janus, an implementation of this approach, for deriving automatically a skeleton of an ontology from XML schema files in a given domain. Janus also provides different useful views that can be used for a final revision by an expert.

#### *Evaluating Ontology Modules Using Entropy*

Paul Doran, Valentina Tamma, Luigi Iannone and Ignazio Palmisano.

**Abstract:** Ontology modularization has been the focus of much research recently; many techniques to carry out ontology modularization have been developed. This creates a problem in evaluating the results of the techniques. Ontology modularization techniques cannot solely be evaluated by examining their logical properties. Certain applications of ontology modularization, such as ontology reuse, require a new objective way to evaluate the results. This paper motivates the use of an entropy inspired measure to evaluate ontology modules.

#### *A Framework for Schema-based Thesaurus Semantic Interoperability*

Enrico Francesconi, Sebastiano Faro, Elisabetta Marinai, Maria Angela Biasiotti and Francesca Bargellini.

**Abstract:** This work proposes a formal characterization of the schema-based thesaurus mapping problem as well as a specific approach within such framework on a case study aimed at mapping five thesauri of interest for European Union institutions.

#### *Comparing background-knowledge types for ranking automatically generated keywords*

Luit Gazendam, Veronique Malaisé, Hennie Brugman and Guus Schreiber.

**Abstract:** The automatic generation of thesaurus keywords can be a precious help to cataloguers working in large, daily growing archives. Given a text in which we spotted all lexical variants of thesaurus keywords, we face the problem of ranking the automatically generated keywords in order to suggest only a small list of most relevant keywords. Of course we could use the TF.IDF ranking, a classic, count-based ranking. We experiment in this paper whether we can improve upon the classic, count-based ranking of TF.IDF by using background knowledge which is represented in the relations between keywords. So we implemented two ranking algorithms that take into account the relations the keyword has to other found keywords. Next to the two ranking algorithms, we also tested the value of two types of background knowledge.

*Collaborative enterprise integrated modelling*

Chiara Ghidini, Marco Rospocher, Luciano Serafini, Andreas Faatz, Barbara Kump, Tobias Ley, Viktoria Pammer and Stefanie Lindstaedt.

**Abstract:** Our work aims at supporting collaborative modelling of enterprises in two different ways. First, we propose a new collaborative approach for enterprise modelling, where different actors can actively collaborate in a truly flexible manner to create an integrated enterprise meta-model. Second, we propose a tool based on Semantic MediaWiki to support the development of an integrated enterprise meta-model.

*iMERGE: Interactive Ontology Merging*

(DEMO)

Zoulfa El Jerroudi and Jürgen Ziegler.

**Abstract:** In this paper we present novel visual analytics techniques which help the user in the process of interactive ontology mapping and merging. A major contribution will be the strong integration and coupling of interactive visualizations with the merging process enabling the user to follow why concepts are merged and at which position in the ontology they are merged. For this purpose, adapted ontology similarity measures and new techniques for representing ontologies will be required to enable responsive, real time visualization and exploration of the comparing and merging results.

*Semantic cartography: towards helping experts in their indexation task*

Eric Kergosien, Marie-Noelle Bessagnet and Mauro Gaio.

**Abstract:** Our approach aims at helping experts in their indexation work using the relationship between concepts included in descriptive notices defined by using an external semantic structure (taxonomy, thesaurus, etc). In our research, we exploit specificities of the corpus linked to words which “have a meaning” to experts during the design of a descriptive notice. We propose tools in order to visualize the indexation work for validation by the experts.

*Distinguishing general concepts from individuals: An automatic coarse-grained classifier*

Davide Picca.

**Abstract:** Named entity recognizers are unable to distinguish if a term is a general concept as “scientist” or an individual as “Einstein”. In this paper we explore the possibility to reach this goal combining two basic approaches: (i) Super Sense Tagging (SST) and (ii) YAGO. Thanks to these two powerful tools we could automatically create a corpus set in order to train the SuperSense Tagger. The general F1 is over 76% and the model is publicly available.

*Pattern-Based Representation and Propagation of Provenance Metadata in Ontologies*

Miroslav Vacura and Vojtěch Svátek.

**Abstract:** Future semantic web applications will rely on multiple ontologies and data collections discovered and assembled at run time into the target knowledge structures. In such dynamic settings, designers of end-user applications however have limited control over the origins of information that influences the results of retrieval and inference. Provenance metadata associated with A-box axioms (facts) as well as T-box/R-box axioms will thus add significant value to such results. In the extended abstract we suggest an ontology pattern for representing provenance metadata relying on the forthcoming OWL 2 specification, and propose a simple mechanism for propagation of such metadata.

## Poster session 2 – October 2<sup>nd</sup> 14.00-15.30 (Bellini room)

### *The Cell Cycle Ontology: a step towards Semantic Systems Biology*

Erick Antezana, Mikel Egaña, Ward Blondé, Vladimir Mironov, Robert Stevens, Bernard De Baets and Martin Kuiper.

**Abstract:** The terms and relationships provided by existing bio-ontologies only represent a limited set of features of biological regulatory processes. As current bio-ontologies only explicitly capture a small part of our biological understanding, the potential of applying computational analysis on such knowledge remains limited. The Cell Cycle Ontology (CCO) is designed to capture detailed knowledge of the cell cycle process by combining representations from several sources. CCO is an application ontology that is supplied as an integrated turnkey system for exploratory analysis, advanced querying, and automated reasoning. Linking and converting bio-ontologies to semantic web languages, such as OWL, opens possibilities to widely exploit computational approaches for knowledge visualization, retrieval and automated inference which in turn can support systems biology approaches.

### *Guiding the Ontology Matching Process with Reasoning in a PDMS*

François-Élie Calvier and Chantal Reynaud.

**Abstract:** This article focuses on ontology matching in a decentralized setting. The work takes place in the MediaD project. Ontologies are the description of peers data belonging to the peer data management system SomeRDFS. We show how to take advantage of query answering in order to help discovering new mappings between ontologies, either mapping shortcuts corresponding to a composition of pre-existent mappings or mappings which can not be inferred from the network but yet relevant.

### *Frame-based Ontology Learning for Information Extraction*

(DEMO)

Diego De Cao, Cristina Giannone and Roberto Basili.

**Abstract:** In this paper, an ontology learning platform, called "Frame-based Ontology Learning for Information Extaction" (FOLIE), based on FrameNet, as a system of reusable knowledge patterns, the frames, and on lexical semantic primitives, i.e. word senses, is presented.

### *Ontology Engineering from Text: searching for non taxonomic relations in versatile corpora*

Marie Chagnoux, Nathalie Hernandez and Nathalie Aussenac-Gilles

**Abstract:** In this paper, we propose a methodological approach based on pattern design and acquisition from texts in order to enrich lightweight ontologies with non-taxonomic relations. Since learning approaches require constrained domains and corpora with strong regularities, an alternative method is needed to locate sharp relations in versatile corpora. Rooted from our past experiments of Cameleon an ontology building tool, our approach relies on an existing ontology, an evolutive pattern base and a tagged corpus resulting from a morpho-syntactic analysis. The objective is twofold : (i) the morpho-syntactic patterns stored in the base are used to identify new relations between the concepts from the ontology (ii) new patterns identifying new kinds of relations are extracted from the context of co-occurring concept labels. These patterns enrich the pattern base and can be matched to look for new semantic relations.

### *Automatic Relation Triple Extraction by Dependency Parse Tree Traversing*

DongHyun Choi and Key-Sun Choi.

**Abstract:** To use the information on the web pages effectively, one of the methods is to annotate them to meet with ontology. This paper focuses on the technology of extracting relation triplets automatically by traversing dependency parse tree of a sentence in postorder manner, to build ontology from plain texts.

*A Community Based Approach for Managing Ontology Alignments*

(DEMO)

Gianluca Correndo, Yannis Kalfoglou, Paul Smart and Harith Alani.

**Abstract:** The Semantic Web is rapidly becoming a defacto distributed repository for semantically represented data, thus leveraging on the added on value of the network effect. Various ontology mapping techniques and tools have been devised to facilitate the bridging and integration of distributed data repositories. Nevertheless, ontology mapping can benefit from human supervision to increase accuracy of results. The spread of Web 2.0 approaches demonstrate the possibility of using collaborative techniques for reaching consensus. While a number of prototypes for collaborative ontology construction are being developed, collaborative ontology mapping is not yet well investigated. In this paper, we describe a prototype that combines off-the-shelf ontology mapping tools with social software techniques to enable users to collaborate on mapping ontologies. Emphasis is put on the reuse of user generated mappings to improve the accuracy of automatically generated ones.

*NeOn Methodology: Scenarios for Building Networks of Ontologies*

Asunción Gómez-Pérez and Mari Carmen Suárez-Figueroa.

**Abstract:** In this poster we present the NeOn methodology<sup>1</sup> that identifies nine scenarios for building ontology networks collaboratively, emphasizing the reuse and the reengineering of ontological and non ontological resources.

*Problem Solving Methods as Semantic Overlays for Provenance Analysis*

Jose Manuel Gómez-Pérez and Oscar Corcho.

**Abstract:** Processes executed in data-intensive domains produce large amounts of provenance information. Thus, sophisticated analytical capabilities with a higher level of abstraction are required that provide users with meaningful interpretations of process executions, explaining provenance in a way closer to how domain experts reason on a given problem and facilitating their comprehension. In this work, we use Problem Solving Methods as semantic overlays that, sitting on top of process documentation, provide domain experts with meaningful interpretations of provenance.

*Collaboration Patterns in a Medical Community of Practice*

Marie Gustafsson, Göran Falkman, Olof Torgersson and Mats Jontell.

**Abstract:** Since the mid 1990's, the Swedish Oral Medicine Network (SOMNet) has promoted the harmonization and dissemination of knowledge and the sharing of clinical experience within oral medicine. SOMWeb is an online system supporting SOMNet's activities by providing facilities for adding and administering cases to be discussed at SOMNet meetings. In our previous research, we have studied clinicians' use of SOMWeb as well as the possibility of using ideas from the PragmaticWeb to describe communications patterns within the community. In this paper, we continue this research by presenting ideas on how collaboration patterns within the domain can be identified, modeled, and be put into use.

*Semantic Annotation and Linking of Competitive Intelligence Reports for Business Clusters*

Tomáš Kliegr, Jan Nemrava, Martin Ralbovský, Jan Rauch, Vojtěch Svátek, Marek Nekvasil, Jiří Šplíchal and Tomáš Vejlupek.

**Abstract:** Competitive intelligence (CI) is an ethical business discipline that supports decision makers in understanding the competitive environment. Its main vehicle are CI reports, which are prepared on the basis of open sources such as web pages, articles or business registries. Enriching CI reports with semantic structures is a natural way to support easier retrieval of relevant textual information by the decision makers (among other, via accommodating to their existing mindsets) and for creating business maps.

*Cognitive Reengineering of Expert's Knowledge by the Implicit Semantics Elicitation*

Alexander Voinov and Tatiana Gavrilova.

**Abstract:** Recent years have witnessed increased interest to knowledge modeling in cognitive architecture. Increasingly, the focus has been put on exploring the structures of individual knowledge spaces, using such models as ontologies, frames, rules and semantic networks. Every specific subject domain includes its own combination of the formalized and reproducible knowledge on the one hand and the unique professional experience of its experts on the other hand. The more is the role of the latter in a particular domain the more important is taking into consideration the expert's system of meanings.