ISWC 2014 Workshop Proposal

1. Title

Big Data and Semantic Web Meet Applied Ontology

2. Abstract

Since the origin of the Semantic Web, ontologies have played key roles in its design and deployment. Yet the collaboration between the Semantic Web and Applied Ontology communities has remained limited. Within Big Data applications, ontologies appear to have little impact. Principal problems suggest nevertheless that "concepts without data are empty, data without concepts are blind" (Kant paraphrased).

This interdisciplinary workshop is organized by the Semantic Web Applied Ontology Special Interest Group of the International Association for Ontology and its Applications (IAOA). Continuing the theme of Ontology Summit 2014, it aims at building bridges between the Semantic Web, Linked Data, Big Data, and Applied Ontology communities. The first three communities bring a wide array of real challenges (such as heterogeneity, schema quality, performance, and scalability) and technologies (such as automated reasoning tools) that are relevant to ontology research. The Applied Ontology community can offer a large body of common reusable content (ontologies) and analysis techniques. Ontology engineering bottlenecks are critical to address for all communities.

We invite submissions on the development and application of ontologies for Semantic Web, Linked or Big Data projects that focus on analyzing challenges, synthesizing new insights and disseminating knowledge across field boundaries.

3. Motivation:

Often the communities of Applied Ontology and the Semantic Web (including Linked Data) seem to think they have nothing in common, whereas some of us believe they share many common goals, common technologies, and a common interest in well-engineered applied ontologies. Many of those in the Applied Ontology community promote and use Semantic Web technologies and reasoning methods in everyday practice; similarly, many in the Semantic Web community advocate more rigorous and principled ontologies based on ontological analysis. All the communities share the need for a common semantic understanding and a formal representation of the domain at hand. The Semantic Web, Linked Data, and Big Data communities also have challenges to do with large scale applications and linking of vast heterogeneous data, so the communities also have different foci. The motivation of this workshop is to bring all perspectives to the table, thus creating a forum for the multiple communities to work collaboratively in tackling the Big Data and common problems.

4. Topics

Suggested topics include but are not limited to:

- Tackling the semantic heterogeneity, complexity, and variety problems in Big Data with ontologies and reasoning
- Ontology-driven open data integration
- Ontological analysis and related formal methodologies for the Semantic Web and Linked Data
- Developing common reusable semantic content
- Agile ontology development, deployment and evolution for the Semantic Web and Linked Data
- Overcoming ontology engineering bottlenecks

- Providing and enhancing community semantic resources (ontology registries and repositories, vocabulary-ontology mappings, data and ontology transformations, automated ontology acquisition and maintenance, etc.)
- Making use of ontologies: tools, services, and techniques
- Lightweight, intensive, and hybrid reasoning using ontologies, vocabularies, and rules
- Collaborative ontology development and usage requirements for large-scale internet and intranet ontology applications
- Ways to use ontologies and linked data for participatory governance of large systems

5. Workshop Format:
    - Accepted technical and position papers
    - Invited talk: TBD
    - Panel discussion (e.g., co-Champions of the Ontology Summit 2014 tracks)
    - Demos (e.g., extensions of Ontology Summit 2014 hackathon projects, etc.)
    - Summary of the Day and Recommendations

6. Audience:

The intended audience is developers and users of Semantic Web and Linked Data technologies, applied ontologists and vocabulary developers, developers and users of Big Data in scientific and application domains, and governmental, commercial, and academic managers and analysts who seek to apply Semantic Web and Linked Data technologies utilizing ontologies to their specific domains, specific data sources, and their current or emerging applications.

We estimate 30 on-site attendees at the workshop and 60 (total) if cost-free remote participation is supported as well.

7. Chair(s):

Mike Bennett, Hypercube Ltd. (UK), mbennett@hypercube.co.uk, www.hypercube.co.uk. Mike Bennett is the originator and editor of the Financial Industry Business Ontology (FIBO), an industry initiative to standardize the terms used in investment management using Semantic Web notation, which is sponsored by the Enterprise Data Management Council. He has 15 years of experience in the financial industry, mainly in standards development, and is a member of the IAOA.

Stefano Borgo, Laboratory for Applied Ontology, Institute of Cognitive Sciences and Technologies (Italy), stefano.borgo@cnr.it, http://www.loa.istc.cnr.it. Stefano Borgo has 15 years of experience in top-level ontologies and in their applications to engineering, knowledge representation, and knowledge management. He co-authored the DOLCE ontology, is on the Editorial Board of Applied Ontology and is a member of the Executive Council (and previous Secretary) of the IAOA.

Mike Dean, Raytheon BBN Technologies (USA), mdean@bbn.com, http://purl.org/net/mdean/. Mike Dean has worked with the Semantic Web and ontologies since 2000. He served on the W3C Web Ontology Working Group. He is a member of IAOA.

8. Program Committee:

Program Committee Chairs:

Elie Abi-Lahoud, University College Cork (Ireland), E.Abilahoud@ucc.ie
Andrea R. Westerinen, Nine Points Solutions, LLC (USA), andreaw@ninepts.com

Program Committee Members:

Sören Auer, U. Bonn (Germany)
Ken Baclawski, Northeastern U. (USA)
Gary Berg-Cross, Knowledge Strategies (USA)
Oscar Corcho, Universidad Politécnica de Madrid (Spain)
Tim Finin, U. Maryland – Baltimore County (USA)
Aldo Gangemi, University Paris 13 (France)
Adila Krisnadhi, Wright State U. (USA)
Naicong Li, U. Redlands (USA)
Frank Loebe, U. Leipzig (Germany)
Leo J. Obrst, The MITRE Corporation (USA)
Peter Patel-Schneider, Nuance Communications (USA)
Todd Schneider, PDS (USA)
Amit Sheth, Wright State U. (USA)
Marcela Vegetti, Universidad Tecnológica Nacional / National Council for Scientific and Technical Research of Argentina (CONICET) (Argentina)
Nancy Wiegand, U. Wisconsin – Madison (USA)

All Program Committee members listed above have confirmed. A small number of invitations are still pending confirmation.

9. Length: Full day (can do a half day if requested)

10. Related Workshops and Conferences:

This is a new workshop, but it is viewed as a partial continuation of the topics and discussions of the 2014 Ontology Summit which is being held between Jan – April 2014 with a face to face symposium in April 2014. For full details please see: http://ontolog.cim3.net/cgi-bin/wiki.pl?OntologySummit2014. We anticipate this will be a continuing annual workshop.

Note also that we will apply for support from the IAOA Executive Council, and thereby might provide some assistance with travel/lodging costs to the invited speaker.