

# Big Data and Semantic Web Meet Applied Ontology

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# Welcome

- NITRD NCO is pleased to be a sponsoring organization for the OntologySummit2014
- And to be your host for the in-person portion of the Summit
- Since I tend to be a joiner rather than a splitter, I'm also pleased to see the breadth of topics covered in this year's theme

# Big Data

- A national initiative focused on learning how to process data that is too big, too fast, or too diverse to be handled by current methods
- Especially in the case of big diversity, semantics would seem to offer important help
- Some science communities have begun to use semantics to facilitate data interoperability, but big data remains a fertile field for the application of ontological methods

# Semantic Web

- Some say it's too simple and some say it's too complicated
- Does the rebranding as Linked Open Data make it simpler or more complicated?
- Interoperability of heterogeneous data

# Ontology

- Reasoning over data
- Reuse of ontologies
- I like to say the computer scientists have only two jobs: to create complexity and then to hide it (eg, www follow by the browser). Does the same apply to ontologists?

# Important developments

- Google search process now includes semantic methods
- Cray offers the Yarcdata Appliance, hardware-supported graph database processing
- IBM to invest \$1 billion in Watson-like computing

# In conclusion

- A decade ago, I said two technologies to watch were cloud computing and semantics
- Cloud computing is now mainstream
- Semantics and ontology is on the verge of becoming mainstream!

# Descriptions, Goals, and Objectives

Since the beginnings of the Semantic Web, ontologies have played key roles in the design and deployment of new semantic technologies. Yet over the years, the level of collaboration between the Semantic Web and Applied Ontology communities has been much less than expected. Within Big Data applications, ontologies appear to have had little impact.

This year's Ontology Summit is an opportunity for building bridges between the Semantic Web, Linked Data, Big Data, and Applied Ontology communities. On the one hand, the Semantic Web, Linked Data, and Big Data communities can bring a wide array of real problems (such as performance and scalability challenges and the variety problem in Big Data) and technologies (automated reasoning tools) that can make use of ontologies. On the other hand, the Applied Ontology community can bring a large body of common reusable content (ontologies) and ontological analysis techniques. Identifying and overcoming ontology engineering bottlenecks is critical for all communities.

Ontology Summit 2014 will pose and address the primary challenges in these areas of interaction among the different communities. The Summit activities will bring together insights and methods from these different communities, synthesize new insights, and disseminate knowledge across field boundaries.

Following earlier Ontology Summit practice, the synthesized results of this season's discourse will be published as a Communiqué.