SOCoP NSF INTEROP Project on Geospatial Semantics

CONTACT DETAILS:
PROJECT NAME: INTEROP - Spatial Ontology Community of Practice: an Interdisciplinary Network to Support Geospatial Data Sharing, Integration, and Interoperability
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Objectives

The objective of this project is to help advance semantic interoperability for the use of geospatial data across a range of disciplines. To facilitate this, we are expanding our initial SOCoP Network (Spatial Ontology Community of Practice) to include others interested in working on semantic capabilities for the geospatial domain. Interoperability is a challenge because geospatial data are created independently, for example, by different units of government using different conceptual models. The resulting differences in terminology and meaning make it difficult to re-use and combine geospatial data and concepts across jurisdictions, agencies, disciplines, and applications. The approach of this project is to use semantic technologies to mitigate this data silo problem, allowing better access, use, and reuse of data. Semantic technologies include ontologies, linked data, semantic query languages, mappings, reasoners, and rules. We are applying these technologies to accomplish semantic search and query. We plan to apply these techniques in local, state, and national spatial data infrastructures.

On-going activities:

This project continues to grow a collaborative Network through workshops and talks. Our annual fall SOCoP workshops and other GeoVoCamps bring interested people into the topic of geospatial semantics. Our GeoVoCamps are part of the VoCamp (vocabulary camp) series (http://vocamp.org/wiki/Main_Page). Our upcoming GeoVoCamp to work on creating ontologies and ontology design patterns is November 18-19, 2013 at the U.S. National Science Foundation (http://vocamp.org/wiki/GeoVoCampDC2013). As part of our work, we have developed and are maintaining and populating an open ontology repository with geospatial and related ontologies. As part of our education effort, we have proposed geospatial semantic topic areas to be added to the University Consortium of GIS (UCGIS) Body of Knowledge (BoK). We will also be creating geospatial RDF data to demonstrate our GeoQuery tool that generates GeoSPARQL queries from a text box and map based interface. We are also interested in using semantic technology to improve search and query in small to large information systems, applications, and state and national spatial data infrastructures.

Results:

We created an instance of the BioPortal Open Ontology Repository (OOR) code to use specifically for geospatial ontologies (socop.oor.net). We have populated it with spatial ontologies and ontology design patterns and are adding more with contributions from the community. We also created our own initial land use code ontology and several ontology design patterns. In addition, we gathered educational material on geospatial semantics and designed and taught a new course on the topic at James Madison University. Also, members of the SOCoP team helped design and develop GeoSPARQL, which extends the SPARQL RDF query language with spatial operators. We then developed an interface (GeoQuery) for posing GeoSPARQL queries to be used by GIS professionals not versed in semantic technologies.

URL:

http://interop.socop.org