

## ***Brief Biographical Sketch***

Krzysztof Janowicz is research associate and PhD student at the Institute for Geoinformatics, University of Muenster. He earned a Dipl. in Landscape Ecology from the University of Muenster (2003). His master thesis was about composition and interoperation of semantic-enabled web services. He started to work as student assistant at the Institute for Geoinformatics in 1999 and works as research associate since 2003. His PhD thesis is about a role-based approach to semantic similarity measurement for concepts specified in high expressive description logics and will be finished in 2007. The PhD is supervised by Werner Kuhn and Martin Raubal. During his studies Krzysztof Janowicz was working as network administrator, software developer and network security consultant within various companies and also as independent contractor. In 2001 he published a book about internet security at O'Reilly Press and a revised 2<sup>nd</sup> edition in 2005. Krzysztof has authored or co-authored over 10 articles in journals, books, and conference proceedings relating to GIS, computer science, and cognitive science. His research interests are in semantic interoperability, formal ontologies, similarity, analogy, context, spatial cognition as well as situated and role-based categories. He was an invited participant at the Dagstuhl Seminar – Towards Affordance-Based Robot Control and one of the organizers of the Workshop on the Potential of Cognitive Semantics for Ontologies at FOIS 2004. Krzysztof teaching activities focus on object oriented modelling and development.

## ***Reasons for Wishing to Participate and Scope of Contribution***

My work is focussed on developing a context-aware and meaningful notion of similarity between concepts and also individuals. Strictly speaking I am interested in similarity assessments between role-filler pairs (such as *next to-province*) used to determine the overall similarity of a described concept or individual. Beside applications in classical information retrieval and concept matching tasks, the developed theory can also be applied to compare (disambiguate) RDF resource descriptions. As part of my PhD work I have developed a theory for a similarity-based identity assumption service for historical place. The service uses thematic information as additional reference points to evaluate whether compared place descriptions point to the same real world place. Currently we started a joint project with a museum of biodiversity to implement the theory within a pilot application (for historical gathering sites) and combine similarity assessments with spatiotemporal and subsumption reasoning.

Hence I consider my current work as well as my background in ontology engineering to be a useful contribution to the following points of your meeting agenda:

- Creation and sharing of category schemes for gazetteers
- Interpretation of prepositional referencing (e.g., near, next to, left of) in information georeferencing
- Evaluating if two pieces of gazetteer data are about the same place when names, types, spatial location, and time frame can all vary

Moreover I expect that the outcome of this workshop will influence our ongoing work on creating the identity assumption service and the underlying theory. Taking part in the meeting will also give me the possibility to present parts of my PhD to domain experts.

### ***Selected Publications***

- Janowicz, K. (2006): Towards a Similarity-Based Identity Assumption Service for Historical Places. In M. Raubal, H. Miller, A. Frank, and M. Goodchild, Eds. (2006) Geographic Information Science - Fourth International Conference, GIScience 2006, Münster, Germany, September 2006. Lecture Notes in Computer Science 4197. Springer, Berlin. p.199-216.
- Janowicz, K. (2006 forthcoming): Similarity-Based Retrieval for Geospatial Semantic Web Services Specified using the Web Service Modeling Language (WSML-Core). International Semantic Web Conference ISWC'06 Workshop: Terra Cognita 2006 - Directions to the Geospatial Semantic Web. 6th November 2006, Athens, Georgia, USA
- Janowicz, K. (2006): Sim-DL: Towards a Semantic Similarity Measurement Theory for the Description Logic ALCNR in Geographic Information Retrieval. R. Meersman, Z. Tari, P. Herrero et al. (Eds.): SeBGIS 2006, OTM Workshops 2006, LNCS 4278, pp. 1681 – 1692
- Janowicz, K. (2005): Janowicz, K., Extending Semantic Similarity Measurement by Thematic Roles, in First International Conference on GeoSpatial Semantics, GeoS 2005, Mexico City, Mexico. 2005, Springer Verlag: Berlin. p. 137-152.
- Janowicz, K. and Wilde, M. (2004): Why Environmental Metadata Description Needs Ontologies. Environmental Informatics Archives. Volume 2/2004, EIA04-01 ISEIS Publication #002 p.140-150.