

Centre for Research in Computing



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“DSSim: A Top System in the Ontology Alignment Evaluation Initiative 2008”

Dr Maria Vargas-Vera, Miklos Nagy and Piotr Stolarski's DSSim System achieved a joint top-ranking in the recent Ontology Alignment Evaluation Initiative (OAEI-2008) Evaluation Contest. As a result the DSSim team have been invited to give a presentation in Germany at the Ontology Mapping Workshop (OM-2008) collocated with the ISWC-2008. 13 systems participated in the OAEI-2008 Evaluation with DSSim and ASMOV being selected as the top two.

DSSim (short for Dempster-Shafer Similarity) is a Multi-Agent Ontology Mapping System for AQUA (Question Answering System) that uses several agents performing mappings and then the evidence found by each agent is combined using the Dempster-Shafer Theory. This solution is generic as it does not need to learn mappings in advance unlike other approaches which use Machine Learning techniques. The ontology mapping algorithm gets evidence from different sources like wordnet and background knowledge (specific to the domain ontology).

In addition, recently the team have added a Fuzzy Voting Model to the system in order to resolve the problem of "contradictory evidences" which are ignored when using Dempster-Shafer rule of combination. The Dempster-Shafer rule strongly emphasises the agreement between multiple sources and ignores all the conflicting evidence through a normalization factor. The result of this research is the DSSim (v0.3) System which is written in Java.

The DSSim team have solved [8 different problems](#) given by the organizers of the OM-2008. An example of results obtained by DSSim can be found below.

- [Library Track Results](#). DSSim achieved first place in this track.
- [Directory Track Results](#). DSSim achieved first place in this track when taking F-measure as measure of positioning a system.

Due to its exceptional performance, DSSim was selected for oral presentation at OM-2008 together with ASMOV; at OM-2008, October 26-30, 2008; Karlsruhe, Germany. The organizers of the OM-2008 Evaluation were impressed with the performance of the system, stating that "Based on ... the number of tracks addressed and quality of matching results, it has been resolved that only the DSSim and ASMOV teams are offered to make oral presentations concerning their evaluation results".

Biographical notes:

Dr. Maria Vargas-Vera received her PhD from the Artificial Intelligence Department at Edinburgh University (1995). Dr. Vargas-Vera is a Lecturer in Computing at the Open University, England UK. Her current research focuses on Automatic Construction of Ontologies from Text, Ontology Mapping using Agents and E-Learning Applications using Semantic Web Technologies. Dr Vargas-Vera has published research papers in international conferences and journals and she is a member of program committees of international conferences and workshops. Dr Vargas-Vera is an Associated Editor of the "Revista Iberoamericana Computacion y Sistemas" and also she is Associated Editor of the "International Journal on Knowledge and Learning" (IJKL) and the Journal of Emerging Technologies in Web Intelligence (JETWI).