

**MASTER'S THESIS (SPRING 2013)**

**TOPIC:** *Ontology-Supported Smart Search Engine for Concept-Based Query*

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**DATE & TIME:** Wednesday, May 1, 2013, 10:00-11:00AM

**LOCATION:** Dion 305

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**ABSTRACT**

Searching over the web using search engines has become a common task for online users. As the resources on the Internet quickly growing, search engines are facing the challenges of being smarter in order to fulfill every user's needs. Currently, traditional search engines are keyword based; thus, they do not have the capability to understand the semantic relationships between query concepts entered by a user, causing the user to face too many irrelevant and ambiguous results. As opposed to traditional keyword-based search engines, in this thesis, we propose an ontology-based methodology combined with the keyword-matching approach to obtain more accurate and relevant search results from a concept-based query. The search engine can understand the semantic of a concept or multiple concepts entered by a user, and classify and reason about the concepts in the corresponding knowledge domain specified using ontology. Our search engine consists of two levels, namely the semantic reasoning level and the traditional keyword searching level. The semantic reasoning infers the corresponding related concepts and properties from the ontology, and then a traditional search engine can be used to search for the related concepts. To demonstrate the feasibility of our approach, we adopted the domain of sports for semantic search. We developed a prototype smart search engine that supports reasoning about subsumption, supersumption, semantic equivalency and property relationships among concepts.