“Improving Usability of Semantic Knowledge Framework Interfaces”

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This project focuses on improving existing user interfaces of semantic knowledge frameworks for application in industry. In the past, the Center for e-Design at UMass Amherst along with other institutions has developed a collection of ontologies called the e-Design Framework. This collection of ontologies can be used for modeling, sharing, and integrating engineering design knowledge. Engineering design has become a computer driven activity with an abundant amount of resources available to be utilized during the design process. Industry can utilize the e-Design Framework to organize and comprehend the vast quantity of information. The problem with currently deploying the e-Design Framework is the lack of a user-friendly interface. The goal of this project is to take OntoWiki, an existing open source web interface for semantic frameworks, and modify it in order to improve its usability and functionality.

OntoWiki is designed to be a front end for an imported ontology. One of the strengths of OntoWiki is that it utilizes the structure of the knowledge framework, but does not compromise it. It also gives the user a familiar web-browsing interface when interacting with an ontology. Currently, OntoWiki’s search module lacks functionality and can be improved in terms of user-interface best practices. We plan to modify the open source code for OntoWiki to improve the usability of the interface. These improvements will facilitate the users’ extraction of desired knowledge.

This research experience exposes me to engineering knowledge management and semantic web technologies. The world of engineering has moved to being completely electronic based, therefore understanding the way that information is stored and shared will assist me in my future engineering endeavors. I will gain experience with ontology builder and editor software, and gain exposure to programming languages, PHP, JavaScript, and HTML.