

Master

Implementation of graph-based semantic dictionary for ECSS

Motivation

The project “T-Reqs”, a cooperation with the European Space Agency (ESA), develops techniques to improve requirements quality regarding precision, correctness, and completeness by the means of ontology support.

One important part of each requirements documentation is a glossary defining all relevant terms. As support for the T-Reqs project and other ESA applications a prototype dictionary shall be developed that allows to make use of existing “common sense” definitions and to define new domain specific terms. Especially relevant to this are terms defined in the context of the European Cooperation of Space Standardization (ECSS).

Graph technologies, as e.g. T-Graph, are very efficient for queries and transformation and therefore very well suited for this task.

Tasks/Goals

In this thesis a graph based dictionary based on existing dictionary data (e.g. WordNet) but extensible for new terms shall be developed, which should be compliant to the T-Reqs framework’s requirements. Tasks are:

- Familiarization to T-Graph technology
- Definition of requirements to a dictionary supporting the T-Reqs framework and additional stakeholder (ECSS) needs
- Implementation of a prototype tool

The thesis will be embedded to the T-Reqs project with European Space Agency (ESA). Potentially the thesis can be conducted as an internship at ESA’s European Space Research and Technology Center (ESTEC) in Noordwijk (NL).

Helpful Precognition

The candidate should have passed advanced courses in software technology. Furthermore:

- Experience in graph technologies or the willingness to become acquainted
- Interest in innovative software engineering technologies
- Good programming skills (Java)
- Good command of English
- Knowledge in LaTeX

Organizational

Contact:

M.Sc. Katharina Großer (grosser@uni-koblenz.de)

Dr. Volker Riediger (riediger@uni-koblenz.de)
