AI-DSL Technical Report (February to May 2021)

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Abstract

Based on [2].

Contents

Chapter 1

Nil's work

Chapter 2

AI-DSL Ontology (Kabir's work)

2.1 Design requirements

Based on:

1. the summary of initial discussions about requirements
2. possibly augmented by later research.

2.2 Domain model considerations

Explanation of NuNet fake-news-detector domain model and related considerations making the first ontology, based on:

- presentation on NuNet service discovery;
- augmented by developments on the system over last month;
- using ontology for agent communication in decentralized computing systems, based on [1];

kabir: The domain model may need to be presented somewhere else, as it may be related to other sections besides AI-DSL ontology

2.3 Choice of existing ontologies

Based on:

1. discussion on https://github.com/singnet/ai-dsl/discussions/18 for the choice of SUMO and KIF;

2. Usage of:

   - Upper level SUMO ontology (https://github.com/ontologyportal/sumo/blob/master/Merge.kif);
   - Middle level SUMO ontology (https://github.com/ontologyportal/sumo/blob/master/Mid-level-ontology.kif);
   - Distributed computing hardware domain ontology in SUO-KIF (https://github.com/ontologyportal/
   - https://github.com/allysonlister/swo in OWL. In the long term, it may be ideal to develop a converter for converting it to KIF, since OWL may be representable in KIF [3] using https://github.com/owlcs/owlapi; For the purpose of the ontology prototype, we will manually select parts of the this ontology in order to build the prototype and write them in SUO-KIF format;

2.4 Tools

Intro to Sigma, SigmajEdit, etc. and how to install them.

2.5 AI-DSL ontology prototoype

The prototype will be the fake-news-detector leaf ontology based on the above listed upper and middle ontologies (SUMO) and domain ontologies of computer hardware and sofware.

2.6 Combining ontology with Idris

kabir: It would be good to have a section explaining ideas about that, but I cannot do this alone, so probably the best is to reserve it for the end of the monht, when all the other aspects of AI-DSL project (including Idris) are explained.

2.7 Summary of results and future work

Chapter 3

Eman's work

Chapter 4

Sam's work

Bibliography

[1] Mastering agent communication in EMBASSI on the basis of a formal ontology. Tutorial and Research Workshop on Multi-Modal Dialogue in Mobile Environments, Fraunhofer Institute (2002)

[2] Ben Goertzel, N.G.: Ai-dsl: Toward a general-purpose description language for ai agents, https://blog.singularitynet.io/ai-dsl-toward-a-general-purpose-description-language-for-ai-agents-21459f691b9e

[3] Martin, P.: Translations between RDF+OWL, N3, KIF, UML, FL, FCG and FE, http://www.webkb.org/doc/model/comparisons.html