Goal

Implement a natural language understanding (NLU) component that creates one single-class classifier per intent using deep learning methods and evaluate its performance and quality.

Background

Applying deep learning to train NLU components for dialogue systems is all the rage these days. Traditional NLU methodology is to train a single multi-class machine learning system, but with e.g. deep learning this is time consuming and requires the whole machine to be re-trained if the training data for a single intent changes.

Problem description

- Implement a solution for single-class classification with one classifier per intent. Any suitable deep learning toolchain can be used, with the ambition to improve performance and maintain accuracy. Preferably within the RASA NLU framework.
- Evaluate the implemented solution and compare to existing NLU intent classifiers, e.g. multi-class classifiers in RASA.

Recommended knowledge and skills

- Machine Learning
- Deep Learning

Supervisors from Talkamatic

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1 An NLU is one of the components in a conversational agent. It’s role is to interpret written natural language and output it in a semantic format that language independent components understand downstream.

2 The RASA NLU framework (https://rasa.com/docs/nlu/) defines pipelines that dialogue systems configure and use for all their NLU needs. A pipeline itself consists of several NLU components where an intent classifier plays one part, along with named entity recognizers and NLP libraries for vectorization.