Fakultät
Angewandte Informatik

TECHNISCHE HOCHSCHULE DEGGENDORF

Supervisor Report

for the master thesis
"Grammar Error Correction using Deep Reinforcement Learning"

Student: Raj Kumar Rana
Supervisor: Prof. Dr. Andreas Fischer

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Summary

The thesis handed in by Mr. Rana discusses the development and evaluation of a deep reinforcement learning model for grammar error correction. The model aims to improve input sentences grammatically over several iterations. It modifies a grammatically incorrect sentence step-by-step, changing, inserting, or deleting a single word in each step. Previous approaches have focused on supervised learning to solve this task. The approach presented by Mr. Rana uses reinforcement learning, instead, eliminating the need for a labeled training dataset.

Evaluation of the content

Mr. Rana combines theoretical considerations with a practical implementation, comparing his solution to state-of-the-art approaches. His discussion of related work, unfortunately, is quite brief and lacks a detailed delimitation of Mr. Ranas own contributions. Nevertheless, the content of the thesis is good and Mr. Rana presents interesting and relevant results. His methodology is clear and comprehensible. The implementation is explained well and the evaluation adheres to standard scientific rigour.

Structure and quality of the presentation

The thesis is structured in a clear and logical way. It follows common scientific standards. The text is quite readable, especially considering that English is not Mr. Ranas natural language. Figures and diagrams support the text in an informative and illustrative way, summarizing key results. Unfortunately, in several cases the text is quite brief and more explanation would be good. The evaluation section could be improved by a more detailed discussion of the obtained results.

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Collaboration with the student

Meetings with Mr. Rana were quite positive and productive. He always came well prepared with a good summary of his progress and focused questions. He was always motivated and creative in developing own ideas. Problems were solved independently and required little to no interaction on my side.

Result

Overall, I rate the thesis as: **1.7 (gut, good)**

Deggendorf, 27. Januar 2023

Prof. Dr. Andreas Fischer