# Opponent's review of master's thesis

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| Thesis author: | Goutham V Karunakara |
| Thesis title: | Automatic Relation Extraction from Clinical Documents: A Study of Fine-Tuned Transformer Models and LLMs |
| Opponent's name: | Jiří Hana |
| Opponent's affiliation: | Charles University, MFF, ÚFAL |

The thesis investigates automatic extraction of laboratory test results from clinical documents written in Italian, Spanish and Basque. The author finetuned three transformer models (Multilingual BERT, XLM-RoBERTa and BioBERT). He also tested the same task using LLMs and few-shot prompts.

The thesis is 65 pages long, with the main text (ignoring table of contents, list of figures etc.) being 41 pages. There is a 14-page appendix. This is a revised submission of a previously submitted thesis.

## Content

**Related work** (Chapter 1)**:** Section 1.2 on non-transformer approaches is still only one page long. There is a significant amount of relevant research in entity recognition that deserves mention.

**Experiments and Evaluation** (Chapter 4 & Chapter 5): These two chapters improved significantly in comparison with the previous version: section on hyperparameter tuning was added, my comments on evaluation metrics were addressed, errors are discussed in more detail, graph formatting improved, etc.

However, I still haven't found any comparison with other systems. This is surprising given that the work was done in the context of a shared task.

## Formatting and typography

The formatting improved significantly. But some typographical problems I pointed out in the previous review are still there. It would take less than 30 minutes to fix them.

- There are extra spaces (a colon or footnote marker should not be preceded by a space), missing spaces, wrong quotes, etc.
- Numbers in tables should be right aligned (e.g., Table 2.1) and large numbers should use thousand separators

## Language

The language is easy to understand.

## Code

The code is generally well organized and well written. But there are nearly no comments.

In comparison with the previous version, the code was significantly expanded. For example, there are several new Jupyter notebooks for Error Analysis.

## Conclusion

In comparison with the previous version, the thesis improved significantly. Some problems persist, however.

**Recommendation for defense:**

I recommend the thesis for defense.

**Recommendation for a special award:**

I do not recommend the thesis for an award.

Prague, September 6, 2024

Jiří Hana