

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Viktoriia Chekalina

PhD Program: Computational and Data Science and Engineering

Title of Thesis: Computationally efficient Natural Language Processing methods using tensor representations

Supervisor: Associate Professor Alexander Panchenko

Name of the Reviewer:

I confirm the absence of any conflict of interest	Date: 01-08-2023
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The purpose of this report is to obtain an independent review from the members of PhD defense Jury before the thesis defense. The members of PhD defense Jury are asked to submit signed copy of the report at least 30 days prior the thesis defense. The Reviewers are asked to bring a copy of the completed report to the thesis defense and to discuss the contents of each report with each other before the thesis defense.

If the reviewers have any queries about the thesis which they wish to raise in advance, please contact the Chair of the Jury.

Reviewer's Report

Reviewers report should contain the following items:

- Brief evaluation of the thesis quality and overall structure of the dissertation.
- The relevance of the topic of dissertation work to its actual content
- The relevance of the methods used in the dissertation
- The scientific significance of the results obtained and their compliance with the international level and current state of the art
- The relevance of the obtained results to applications (if applicable)
- The quality of publications

The summary of issues to be addressed before/during the thesis defense

The thesis is prepared with high quality, except a few flaws like typos which are inevitable in a work of such volume. The overall structure of the thesis is straightforward and comprehensible. The only issue I could spot in the thesis presentation, it some inconsistency in related work placement, among the 5 chapters describing different aspects of the thesis' topic, two (namely 4 and 6) have no dedicated subchapters for related work, while the other 3 (namely, 3, 5, and 7) have.

The actual contents of the dissertation are fully represented by its title.

The methods used are on the one side expected from the name of dissertation's topic and on the other side are placed in the context of current state of the field of both natural language processing and tensor computation.

The presented methods are in many cases turned out to be better in several tasks in the field of natural language processing, which is demonstrated by the suitable comparisons with state of the art results in the specified tasks.

The results could be used to increase speed and reduce resource usage by the current day NLP models.

The publications which are listed in the thesis are of good quality, including one CORE ranking A* and two A ones.

Minor remark: p. 27 "L2 norm between the and" – there is a word missing here.

Provisional Recommendation

I recommend that the candidate should defend the thesis by means of a formal thesis defense

I recommend that the candidate should defend the thesis by means of a formal thesis defense only after appropriate changes would be introduced in candidate's thesis according to the recommendations of the present report

The thesis is not acceptable and I recommend that the candidate be exempt from the formal thesis defense