

Jury Member Report - Doctor of Philosophy thesis.


Name of Candidate: Dmitry Ulyanov

PhD Program: Computational and Data Science and Engineering

Title of Thesis: IMAGE GENERATION WITH CONVOLUTIONAL NEURAL NETWORKS

Jury Member: Prof Ivan Oseledets

Name of the Reviewer:

<p>I confirm the absence of any conflict of interest</p> <p>(Alternatively, Reviewer can formulate a possible conflict)</p>	<p>Signature:</p>  <p>Date: 25-11-2019</p>
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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 presented thesis has 128 pages and due to the Skoltech requirements, has a papers overview section and a collection of papers by the author. The author has impressive track record: 6 rank-A/A* papers, with 4 as the first author. Moreover, these papers had a big impact on the community, for example Deep Image Prior paper was even named as one of the top Deep Learning achievements in 2018. A highly cited paper is the 2016 ICML paper. There is nothing much to be added to this, rather than confirm the high quality of the presented results. To be honest, not all professors work have made such impact on the community, as the work of Dmitry.

Comments:

1. P. 12: «Convolutional neural networks have been inserted in the pipelines that have been there for ages..» I think informal style is good, but not for a PhD thesis text. Computers are not here for ages.
2. Personal contributions should be stated clearly in the first-author papers as well.
3. One of the questions asked in the introduction is: «How to determine if a given test sample is likely to be generated from the distribution P or it is coming from a different distribution»? Does one of the papers answer this question? Or how it can be connected

Overall, this is an excellent work. I would be happy to see more classical presentation (in the form of a coherent introduction and main results, and an attempt to glue the papers into a story): such dissertation would be a useful reading for others, but if the author stays with a collection, I am fine with it. I recommend the thesis for the defense.

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