

Jury Member Report – Doctor of Philosophy thesis.

Name of Candidate: Dmitry Popov

PhD Program: Engineering Systems

Title of Thesis: Topology and parameter optimization for additive manufacturing based on function representation

Supervisors: Professor Iskander Akhatov, Skoltech

Dr. Alexander Pasko, Skoltech

Name of the Reviewer: Pierpaolo Carlone

I confirm the absence of any conflict of interest	Date: 24-08-2022
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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

The submitted thesis is well focused on the formulation and implementation of a new approach to CAD/CAM/CAE in additive manufacturing processes. Particular attention was directed toward the product/process optimization, i.e. topology and parameters. Furthermore, an effective computation tool for the slicing of the component was proposed.

In referee's opinion, the submitted thesis is worth of approval as is. The considered topic is of current interest to both the Scientific and Industrial Communities and evident developments are still needed.

The thesis is properly structured and written in all sections. The detailed analysis and concise reporting of the state of the art are commendable and evidence clearly scientific advancement provided to the field by the candidate and the filled knowledge gap. The used methods are relevant and interesting, considering the capability, robustness and efficiency of the implemented approaches. Reported results (including the experimental validation) are, in referee's opinion, valuable.

The candidate published 2 journal papers as main author and 3 journal papers as co-author, plus 3 works in conference proceedings as author and 1 as co-author. According to the SCOPUS database (checked on 25/8/2022), the candidate authored/co-authored 14 published papers (9 research papers, 1 review paper,

4 conference proceedings) attracting 50 citations and reaching an h-index of 4, which is a satisfactory achievement for a PhD student in this area.

Due to the aforementioned considerations, the overall evaluation is strongly positive. No significant revisions are needed (just a double check of the texts for typos here and there).

The submitted thesis can be accepted. Looking forward to attending the presentation of the work by the candidate.

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

Salerno, 25/08/2022