

Jury Member Report – Doctor of Philosophy thesis.


Name of Candidate: Ivan Kalinov

PhD Program: Engineering Systems

Title of Thesis: Development of a heterogeneous robotic system for automated inventory stocktaking of industrial warehouse

Supervisor: Associate Professor Dzmitry Tsetserukou

Name of the Reviewer: Clement Fortin

<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: 24-11-2020</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

Ivan Kalinov's thesis is very well structured and presents a very coherent coverage of the research domain with clear objectives and explanations. The context is presented in depth and shows an extensive knowledge of the application field with clear explanations and problems definition.

The reference and impact models presented in Chapter 3 are excellent and clearly specify the measurable goals of the project and the contribution to the field. Both the original and the final reference and impact models are well documented.

The methodology based on extensive experimental work is very appropriate for this kind of research project and the candidate must be commended for establishing valuable contacts with industrial partners to carry out his tests.

The thesis is very well written, and its content is highly relevant to the selected problem of stocktaking automation in large warehouses. The thesis includes both scientific literature and relevant market reviews which are well presented.

The quality of the papers published provide a clear indication of the high level of research achieved by the Ivan Kalinov in his research work.

The results are oriented closely with industrial application and a start-up based on the research work is in active development. The proposed solution is founded on extensive research literature, patents and experimental work.

Ivan Kalinov has been able to combine in his thesis the three key goals of Skoltech which are education, research and innovation.

My only request for a potential change is the acronym of the term "Unmanned Ground Robot" which is represented by the acronym URG instead of UGR. I leave it to the candidate to decide about this very small change.

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