Opponent’s evaluation of dissertation thesis:

Application of Process Mining in Intelligent Process Support

Author of the dissertation thesis:
Ing. Jakub Štolfa

The dissertation thesis presents author’s original work in the field of process mining and its application in process analysis, process prediction and process modeling. The topic and work done by the author is innovative, is based on the state of the art research in mentioned fields and brings new insights and results to the research and guide for the practical application in the industry interested in the field of study.

The dissertation thesis is well structured, chapters are in a logical structure, and text is easy to follow. The methodology of the research work done and presented in the thesis is well described in the chapter Research Structure. This chapter brings a reader overview and insights into the structure of the thesis and research that was done. Three main research questions with the particular hypothesis are defined there. The overall thesis structure follows stated research questions, where each research question has its justification of importance within the topic, related state of the art, described hypothesis and objectives, research done and stated limitations of the research results.

Research objectives bounded to the research questions are fulfilled and thesis presents original contribution in this three fields:

The first original contribution is in the new approach adopting sequence alignment methods for the usage in process mining domain. The approach includes definition of sequence types, selection of proper sequence alignment methods and case study that describes the application of the approach to the real data in the company.

The second original contribution is to the area of process prediction. The new approach of process prediction based on use cases with the use of machine learning methods is presented here. The approach includes the new proposed type of parametrization of process info, including use case description and is practically presented on the real data in the company.

The third original contribution is the methodology that combines process mining and process modeling domains. This part presents the adoption of process mining activities to the area of process modeling and its possible application in the company presented by the model example.

The author presented his research contribution by 15 author’s original published papers referenced in the thesis. Moreover, author of the thesis presented that he was author or co-author of 26 published papers in total. Author’s research contribution is also visible by the citations of his published papers.

As it is stated in the thesis, the author is also active in research projects, where he had or has an important role in several finished and ongoing projects with international impact.
In summary, I would like to conclude that the author presented the appropriate dissertation thesis that fulfills its objectives, presents research and industry application results with the stated limitations and possible future work, and is supported by published scientific papers and research work done on the projects.

Therefore, I recommend this dissertation thesis to be successfully defended.

In Ostrava, 18th June 2018

Ing. Přemysl Soldán, CSc.