Západočeská univerzita v Plzni
Fakulta aplikovaných věd
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EVALUATION OF DIPLOMA THESIS

Thesis reviewer

Author's Name: Jan Krejci   **Department:** KKY

Title: Tracking of Moving Object

	Subjects of evaluation	Above average	Average	Below average
1	Language and graphic design	☒	☐	☐
2	Formal and technical aspects	☒	☐	☐
3	Suitability of used methods	☒	☐	☐
4	Application of the methods and evaluation of the results	☐	☒	☐
5	Accuracy of the obtained results	☐	☒	☐
6	Own contribution	☒	☐	☐
7	Contribution	☒	☐	☐

Additional evaluation, comments, questions:

There is an open question on whether the new MTT methods (PHD, MBF) work well for data coming from high signal-to-noise ratio (SNR) approaches. Many of the leading experts have sought to derive such methods with limited impact outside the radar tracking community. On the other hand, the computer vision community is making huge impact with the adhoc methods. Both might be computationally expensive, but the theory of the PPP is warranted.

I have seen these developments for 20 years and witnessed the debates; however, choosing to deploy other methods (e.g., MHT, Joint PDAF-IMM-UKF) that have robust performance. This thesis taught me more on the overlaps from many of the current approaches as I had taught the traditional approaches, but did not have time to explore everything together. What I liked best was the grounding in the MHT analysis which works for all data types. Hence, the student was a master at the coordination of so many approaches in one MS thesis (much like a PhD in the US).

The contribution is improvements to a derivation of a part of the Bayes-update in the intensity filter using a continuous version of EM method. This is useful as the EM is well proven for many approaches.

It is unfortuante that the science question of which scenario might work best for video MTT did not have an immediate result. Thus, my comment would to add a final discussion on whether it is worth pursuing any of these new MTT for real-world video scenarios? While I might have thought there could be, the extensive comments and analysis highlighted many limitations for ad-hoc parameter suggestion. Thus, if the MBF is possible, what are the issues that need to be solved to make it possible (e.g., specific next steps). Some issues might not be solvable, but on the other hand, drafting a list mihgt prompt some thoughts.

Metrics and evaluation. It still might be useful to do a scoring appraoch such as fidelity metrics such as the correct assignment ratio (CAR) and track purity (TP). These are not accuracy, but do measure completeness.

Overall, I am going to read this multiple times to apprecaite the various discussions for future MTT reviews that propose using these novel types.

Fulfillment of assignments	☒ complete	☐ partial	☐ not fulfilled
Recommendation of thesis for defense		☒ yes	☐ no

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Overall evaluation	☒ excellent	☐ very good	☐ good	☐ failed
Name, Surname, Degree of reviewer: Dr. Erik Blasch				
Reviewer's department: US Air Force Office of Scientific Research				

_____28 May 2020_____
Date

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Signature