

I. IDENTIFICATION DATA

Thesis name:	Autocompletion algorithm for simple trajectories
Author's name:	Wei Xin Tan
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Control Engineering
Thesis supervisor:	Mgr. Radoslav Škoviera, Ph.D.; specialist: Mgr. Karla Štěpánová, Ph.D.
Supervisor's department:	Department of Robotics and Machine Perception, CVUT CIIRC

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>Evaluation of thesis difficulty of assignment.</i>	
<p>Most of the topics pivotal to the thesis are well-known and successful completion of the thesis was largely about properly composing and tuning well-known methods. However, the methods were from distinct and very broad research fields. These fields – mainly computer vision, computer graphics, and pattern recognition – even though they share many concepts, encompass a myriad of methods. Therefore, a satisfactory solution required long and through theoretical preparation and proper understanding of many methods. Thus, I would judge the assignment as (a little) above ordinarily challenging.</p>	

Satisfaction of assignment	fulfilled with minor objections
<i>Assess that handed thesis meets assignment. Present points of assignment that fell short or were extended. Try to assess importance, impact or cause of each shortcoming.</i>	
<p>The student successfully completed most of the points of the assignment. The main objection being that there was no demonstration of the complete system neither on a real robot nor in a simulation. Nevertheless, the student made a theoretical assessment of the performance and possible issues of the system when transferring to a real robot. Also, the evaluation of the trajectory generation could have been slightly more thorough (e.g. a user study).</p>	

Activity and independence when creating final thesis	A - excellent.
<i>Assess that student had positive approach, time limits were met, conception was regularly consulted and was well prepared for consultations. Assess student's ability to work independently.</i>	
<p>The student worked quite independently, requiring only minor guidance, and in timely manner.</p>	

Technical level	A - excellent.
<i>Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.</i>	
<p>The student needed to research quite a lot of scientific papers and monographies to propose a working solution to the required task. Additionally, some knowledge gained by study was necessary. The core part of the work consisted empirical analysis and tuning of the selected methods which the student performed well.</p>	

Formal and language level, scope of thesis	B - very good.
<i>Assess correctness of usage of formal notation. Assess typographical and language arrangement of thesis.</i>	
<p>From formal point of view, the thesis is well written, containing only minor typographical errors. The extent of the thesis is perhaps its biggest shortcoming. For a master thesis involving so many methods, it should have been longer. There should have been a little bit more in the theoretical introduction but especially lacking is the evaluation part. Some of the evaluation is done as a part of the empirical analysis of the methods. However, there was still room for more thorough evaluation of the proposed approach itself.</p>	

Selection of sources, citation correctness	C - good.
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Present your opinion to student's activity when obtaining and using study materials for thesis creation. Characterize selection of sources. Assess that student used all relevant sources. Verify that all used elements are correctly distinguished from own results and thoughts. Assess that citation ethics has not been breached and that all bibliographic citations are complete and in accordance with citation convention and standards.

As mentioned before, the student had to acquire knowledge from several distinct research areas which required studying many scientific papers and books. These are cited properly throughout the thesis. However, even though some of the sources are of longer extent (e.g., monographies), the list of sources is, admittedly, quite short. Perhaps some of the sources for methods that were considered but not included in the final text, should have been mentioned as well.

Additional commentary and evaluation

Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.

I am very satisfied with the performance of the proposed approach and I must commend the student for his largely independent work. I was mainly missing a deeper evaluation of the system as a whole, particularly a test on a robot (at least in a simulation).

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

On the positive side, I must commend the student's independent work, especially considering the broadness of the required knowledge. I am also very satisfied with the performance of the algorithm, mainly the autocompletion of the two different trajectory types. On the other hand, the thesis, especially the evaluation but also to some extent the theoretical introduction, could have been longer and more thorough. I know he did a lot of work on the thesis but it may be more difficult to persuade someone judging by the text of the thesis alone.

I evaluate handed thesis with classification grade **B - very good**.

Date: **3.6.2019**

Signature:

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Author's name:	Tan Wei Xin
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Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Control Engineering
Thesis reviewer:	RNDr. Zuzana Černeková, PhD.
Reviewer's department:	Department of applied informatics, Faculty of mathematics, physics and informatics, Comenius University Bratislava

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
This topics require knowledge of three research areas, the image processing, machine learning and computer graphics.	
Satisfaction of assignment	fulfilled with minor objections
The assignment is mostly satisfied. For completeness it would require to test out the performance of trajectory planning by an actual industrial robot using the trajectories generated by the proposed system.	
Method of conception	correct
Chosen approach to the problem is correct.	
Technical level	B - very good.
<i>Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.</i>	
Please insert your commentary.	
Formal and language level, scope of thesis	B - very good.
The text is logically organized, use of formal notation is correct. The theses is written in good English.	
Selection of sources, citation correctness	C - good.
Most of the studied material is old. The student could make better research in the recent years.	
Additional commentary and evaluation	
<i>Present your opinion to achieved primary goals of thesis, e.g. level of theoretical results, level and functionality of technical or software conception, publication performance, experimental dexterity etc.</i>	
Please insert your commentary (voluntary evaluation).	



REVIEWER'S OPINION OF FINAL THESIS

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

The student in the thesis show that it is possible to automatically generate smooth and continuous trajectories that are non-photorealistic using information from a human made trajectory segment. Although, to get well performing system, there need to be made some improvement, the proposed the system was showed to be functional.

I evaluate handed thesis with classification grade **B - very good**.

Date: **3.6.2019**

Signature: