

**I. IDENTIFICATION DATA**

<b>Thesis title:</b>	Object detection for UAV f image
<b>Author's name:</b>	Ivanov Mikhail
<b>Type of thesis :</b>	master
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering (FEE)
<b>Department:</b>	Department of Control Engineering
<b>Thesis reviewer:</b>	RNDr. Petr Štěpán, Ph.D.
<b>Reviewer's department:</b>	Department of Cybernetics

**II. EVALUATION OF INDIVIDUAL CRITERIA**

<b>Assignment</b>	challenging
<i>How demanding was the assigned project?</i>	
This work has to improve detection from RGB-D cameras where a colour image is combined with depth information. The depth information contains massive noise, and colour information can change according to lighting conditions. The fusion of both sources of information can lead to better object detection.	

<b>Fulfilment of assignment</b>	fulfilled
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
The assignment was fulfilled, only the comparison of methods could be made more accurately.	

<b>Activity and independence when creating final thesis</b>	Choose an item
<i>Assess whether the student had a positive approach, whether the time limits were met, whether the conception was regularly consulted and whether the student was well prepared for the consultations. Assess the student's ability to work independently.</i>	
The student worked independently and was well prepared for consultations. According to Covid situation, the personal consultations were impossible, and we have only e-mail communication. The student, despite the unfavourable situation, prepared an excellent quality work.	

<b>Technical level</b>	A - excellent.
<i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i>	
Student tested known approaches for colour segmentation, introduced a new method for object detection in a colour image, but this method appeared to be slow. The student checks the neural network approach, but finally, the simple colour segmentation proved that is fastest and accurate. After that, the student uses a method from Point Cloud Library (PCL) to detect planes in depth image. Finally, the student integrates both methods to one detection algorithm.	

<b>Formal level and language level, scope of thesis</b>	A - excellent.
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The thesis is written clearly with good English.	

<b>Selection of sources, citation correctness</b>	A - excellent.
<i>Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?</i>	

The sources are adequate, and the citation is correct.

**Additional commentary and evaluation (optional)**

*Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.*

The Covid situation marked this work. Student cannot perform more experiments, and therefore, the only first set of experiments was used in the thesis. Regardless, the student did a good job, and the result can be used in the following work.

**III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE**

*Summarize your opinion on the thesis and explain your final grading.*

The grade that I award for the thesis is .

Date:

Signature:

## I. IDENTIFICATION DATA

<b>Thesis title:</b>	<b>Object Detection for UAV from Color and Depth Image</b>
<b>Author's name:</b>	<b>Mikhail Ivanov</b>
<b>Type of thesis :</b>	Master
<b>Faculty/Institute:</b>	Faculty of Electrical Engineering
<b>Department:</b>	Department of Control Engineering
<b>Thesis reviewer:</b>	Karel Košnar
<b>Reviewer's department:</b>	CIIRC

## II. EVALUATION OF INDIVIDUAL CRITERIA

<b>Assignment</b>	<b>Select: <b>challenging</b></b>
<i>How demanding was the assigned project?</i>	
Please insert your comments <a href="#">here</a> .	

<b>Fulfilment of assignment</b>	<b>Select: <b>fulfilled</b></b>
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
All points of assignment are fulfilled.	

<b>Methodology</b>	<b>Grade: <b>A</b></b>
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
Selected methods are appropriate and the selection is supported by tests and experiments. The fusion of the color and depth based approaches is good idea.	

<b>Technical level</b>	<b>Grade: <b>B</b></b>
<i>Is the thesis technically sound? How well did the student employ expertise in his/her field of study? Does the student explain clearly what he/she has done?</i>	
The described solution is technically sound and the student proves his understanding to the field of study. Only, it is not possible to compare the speed of algorithm of convolutional neural network using well optimized framework and implementation of algorithm in python.	

<b>Formal level and language level, scope of thesis</b>	<b>Grade: <b>B</b></b>
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The level of English language can be improved. Articles are sometimes missing and also some sentences have not the correct order. Otherwise, the thesis is well organized and easy to follow. I am also missing formal description of the problem statement.	

<b>Selection of sources, citation correctness</b>	<b>Grade: <b>C</b></b>
<i>Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?</i>	
I expect more primary sources in the diploma thesis. Also the style of citation should be unified and follows better the standards.	

<b>Additional commentary and evaluation (optional)</b>
<i>Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.</i>



## THESIS REVIEWER'S REPORT

Please insert your comments [here](#).

### III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

The thesis is very good but I find a number of small, mainly formal, mistakes. As I keep a grade A for the really perfect thesis,

the grade that I award for the thesis is **B**.

Date: 27/8/2020.

Name and signature: