



# Supervisor's statement of a final thesis

**Supervisor:** Ing. Miroslav Čepěk, Ph.D.  
**Student:** Yelizaveta Tskhe  
**Thesis title:** AWS DeepRacer Controller Training Scenarios Exploration for Real-World Performance  
**Branch / specialization:** Software Engineering 2021  
**Created on:** 12 June 2024

## Evaluation criteria

### 1. Fulfillment of the assignment

- [1] assignment fulfilled
- ▶ [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

The assignment is mostly completed. I'd only wish for Yelizaveta to be able to spend more time on the exploration of depths of AWS simulated environment eco-system and managed to add more complex visual augmentation into the picture (like simulated reflections, patches going missing, etc).

### 2. Main written part 90/100 (A)

The thesis is well written and contains all expected information in correct order.

### 3. Non-written part, attachments 80/100 (B)

In this thesis, there is very little amount of actual implementation and more on exploring possibilities and training setup of the AWS DeepRacer system. Therefore the supplement consists mostly of trained models and video documenting the driving capabilities in real world. I'd also add all configurations Yelizaveta have tried and successful and failed fitness functions for record.

### 4. Evaluation of results, publication outputs and awards 100/100 (A)

Thesis builds on top of existing techniques and implementations and focuses on transfer of AI models between simulated and real environment. The result is easily applicable for propagation of the group and faculty.

## 5. Activity of the student

- [1] excellent activity
- ▶ [2] **very good activity**
- [3] average activity
- [4] weaker, but still sufficient activity
- [5] insufficient activity

Student was active and mostly completed the agreed work plan on time and in good quality. If she had any problems she reached out and tried to solve them as soon as possible.

## 6. Self-reliance of the student

- [1] excellent self-reliance
- ▶ [2] **very good self-reliance**
- [3] average self-reliance
- [4] weaker, but still sufficient self-reliance
- [5] insufficient self-reliance

The student was good in self-reliance. I had just correct her from time to time.

## The overall evaluation

85 /100 (B)

The topic of the thesis is to get hand-on experience with AWS DeepRacer cloud and document findings and ways in developing AI models in simulated environment and getting experience in transferring models into real-world model cars and driving in noisy and cluttered environment. In this regard the thesis is successful and even useful as it can easily be used for PR purposes.

On the other hand the thesis could have been much more exciting if Yelizaveta could have managed to get her hands into depths of the DeepRacer ecosystem and managed to change for example visual inputs into the simulated car, for example augment them with window reflections or other visual artefacts. I believe this change could have greatly improve the driving performance in low light settings with reflections. As a bonus and given how much effort Yelizaveta spend on setting up the AWS environment, it would have been nice of her to write down her experiences and steps for the next student.

## **Instructions**

### **Fulfillment of the assignment**

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

### **Main written part**

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

### **Non-written part, attachments**

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

### **Evaluation of results, publication outputs and awards**

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

### **Activity of the student**

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations.

### **Self-reliance of the student**

From your experience with the course of the work on the thesis and its outcome, assess the student's ability to develop independent creative work.

### **The overall evaluation**

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.