Supervisor's statement of a final thesis

Supervisor:	Ing. Pavel Hrabák, Ph.D.
Student:	Bc. Matej Šutý
Thesis title:	Evacuation model with leading and following agents focused on evacuation of (pre)schools
Branch / specialization:	Knowledge Engineering
Created on:	5 June 2023

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

All tasks of the assignment are fulfilled. Second task (survey of planning algorithms in evacuation) is rather minimalistic, however, the task of building the cellular model with desired properties was found more challenging that expected, therefore the absent connection to MA planning can be excused.

2. Main written part   80 / 100 (B)

The written part is well structured and readable, some grammatical errors and misprints are present, yet the amount is within reasonable limit. The thesis contains sufficient survey of related topics and related state-of-the-art research. Chapters 2 and 3 contains the description of used model and rules enabling motion of kids in paired formation. In my opinion, this part could be more detailed to fully understand the movement dynamics, e.g. in page 17 and 23 it would be beneficial to list all possible and problematic manoeuvres related to the motion in pairs together with more detailed explanation of desired and undesired effects. Such description is present, but may not be always fully understandable.
The properties of the developed model are tested via a series of simulation experiments and related measurement. This part shows that the model is capable of reproducing wanted phenomena. Yet, I would appreciate more detailed explanation in the sense: why do we do such experiment, and how do the results describe studied phenomenon. Specifically, I would appreciate more extent information to tables 4.1 and 4.2 (page 32 and 34 respectively).

3. Non-written part, attachments $\quad$ 90 /100 (A)

The simulation software in mesa framework is functional, well commented, and satisfies the requirements following from the assignment. The student has performed series of extensive simulation experiments illustrating the model behaviour. I am not sure whether the model is prepared for application of some planning related to the studied strategies of the leading agent.

4. Evaluation of results, publication outputs and awards $\quad$ 95 /100 (A)

The student developed s set of rules enabling the motion of agents in pairs. According to my knowledge, this task was not modelled in existing evacuation models, therefore the students work was very creative, and having a research essence. I believe that the result have publication potential.
Aside that, the student successfully participated in Research Summer project, which is to be presented at Pedestrian and Evacuation Dynamics 2023 in June.

5. Activity of the student

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

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 overall evaluation $\quad$ 90 /100 (A)

Overall I believe that the thesis is above average, the results and simulation model are functional and promise research output, therefore I recommend the thesis to be defended with an excellent grade.

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.