



Review report of a final thesis

Reviewer: Ing. Petr Pauš, Ph.D.
Student: Karen Akopian
Thesis title: Implementation of AI Turn-Based Strategy Game in Virtual Reality
Branch / specialization: Web and Software Engineering
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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 seems fulfilled. The autor studied some literature related to the work, designed and created a functional unity project. There were also tests performed.

2. Main written part

65 /100 (D)

Main written part is relatively short. It describes the essential steps needed to create the game. However, the analysis is very short and focuses mainly on the game theory. There are only two games mentioned in the analysis (Chess and Heroes of the Might and Magic). The author mentions two game engines that can be used for VR games, i.e., Unreal Engine and Unity. There are no criteria stated why Unity was chosen; some analysis is needed.

Figures 4.1 and 4.2 are probably not created by the author; citation is necessary.

As a software engineering thesis, there is no project design description, i.e., how the project will be organized, if there are some classes, class diagram maybe, which objects will the scripts attached to, and so on.

Written text: There are some typos (peace -> piece), wrong quotation marks, overflowing text in the bibliography, math symbols are often not in italics, missing commas and full dots after equations and figure titles.

The work does not cite any sources in the text. There is only a list at the end of the thesis.

The main AI algorithm is well described.

3. Non-written part, attachments

90 /100 (A)

The project in Unity seems functional and looks visually nice. The author designed the game scene. However, it is not understandable from the text whether the author created all 3D models, including the pieces. Please comment on that.

4. Evaluation of results, publication outputs and awards

85 /100 (B)

The results of the bachelor thesis can be considered as good start for full featured board game.

The overall evaluation

75 /100 (C)

I suggest 75 points (C). The written part should be better, namely the analysis and design chapters. The AI algorithm is dealt in detail, including the analysis and implementation.

Questions for the defense

1. Have you created the 3D models for the game pieces?
2. Are there any other AI algorithms? Why did you choose MiniMax algorithm?
3. Why Unity was chosen?

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. 26/2017, 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.

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.