THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Acquisition of cognitive maps by individuals with vision impairments using virtual reality**
Author's name:	**Matyáš Kovaľ**
Type of thesis:	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Graphics and Interaction
Thesis reviewer:	Ing. Miroslav Macík, Ph.D. (thesis supervisor)
Reviewer's department:	Department of Computer Graphics and Interaction

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment **challenging**

How demanding was the assigned project?

The assignment of the reviewed thesis is challenging. It required mastering a number of different technologies. The assignment also required a detailed analysis of existing solutions and work with a user group of individuals with specific needs (individuals with vision impairments).

Fulfilment of assignment **fulfilled**

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.

The thesis addressed all significant requirements of the assignment. All primary goals have been successfully achieved. Moreover, an outstanding detailed overview of possible future work is presented at the end of the thesis.

Activity and independence when creating final thesis **A - excellent.**

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.

The student has demonstrated the ability to work independently to solve complex problems. At the same time, he has shown the ability to work in a team, especially in the evaluation phase. Individual partial decisions are well justified and reasoned. The student attended all scheduled consultations and was well-prepared.

Technical level **A - excellent.**

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?

The technical level of the thesis is excellent. The design decisions are well-argued in the thesis. The project required the implementation of several prototypes comprising a number of diverse technologies, including virtual reality, multi-modal interaction methods, and a special actuator in the form of a modified white cane.

Formal level and language level, scope of thesis **B - very good.**

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?

The thesis is written in proper English and has 41 pages (56 pages including references and appendices). It is well and logically organized. The analysis, design and design decisions, results, implementation details, evaluation, and conclusions are well presented. There are a few vague or colloquial statements (i.e., "…the author has quite a bit less experience …", "… we found quite a few already existing works …"). However, the negative impact on clarity is minimal.

Selection of sources, citation correctness	**A - excellent.**
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?	
The thesis correctly references the related prior work as well as relevant tools, terms, etc. The student's work is clearly distinguished from the preceding work. There are 18 cited references, primarily scientific papers (the analysis shows that the sources were fully comprehended).	

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 student attended the Central European Seminar on Computer Graphics conference, where he presented a scientific paper related to the thesis topic.

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.

Mr. Matyáš Kovaľ showed that he is capable of independently solving complex problems, including development focused on a specific target user audience – individuals with vision impairments. A paper related to the thesis topic was already presented at the Central European Seminar on Computer Graphics student scientific conference.

Question: *Which improvements would you suggest to the actuated white cane to serve better in the context of your work?*

The grade that I award for the thesis is **A - excellent.**

Date: **4.6.2024** Signature: