I. IDENTIFICATION DATA

Thesis title:	**Learning Unknown Objects with ARI Robot**
Author's name:	**Martin Zderadička**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Cybernetics
Thesis reviewer:	Doc. Ing. Tomáš Pajdla, Ph.D.
Reviewer's department:	CIIRC, AAG

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**challenging**
How demanding was the assigned project?	

The topic combines an understanding of many new machine learning and robotics techniques and their implementation on a real robot in a complex technical environment. The topic is an active research topic that does not yet have a good solution.

Fulfilment of assignment	**fulfilled**

The thesis fulfilled the assignment.

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

Martin worked actively and independently and brought many of his own ideas to the project. At the same time, he familiarized himself with the ongoing work of his colleagues and linked it to his own work.

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 work is technically correct. Martin understands the methods and concepts he is working with and is able to combine and further develop them to create new functional solutions. The thesis is a solid description of what has been done, and although some parts could have been described in more detail, they are replicable given the included source code.

Formal level and language level, scope of thesis	**A - excellent.**
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 text is of a very high quality, clear and straightforward. The English is at a very good level.

Selection of sources, citation correctness	**B - very good.**
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 work contains many references to relevant literature. Still, some references were not inserted in the end, perhaps due to lack of time.

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.	

Martin came up with many new ideas related to using the LLMs as an oracle providing ground truth labels. His idea of how to handle multiple ``synonymous'' labels seems very interesting. He has also performed first experiments that suggest that

LLMs may not be a ``ready-made'' solution to this problem. Another strong feature of Martin's work is his ability to plan, exhibit and interpret experiments. He was completely independent in this part of his work.

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

This is an excellent BSc. work providing novel results that was carried out by a very independent and resourceful student.

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

Date: **4.2.2024**   Signature: doc. Ing. Tomáš Pajdla, Ph.D.