I. IDENTIFICATION DATA

Thesis title:	**Adaptation of CNN Classifiers to Prior Shift**
Author's name:	**Tomáš Šipka**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Cybernetics
Thesis reviewer:	Radoslav Škoviera
Reviewer's department:	Department of Robotics and Machine Perception, CVUT CIIRC

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment
challenging

The assignment was quite challenging. Unlike many other works related to the topic of convolutional neural networks that are focused on "optimization by trial and error", this work required the student to understand more deeply machine learning and probability theory. Probability theory alone is a difficult topic to understand and apply to a real problem.

Fulfilment of assignment
fulfilled

All of the points of the assignment were fulfilled.

Methodology
outstanding

From my point of view, the methodology is perfect. The student did a very good job understanding the topic and the state of the art before proposing a novel approach. The proposed approach was then thoroughly tested and compared to other methods and in various configurations.

Technical level
A - excellent.

The technical level of the thesis is excellent. All the equations are nicely derived and easy to follow from the problem description to the proposal of the method. The equations are supplemented with informative figures. The thesis is written in such a way that it should be understandable even by someone not familiar with the related topics. This clearly required deep knowledge of those topics on the side of the author.

Formal and language level, scope of thesis
A - excellent.

The thesis is very well structured and the "story" is easy to follow. The second chapter provides the reader with all the necessary background and presents the problem that needs to be solved very clearly. The third chapter then uses the provided background to derive the proposed solution.

My minor criticism is that in some cases parts of the notation (e.g., indexes or sub/superscripts) are not explicitly explained. In all cases, it was easy to derive the meaning from the surrounding text but perhaps for a reader less familiar with the topic (especially probability theory), it might be a little harder to follow. I still regard the formal level as excellent, since the explanation of the equations is still way above what is usual in most of the literature.

Another tiny formal detail is that it is better to stick to one name for a given concept. The work uses "prior shift" in the title, yet "label shift" is used in the names of the implementation chapters (e.g., 4.1.2, 4.2). It would be better if the same name was used throughout the work. But again, this bears no consequence to the quality of the work, it is more of a recommendation for the author.

Selection of sources, citation correctness
A - excellent.

The selected sources are relevant and properly cited. The related work section clearly presents the current state of the art for the main topic of the thesis and explains all of the necessary theory related to the thesis.

The overall quality of the work is very high. Domain adaption is a very important topic for the usefulness of CNNs in real applications and thus a contribution to this topic is likely to have a significant impact.

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

A commend the author of the thesis for writing a very well readable work in a difficult field of research and for making a good contribution in this field.

I would like to ask the author to give his insights/thoughts for these results:
1) Why resampling the training data performed so much worse in LT→ UNI case (basically worse than nothing) in Table 4.1 than in UNI→ LT case?
2) What could have caused worse performance of the proposed method on the Places365 dataset in Table 4.6?

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

Date: **31/08/2021**   Signature: