THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	Test-Time Adaptation for Segmentation
Author's name:	Klara Janouskova
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Cybernetics
Thesis reviewer:	Karel Zimmermann
Reviewer's department:	Department of Cybernetics

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment — **ordinarily challenging**

How demanding was the assigned project?

Please insert your comments here.

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.

Methodology — **correct**

Comment on the correctness of the approach and/or the solution methods.

Please insert your comments here.

Technical level — **A - excellent.**

Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?

Is the right term in eq (4.1) correct? It makes impression, that only a single pixel x_i can be the only input of the encoder => don't you need the whole image x?

Formal 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?

Please insert your comments here.

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?

Please insert your comments here.

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.

Please insert your comments here.

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

Student fulfilled the assignment of the bachelor thesis. The thesis is clearly written, but it could be benefitial for readers if the explicit problem formulation appeared earlier. The main contribution stems from proposing new Test-Time-Training method. This method is shown to be superior to existing state-of-the-art in Test-Time-Adaptation. Overall, the quality of presented work is above average diploma thesis by its depth, knowledge of the state-of-the-art and achieved results. The student demonstrated the ability to perform independent research and opened the space for an interesting future research.

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

Question to be discussed during the defense:

1. For some applications divergence (or catastrophic forgetting) of TTA is a serious issue. Is there any automatic procedure, that can detect (or prevent) the divergence?
2. What about also using the depth either from other sensors or estimated though the monodepth?
3. What about other sensors on board that could be insensitive to some particular domain changes (e.g. thermos camera or depth sensor)?
4. What about temporal consistence such as tracking or registering images to a map that gives you pixel-wise correspondences.

Date: **8.6.2023** Signature: