

I. IDENTIFICATION DATA

Thesis title:	Open Vocabulary Object Detection with Multimodal and Generative Models
Author's name:	Nikita Sokovnin
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 <i>How demanding was the assigned project?</i>	challenging
Please insert your comments here.	

Fulfilment of assignment <i>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.</i>	fulfilled
Please insert your comments here.	

Methodology <i>Comment on the correctness of the approach and/or the solution methods.</i>	outstanding
Please insert your comments here.	

Technical level <i>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?</i>	A - excellent.
Please insert your comments here.	

Formal and language level, scope of thesis <i>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?</i>	A - excellent.
Please insert your comments here.	

Selection of sources, citation correctness <i>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?</i>	A - excellent.
Please insert your comments here.	

Additional commentary and evaluation (optional) <i>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.</i>
Please insert your comments here.



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. Pose questions that should be answered during the presentation and defense of the student's work.

Student focuses on “open-world recognition problem” problem of designing a system, which accurately classify known and unknown classes while incrementally learns new ones through labeled instances. The work contains a lot of high quality material that is obviously beyond the scope of an average diploma thesis. In particular, he conducts and evaluates various open-set classification strategies using different architectures, including Transformers and CNNs and proposes novel method, Matrix Entropy, for multi-view open-set classification, outperformed existing techniques. He explored two approaches to learn about unknown classes. The first method uses large language-image models (CLIP for classification and OWLv2 for detection). The second method is based on data generation using Stable Diffusion models. The work is a solid candidate for the dean awards.

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

Date: **Click here and enter the date.**

Signature: