THESIS SUPERVISOR'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Neural networks using for handwriting numbers recognition**
Author's name:	**Dina Latypova**
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Science
Thesis reviewer:	Ing. Karel Frajták, PhD.
Reviewer's department:	Department of Computer Science

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging

The assignment is challenging. Deep knowledge of the area was required, as well as transforming the task in a fully working prototype.

Fulfilment of assignment	fulfilled

The author fulfilled the assignment. The goals of thesis were achieved. Even though I am not sure what the final use case of the result of this work should be, author have not mentioned how the results of her work can be used.

Technical level	A - excellent.

From the technical perspective the thesis is of a high quality. The author has a deep knowledge of various neural networks and there are of usage. This is nicely described in the first chapter. The software engineering aspect is described in the last chapter where author describes the use of waterfall model during the SW development lifecycle.

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

The extend of thesis is satisfactory. Thesis is logically organized from the description of the problem through implementation and testing/verification of the result. Given the author is not a native English speaker the language level of the thesis is okay. In the future a language review is recommended. There are some places were either word-by-word translation was used ("The FOREL algorithm is as visual as graph algorithms", p. 9, "it is mostly poorly clustered", p. 9, "This type of synchronization does not allow threads to execute commands until all threads perform an action", p. 17), or the used word is not the one commonly used in the area ("teacher training" instead of "supervised training", p. 6, "cascade model" is "waterfall model", though correctly used in picture label, p. 18).

Selection of sources, citation correctness	A - excellent.

Sources are selected and cited correctly. In the future a more recent research should be used as a basis for the research. Machine learning area is evolving every day.

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

My question is

- Must the network be trained whenever I open the application?

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

Date: **19.6.2020**   Signature: