REVIEW
on bachelor's thesis of the SpbU student
Rumyantsev Valentin
on topic Application of machine learning methods for semantic classification of road conditions

Relevance of the research topic:

The thesis is devoted to the analysis of state of the art databases, methods and models used in the tasks of semantic segmentation and classification of road sutiation based on trained artificial intelligence. Today, computer vision technologies are widely introduced into the automotive industry, to provide timely support and alert the driver about the current situation on the road. In this regard, the solution of the problem of analyzing and choosing the method of machine learning based on neural network technologies, which allows to quickly and accurately classify the traffic situation, is relevant.

Brief description of the work structure and sections:

The thesis consists of 23 pages. The thesis describes: the review of the existing databases consisting of the marked out and original video data sets; the review of object segmentation methods. In additional, metrics for evaluation of segmentation quality are described. The experimental results show the comparison of three neural network technologies in the tasks of semantic objects segmentation.

Advantages of work:

The thesis is rather substantial and provided with the appropriate illustrations. The research of neural network methods of machine learning, in the tasks of semantic segmentation of objects and the traffic situation, was carried out during the bachelor's work. Experiments were carried out on existed database. The results shows the relevance of neural network methods usage. The work shows the high level of the theoretical preparation of the student and his ability to work with technical literature.

Disadvantages of work:

The considered neural network methods are described quite succinctly, which does not allow to fully understand the basic principles of the operation of models. In addition, the design of the work, in particular the design of bibliography and sections, does not comply with GOST.

The thesis of Rumyantsev V. "Application of machine learning methods for semantic classification of road conditions" meets the basic requirements for graduation qualifications.

The reviewer's opinion on the evaluation of the work:

The thesis of Rumyantsev V. deserves an evaluation of "EXCELLENT", and the author is worthy of a bachelor's degree.

_____Ph.D., Assoc. prof._____   _16.05.19_   _____Alexander Ronzhin_____