REVIEW
on bachelor's thesis of the SpbU student
Tkacheva Daria
on topic Anomaly detection in preventive fluorographic

Relevance of the research topic:

The thesis is devoted to the analysis of existing machine learning approaches and the creation of an optimal model for the search for anomalies on X-ray images. Automation and support of the work of radiology doctors will reduce the processing time of images, and will reduce the impact of human factors on the result of analysis. In this regard, the problem of finding anomalies at preventive fluorography study is relevant.

Brief description of the work structure and sections:

The thesis consists of 25 pages. The following issues are considered in the work: a review of existing solutions of X-ray analysis; methods of preliminary image processing, reducing the dimension of feature space, and classification of features. In addition, the work presents metrics for assessing the quality of detection and classification of anomalies on X-ray images.

Advantages of work:

The presented final qualification work is substantial and provided with appropriate illustrations. The work shows the high level of the theoretical preparation of the student and his ability to work with technical literature.

The optimal configuration of a combined model consisting of a convolutional autoencoder and the SVM classifier for the search of anomalies in the conduct of prophylactic fluorography studies was performed. Experimental studies have been carried out on the data from SPb Research Institute of Phthisiopulmonology. The results shows the relevance of usage the SVM classifier. The work shows a high level of theoretical preparation of the student, his ability to work with technical literature.

Disadvantages of work:

The thesis presents not so much existing approaches for extraction and classification of features as it could be.

The conclusion about the thesis:

The thesis of D. Tkacheva "Anomaly detection in preventive fluorographic" meets the basic requirements for graduation qualifications.

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

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

| Ph.D., Assoc. prof. | 16.05.18 | Alexander Ronzhin |