REVIEW
on bachelor's thesis of the SpbU student
Babkin Ivan
on topic Analysis of pre-processing and augmentation of images for anomaly detection in preventive fluorographic

Relevance of the research topic:

The thesis presents development of the preliminary image processing method, which provides enchantment of regions of interests on image as well as noise reduction. At present, the threat of lung diseases remains unresolved, thus necessitating research on their detection. Improving quality and highlighting current information on fluorographic images will make it easier and faster to work doctors. In this regard, the solution of the task of developing methods for preliminary processing of fluorographic images is actual.

Brief description of the work structure and sections:

The thesis consists of 26 pages. The thesis presents an overview of existing approaches of noise filtering, edges and image quality enhancement, as well as the results of the evaluation of the developed approach based on the graphs of ROC and PR curves.

Advantages of work:

The thesis presents detailed review of existing approaches for preliminary image processing. The thesis describes developed method of anomalies search based on convolution autoencoder and SVM. The implementation of the image quality improvement algorithm based on the alignment of the histogram, as well as the separation of the contours of objects by the operator Sobel is presented. The comparison of the results of anomalies selection with and without image enhancement was carried out. The work shows the high level of the theoretical preparation of the student and his ability to work with technical literature.

Disadvantages of work:

There is no justification for choosing AUR-ROC and AUR-PR metrics to evaluate the experimental data.

The conclusion about the thesis:

The thesis of Babkin I. "Analysis of pre-processing and augmentation of images for 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 Babkin I. deserves an evaluation of "EXCELLENT", and the author is worthy of a bachelor's degree.

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