

# ABSTRACT

Diploma work: 104 p., 33 fig., 6 tables, 2 appendixes, 12 references.

GENERATIVE-ADVERSARIAL NETWORK, GENERATING, MACHINE LEARNING, SYNTHETIC IMAGES, STYLIZATION

The object of the study – synthetic images.

The subject of the study – methods for generating images based on variation autoencoders (VAE) and generative-adversarial networks (GAN).

The purpose of the study – analyze the subject of research, implement some of the architecture of the GANs, test them and compare the results.

The methods of the study – generation methods based on neural networks of different architectures: VAE based on convolutional neural network, GAN.

The relevance of the study – synthetic images are used for:

- Model training for the detection, identification and classification of objects or living creatures.
- Creating elements of virtual reality.

The results of the study – analyzed and compared the methods of generating images based on VAE and GAN. Created software for model training and image generation.

Further improvements of the study – study of models work with different architectures and more complex types of data.