

USING OF DEEP LEARNING NEURAL NETWORKS FOR BUILDINGS IMAGE RECOGNITION

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The analysis of satellite images and images from unmanned aerial vehicles using deep learning methods is successfully used to solve many applied problems, including land cover classification, agricultural yield forecasting, crop type classification, urban development classification, etc. For many areas of activity, a neural network capable of recognizing a building can be useful [1]. For example, automate the delivery of goods using drones [2, 3] or automate the creation of maps using traffic cameras.

The study is devoted to the problem of automating the analysis of building images for improved drone automation. Preliminary research on current trends in the use of advanced information systems for the classification of various images of buildings of different classes. However, several important features of building classification using various neural networks were not considered there. To study the images of buildings that are used by drones, the InceptionV3 neural network model was chosen.

The study used the Anaconda platform and also Python 2.7. For work, it is convenient to use Jupyter notebook which is already preinstalled on Anaconda [4]. The Keras framework will also come in handy. Theano [5] or Tensorflow are suitable as backend because Keras supports both. And also CUDA needs to be installed.

The results of the experiment are a tuned and basic trained neural network capable of recognizing buildings.

The further development of the development is planned to configure the obtained neural network for the tasks of delivering goods by specific unmanned aerial vehicles and wheeled vehicles

References:

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