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**Traffic sign recognition using the mask R-CNN**

**Abstract.** Today, intelligent technologies are developing at a rapid pace, which, in turn, leads to the development of intelligent transport systems. Therefore, constructing traffic sign recognition systems using machine and deep learning technologies is urgent. Traffic sign recognition is a computer visualization problem that can be solved using convolutional neural networks. The analysis of the most effective models of convolutional neural networks of image processing was carried out to choose the most suitable one for recognizing traffic signs: R-CNN, Fast R-CNN, Faster R-CNN, and Mask R-CNN. The analysis showed that applying Mask R-CNN for traffic sign recognition is appropriate. It effectively detects objects in the image, creates a high-quality segmentation mask for each instance, and can be used in vehicle systems. Considering issues of traffic sign recognition using Mask R-CNN, the work consists of implementing relevant stages and components. The training of Mask R-CNN, which must learn to detect objects in the image and segment images, is considered. Experimental studies on Mask R-CNN for traffic sign recognition were conducted, for which a neural network training web application was created. Examples of training and testing of the work of Mask R-CNN on the recognition of traffic signs are presented, from which it is clear that Mask R-CNN, based on the trained classes, clearly finds and processes several traffic signs in the image. This makes it possible to expand the number of classes and objects for recognition and improve image processing quality.

**Keywords:** recognition, traffic sign, model, regional convolutional neural networks, learning, segmentation, dataset, web application