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COMPUTATIONAL METHOD OF PATTERN RECOGNITION BY VIDEO IMAGES BASED ON THE USE OF DEEP NEURAL NETWORKS WITH CONVOLUTIONAL AND RECURRENT LAYERS WITH APPLICATIONS FOR TRANSPORTATION SYSTEMS

A computational method for pattern recognition by video images based on the use of a combination of deep neural networks with convolutional and recurrent layers is proposed. The application of the computational method for detection and recognition of objects, standard and emergency situations in the video stream from the cameras of intelligent cars in real time mode is illustrated. The scheme of the distributed intelligent system of urban transport security is presented, the distinctive feature of which is the use of cameras and on-Board computers combined into a single network. The Python environment software for the on-Board computer of an unmanned vehicle on the basis of the computing module NVidia Jetson TX2 has been developed and tested.

Keywords: recognition, localization, deep neural network with convolutional and recurrent layers, computer vision system, transport system.

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