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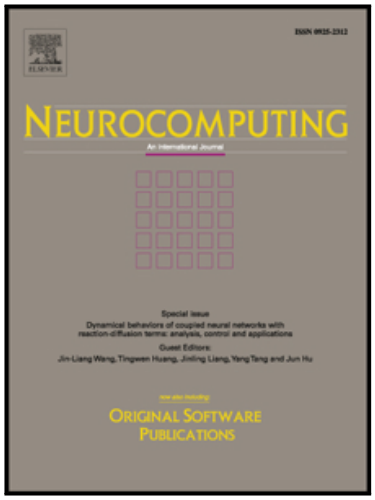

Sequence Recognition of Chinese License Plates

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Sequence Recognition of Chinese License Plates

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Abstract

The recognition of license plates is very important for intelligent transportation systems. Generally, the performance of an intelligent recognition algorithm is greatly affected by different shooting angles, illumination conditions and backgrounds of the license plate images. This paper presents a sequence recognition approach for intelligent recognition of Chinese license plates. Firstly, a spatial transformer network (STN) is employed to adjust the inclined and deformed license plates such that all the plates have a uniform orientation and thus are easier to be recognized. Then, an improved convolutional neural network (CNN) is designed to extract sequence features of the rectified license plates. The features of different convolutional layers are integrated as input to a bi-directional recurrent neural network (BRNN), where the character segmentation is not needed. Finally, the recognition is accomplished by the BRNN and connectionist temporal classification (CTC). Due to the lack of adequate Chinese license plates, an effective training method is presented in which the network is pre-trained by sufficiently enough synthetic license plates and is fine-tuned by our collected real Chinese license plates. The experimental results show that our model achieves better recognition accuracy and lower average edit distance than some existing methods.

Keywords: Chinese license plates recognition, Spatial transformer networks, Convolutional neural network, Recurrent neural network.

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