detection algorithm [15], the texture feature detection algorithm [16] and the single CNN algorithm [17] in positioning accuracy. The relatively poor effects of the traditional algorithms are attributed to their sensitivity to the environmental factors, as there is no limit on the scenes in the test images. By contrast, the CCNN model, trained by deep learning, can stay immune to the complex background and light intensity in the images.

4. CONCLUSIONS

This paper designs the CCNN, an accurate positioning method for license plate. Firstly, the vehicles in the video stream were detected by the YOLO v3 network. Then, two CNN layers were designed to roughly detect and accurately position the license plate, respectively. The CCNN was proved to be highly robust and accurate, despite natural light intensity, license plate covers, or noises outside the license plate. The research findings lay a solid basis for character segmentation and recognition on the license plate.

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