

论文与报告

基于CNN彩色图像边缘检测的车牌定位方法

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摘要

针对现有车牌定位算法准确率不高、步骤多和速度慢等问题, 提出一种彩色图像车牌定位方法(License plate locating based on CNN color edge detection, LPLCCED). 首先利用细胞神经网络(Cell neural network, CNN)模型导出一种与车牌颜色特征相结合的车牌定位专用边缘检测算法, 将车牌的颜色对约束条件融合到边缘检测算法中, 本文专用边缘检测算法可以大大缩小车牌初步定位的范围. 接下来提出一种针对车牌特征的边缘滤波算法, 最后根据车牌结构和纹理特征对候选区域进行判别验证. 该流程的各个环节都可以通过硬件实现, 为面向智能交通领域的实时车牌识别系统的前期车牌定位处理提供了依据.

关键词 [车牌定位](#) [彩色边缘检测](#) [细胞神经网络](#) [边缘滤波](#) [人类视觉系统](#)

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A Novel Approach for Vehicle License Plate Locating Based on CNN Color Image Edge Detection

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Abstract

In this paper, a novel approach of color image license plate locating based on CNN color edge detection (LPLCCED) is put forward to solve the problems of low accuracy, too many steps and slow speed in the existing license plate locating algorithm. First, combined with the color feature of license plate, a special edge detection algorithm to locate the license plate is derived by means of the cell neural network (CNN) model. Constraint conditions for color pairs of the license plate are fused into the edge detection algorithm, thus the range of the initial location is greatly narrowed. Then, a kind of edge filtering algorithm is proposed for the feature of the license plate. Finally, the candidate areas are identified and verified according to the structure and texture feature of the license plate. Each step of the process can be implemented by hardware, and this new approach provides a basis for the pre-processing of license plate locating in the real-time license plate recognition systems used in the field of intelligent transportation.

Key words [Vehicle license plate locating](#) [color edge detection](#) [cellular neural network \(CNN\)](#) [edge filter](#) [human vision system](#)

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