Automatic Recognition of Traffic Sign from Vehicle-Borne Images

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ABSTRACT: To automatically recognize traffic signs from vehicle-borne images can be used for the applications in road safety, the maintenance of reverent road facilities, navigation for cars and pedestrians, even for the development of future driver assistance system. In the past, two methods were employed to detect traffic signs from images. One way was to recognize them by the hue and saturation of traffic sign images, another way was to recognize them by the descriptors of traffic sign images that were performed by using algorithms, like SIFT. However, neither of them recognizes successfully when the vehicle-borne images had geometric distortion or was affected by complex background, weather, shadow, and illumination. A-SURF (Affine Speeded up Robust Features) was developed by Pang in 2012. This algorithm can be affine invariant and computation efficient; therefore, this study will try to employ A-SURF to overcome the above-mentioned problem. Firstly, the descriptor database of traffic sign image collected from the ministry of transportation in Taiwan is built. After that, the nearest distance between these descriptors would be figure out by k-d tree. From the tests, the relevant problem will be discussed.

Keyword: Affine SURF, traffic sign, vehicle-borne image.