

Automatic Recognition of Traffic Sign from Vehicle-Borne Images

Jou-An Lin¹, Shih-Hong Chio²

¹Graduate student, Dept. of Land Economics, National Chengchi University,
NO.64, Sec.2, ZhiNan Rd., Wenshan District, Taipei City 11605, Taiwan;
Tel: +886-2-29393091#51657, 98207431@nccu.edu.tw

²Associate Professor, Dept. of Land Economics, National Chengchi University,
NO.64, Sec.2, ZhiNan Rd., Wenshan District, Taipei City 11605, Taiwan;
Tel: +886-2-29393091#51657, chio0119@nccu.edu.tw

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 have geometric distortion or are affected by complex background, weather, shadow, and illumination. A-SURF (Affine Speeded up Robust Features) was developed by Pang (2012). This algorithm can be affine invariant and computed efficiently; therefore, this study will try to employ A-SURF to overcome the above-mentioned problems. Firstly, the descriptor database of traffic sign images collected from the ministry of transportation in Taiwan is built. After that, support vector machine (SVM) will be employed to distinguish the traffic sign from the descriptor database. From the tests, the relevant problem will be discussed.

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