A Study of Effective Stereo Matching Method for Long-Wave Infrared Camera Module

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Abstract : In this paper, we have described an efficient stereo matching method and pedestrian detection method using stereo types LWIR camera. We compared with three types stereo camera algorithm as block matching, ELAS, and SGM. For pedestrian detection using stereo LWIR camera, we used that SGM stereo matching method, free space detection method using u/v-disparity, and HOG feature based pedestrian detection. According to testing result, SGM method has better performance than block matching and ELAS algorithm. Combination of SGM, free space detection, and pedestrian detection using HOG features and SVM classification can detect pedestrian of 30m distance and has a distance error about 30 cm.

Keywords : advanced driver assistance system, pedestrian detection, stereo matching method, stereo long-wave IR camera
Conference Title : ICIEV 2017 : International Conference on Informatics, Electronics and Vision
Conference Location : Bangkok, Thailand
Conference Dates : February 07-08, 2017