ROAD DEFECT DETECTION USING HOG FEATURES AND SVM

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Road defect menace is a widely discussed issue in developing countries including Sri Lanka. The roads must be maintained in proper condition and monitored periodically to ensure the road safety and to reduce problems likes delay in transportation, and higher fuel consumption. We have proposed an automated road defect detection system based on computer vision and machine learning techniques. In the initial stage, road defect images and non-defect images are collected and then pre-processed. In the next step, Histogram of Oriented (HOG) is used as the feature descriptor. Then a Supports Vector Machine (SVM) classifier is used to classify the defect images and non-defect images. A hard-negative mining-based technique is used to improve the performance of the classifier. In the testing, a sliding window technique is applied to locate the defects in road images. Proposed approach is evaluated on CRACK500 benchmark dataset. Experimental results show that proposed approach shows excellent performance and higher accuracy to detect the road defects while comparing with existing methods

Keywords: road defect detection, histogram of oriented gradients (HOG), support vector machine (SVM)