【Abstract】

A VLSI Hardware-Compatible Algorithm for

Motion Analysis

Based on Local Feature Tracking

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Abstract

An ego-motion detection algorithm compatible to hardware implementation has been developed. The algorithm utilizes local motion detection scheme based on edge-histogram matching, which enables to detect local motions robustly in segmented blocks of a visual field. Eighteen-dimension motion field vector is generated by summarizing local motions. Then the vector quantization is carried out to recognize the ego-motion. In order to achieve further robustness, two threshold methods, block thresholding and median processing, are employed in the procedure. In computer simulation, over 93% of detection accuracy has been experimentally demonstrated by template matching with 30 template vectors generated from each of four ego-motion types.