

Fast Feature Extraction Algorithm for Moving Object Detection Using Aerial Images

Abstract

Fast and computationally less complex feature extraction for moving object detection using aerial images from Unmanned Aerial Vehicle (UAV) remains as an elusive goal in the field of computer vision research. The types of features used in current studies concerning moving object detection are typically chosen based on improving detection rate rather than on providing fast and computationally less complex feature extraction method. Since moving object detection using aerial images from UAVs involves motion as seen from certain altitude, effective and fast feature extraction is the vital issue for optimum detection performance. This research proposes Two-Layer Bucket approach based new feature extraction algorithm referred to as the Moment-based Feature Extraction Algorithm (MFEA). Because a moment is the representation of coherent intensity of pixels and motion estimation is the motion pixel intensity measurement, this research used this relation to develop the proposed algorithm. Experimental results reveal that the proposed MFEA algorithm and the proposed methodology demonstrated successfully.

Keywords: feature extraction, segmentation, frame difference, and computer vision