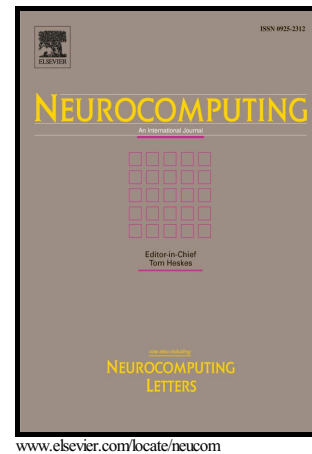


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Detection of Pedestrian Crossing Road A Study on Pedestrian Pose Recognition

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Abstract

Detection of pedestrian crossing road is the objective of this work. The model incorporates the pedestrian pose recognition and lateral speed, motion direction and spatial layout of the environment. Pedestrian poses are recognized according to the spatial body language ratio. The center of mass of the body relative to its width and height is used to define the pedestrian pose. Motion trajectory is obtained by using point tracking on the centroid of detected human region, and then estimated velocity is determined. Spatial layout is determined by the distance of the pedestrian to the road lane boundary. These models will be then hierarchically separated according to their action (walking, starting, bending and stopping). In order to classify the pedestrian crossing road, a walking human model is proposed. A walking human is defined by ratio of the centroid location from the ground plane divided by the height of bounding box. It should satisfy a constraint. The proposed algorithms are evaluated using publicly available datasets and our pedestrian walking dataset. The performance results shown the correct pedestrian crossing road classification is 98.10%.

Keywords: Pedestrian detection; Intelligent vehicle; Location classification; Action recognition.

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