MULTIPLE−RESOLUTION EDGE−BASED FEATURE REPRESENTATIONS FOR ROBUST FACE SEGMENTATION AND VERIFICATION (ThuAmOR3)

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Abstract :

Robust face segmentation and verification algorithms have been developed employing edge−based feature representations in the multiple resolution scheme. The face segmentation algorithm in our previous work has shown the robustness against illumination, focus and scale variations. In addition to these features, a rotation−invariant scheme has been introduced in the present work. As a result, a false−negative−free face segmentation robust against circumstance variations has been developed. In order to eliminate false positives occurring in the segmentation stage, a face verification algorithm has been also developed, in which edge information in a finer resolution is utilized to confirm the existence of facial parts. Since multiple facial parts are utilized as clues for verification, the system is capable of detecting partially occluded faces. As a result, a robust face detection algorithm has been successfully developed in which the occurrence of both false positives and false negatives has been drastically reduced.

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