

Hand segmentation for chest pain behaviour of a car driver in vehicle by using fusion watershed and blob analysis

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ABSTRACT

Hand segmentation is an important identification of chest pain behaviours among drivers. Chest pain is an early detection of heart-related diseases. Among the many methods in hand segmentation, YCbCr is determined as the most effective colour space to detect the colour of human skin. The threshold applied technique has great robustness in skin colour detection and segmentation of human body objects such as the face, arm, hands and neck through the undertaking of blob analysis. However, one of several obstacles in hand segmentation which resulted in its low accuracy rate of 62% is identified to be an existing connection between the hands and face regions. This connection problem is specifically overcome by the introduction of a fusion watershed technique with blob analysis. As an effective technique for image segmentation, watershed transform would separate the connected area into multiple regions. The conducted analysis then confirmed the hand as the smallest area across other separated regions. Enhanced execution of hand segmentation was subsequently achieved through extraction of the hand region via the output of the fusion watershed by the employment of blob analysis. Experimental results ultimately confirmed a higher accuracy rate of 75% through the employment of the fusion technique.

KEYWORDS

Blob analysis; Hand segmentation; Keywords - chest pain; Watershed technique; YCbCr colour space

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