



Chapter

Neural Information Processing

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Optimum Colour Space Selection for Ulcerated Regions Using Statistical Analysis and Classification of Ulcerated Frames from WCE Video Footage

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Abstract

The Wireless Capsule Endoscopy (WCE) is a painless and non-invasive procedure that allows clinicians to visualize the entire Gastrointestinal Tract (GIT) and detect various abnormalities. During the inspection of GIT, numerous images are acquired at a rate of approximately 2 frames per second (fps) and recorded into a video footage (containing about 55,000 images). Inspecting the WCE video is very tedious and time consuming for the doctors, resulting in limited application of WCE. Therefore, it is crucial to develop a computer aided intelligent algorithm to process the huge number of WCE frames. This paper proposes an ulcerated frame detection method based on RGB and CIE Lab colour spaces. In order to select and provide the classifier

with the bands containing most ulcer information, a statistical analysis of ulcerated images pixel based is proposed. The resulting band selection will enhance the classification results and increase the sensitivity and specificity with regards to ulcerated frame identification.

Keywords

WCE image processing Ulcer frame detection Statistical analysis Colour spaces selection Classification

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