

OP 30 - Melanoma Skin Cancer Detection Using Image Processing and Computer Vision Algorithms

Sivathmeega S.^{a#}, Rathnayaka R.M.K.T.^b

^a*Department of Computing and Information Systems, Sabaragamuwa University of Sri Lanka, Belihuloya, Srilanka*

^b*Department of Physical Sciences & Technology, Sabaragamuwa University of Sri Lanka, Belihuloya, Srilanka*

[#]*Corresponding author: sriathmi12@gmail.com*

Background: Skin cancer is a common type of cancer in the world. The incidence has been increasing rapidly all over the world; especially, in recent years, fairly rapid increment can be seen in melanoma skin cancer patients. Melanoma is a deadliest form of skin cancer, must be diagnosed earlier as soon as possible for effective treatment. For early diagnosis of melanoma a skin lesion should be segmented accurately. However, the segmentation of the melanoma skin cancer lesion using traditional approach is challenging due to the high number of false positives and time consuming in prediction. Hence, the development of automated computer vision systems are becoming as essential tools today.

Objectives: The aim of this study was to identify the specific cancer region accurately compared to traditional approach by examining existing systems, identifying the major issues of the systems and finding future directions.

Methodology: The proposed methodology was implemented the segmentation for melanoma skin cancer detection using image processing. A sample of 250 cancer affected patients' images were collected from Ethical Review Centre, University of Jaffna, Sri Lanka. The input for the system was the image of the skin lesion which was speculated to be a melanoma lesion image, was then pre-processed to upgrade the image quality.

Results and conclusions: According to our finding, the proposed approach could achieve 97.54% sensitivity, 97.69% specificity, and 97.56% accuracy. This tool is more useful for the rural areas where the experts in the medical field may not be available. Since the tool is user friendly and robust for images of any quality, it can serve the purpose of automatic probable diagnosis of the melanoma skin cancer. Finally, the proposed methodology is also a financially attractive solution, since it runs on ordinary computers, available in the hospitals too.

Keywords: Segmentation, canny edge, thresh holding, watershed