Melanoma Diagnostic System using Non-Shannon Havrda Measure and Harris Corner Detector

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Abstract

Malignant Melanoma is the deadliest type of skin cancer, is one of the most rapidly increasing cancers in the world. Malignant Melanoma is very difficult to treat and it must be diagnosed and excised during its earliest stages. In this work, we use a data set of 184 clinical dermatoscopic images of skin lesions, in which 144 images are of malignant lesion and 40 images are of benign lesion. We classify skin lesions as malignants from color photographic slides of the lesions. So we use color images of skin lesions, image processing techniques and artificial neural network to distinguish from benign pigmented lesions. In image processing we use Image level median filtering and entropy based segmentation technique. At the first step, we Consider clinical images of skin cancer patients using high speed cameras. After that we uses Medial filtering and histogram preprocessing to avoid uneven illuminance problem. Then Harris Corner detection method is implemented to characterize edges of the image for further analysis and implementation. Second, Otsu and Entropy based image segmentation algorithm is performed which improves the quality of the image. Its used for lesion extraction. In this work we use Machine learning based approach to optimize the classification error. In this we have
instigated the performance of entropy based method against standard Otsu method and proved that the information theory based non-shannon entropy function of Havrda give far optimum performance against histogram based approach.

References

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