AI-BASED LOCALIZATION AND CLASSIFICATION OF SKIN DISEASE WITH ERYTHEMA

LITERATURE SURVEY

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ABSTRACT:

Although computer-aided diagnosis (CAD) is used to improve the quality of diagnosis in various medical fields such as mammography and colonography , it is not used in dermatology, where noninvasive screening tests are performed only with the naked eye, and avoidable inaccuracies may exist. This study shows that CAD may also be a viable option in dermatology by presenting a novel method to sequentially combine accurate segmentation and classification models. Given an image of the skin, we decompose the image to normalize and extract high-level features. Using a neural network-based segmentation model to create a segmented map of the image, we then cluster sections of abnormal skin and pass this information to a classification model. We classify each cluster into different common skin diseases using another neural network model. Our segmentation model achieves better performance compared to previous studies, and also achieves a near-perfect sensitivity score in unfavorable conditions. Our classification model is more accurate than a baseline model trained without segmentation, while also being able to classify multiple diseases within a single image. This improved performance may be sufficient to use CAD in the field of dermatology.

Literature Survey:

S No	TOPIC	AUTHOR	YEAR	METHODOLOGY	ACCURACY
1	Computer-aided diagnosis and artificial intelligence in clinical imaging	Junji shiraishi	2011	One element of CAD, temporal subtraction, has been applied for enhancing interval changes and for suppressing unchanged structures (eg, normal structures) between 2 successive radiologic images	85%
2	Computer-aided diagnosis for CT colonography	Hiroyuki yoshida , Abraham H dachman	2004	This paper describes the key techniques used for CAD for detection of polyps and masses in CT colonography, the current detection performance, and challenges and the future of CAD.	95%
3	Review of MR image segmentation techniques using pattern recognition	J C BEZDEK, L O HALL, L P CLARKE	2004	The methods reviewed fall roughly into four model groups: c-means, maximum likelihood, neural networks, and k-nearest neighbor rules.	70%

| 4 | Segmentation of multiple sclerosis lesions in MR images: a review | Daryoush Mortazavi | 2012 | Multiple sclerosis (MS) is an inflammatory demyelinating disease that the parts of the nervous system through the lesions generated in the white matter of the brain. It brings about disabilities in different organs of the body such as eyes and muscles. | 85% |
| 5 | Improved skin lesions detection using color space and artificial intelligence techniques | Sudhriti sengupta, Neetu mittal | 2020 | Automatic skin lesion image identification is of utmost importance to develop a fully automatized computer-aided skin analysis system. This will be helping the medical practitioners to provide skin lesions disease treatment more efficiently and effectively. | 80% |