Literature Survey

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| Team ID : | PNT2022TMID40373 |
| Project Name : | AI - Based localisation and classification of Skin disease with Erythema. |
| Team Leader : | VIJAYALAKSHMI.K |
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| 1 | Paper title | AI-based localization and classification of skin disease with erythema.  Author - Ha Min Son, Wooho Jeon and Tai Myoung Chung  Year : 2021 |
| Problem  definition | The method provides a solution to classify multiple diseases within a single image. With higher quality and a larger quantity of data, it will be viable to use state-of-the-art models to enable the use of CAD in the field of dermatology. |
| Methodology/  Algorithm | Two of the more prominent approaches for skin disease segmentation and classification are clustering algorithms and support vector machines (SVMs). |
| Advantages | Clustering algorithms generally have the advantage of being flexible, easy to implement, with the ability to generalize features that have a similar statistical variance. |
| Disadvantages | An inherent disadvantage of clustering a skin disease is its lack of robustness against noise. Clustering algorithms rely on the identification of a centroid that can generalize a cluster of data. Noisy data, or the presence of outliers, can significantly degrade the performance of these algorithms. |

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| 2 | Paper title | Effective diagnosis mechanism for skin disorders using image mining techniques.  Author - Poornima.G & Sakkari. D. S  Year – 2022 |
| Problem  definition | The publishers have clearly used image processing methods to accomplish the mission of pre-processing. The classification tasks can be made much easier and more productive by defining this pattern.  They present a fully automated classification system in this article for diagnosing skin disorders by using image mining techniques. Our model is designed to compromise pixel, object and pattern levels in three steps, respectively. We have used multiple image mining techniques likeaugmentation, feature extraction, classification in order to classify skin disorder images effectively. |
| Methodology/  Algorithm | In three steps, our model is designed as follows:  A. Stage 1The first stage of the model requires the compilation of datasets and augmentation of data. The dataset was entirely created by us collecting the photos from different sites of various disorders. The original dataset consisted of 30 images, 150 after augmentation.  B. Stage 2Second stage of the model involves in extracting features from the skin disorder images by using various image processing techniques.  C. Stage 3Third stage of the model involves in classifying skin disorder images. |
| Advantages | The publishers have clearly used image processing methods to accomplish the mission of pre-processing. The classification tasks can be made much easier and more productive by defining this pattern. |
| Disadvantages | Dataset size is Small and accuracy of the classification is not satisfied. |
| 3 | Paper title | Skin Diseases Classification Using Hybrid AI Based Localization Approach.  Author – Keshetti Sreekala  Year – 2022 |
| Problem  definition | This paper implements that the Structural Co-Occurrence matrices for feature extraction in the skin diseases classification and the preprocessing techniques are handled by using the Median filter and the skin diseases are diagnosed by using the Hybrid deep neural network for diagnosis and the datasets are classified by using the MobileNet. |
| Methodology/  Algorithm | Several machines learning algorithm namely, Support Vector Machine, Feature extraction , preprocessing , Classifying and Neural network technique. The various types of survey used in the classification of the accuracy algorithm, and the detection and prevention of skin diseases earlier. |
| Advantages | The Features extraction is used to remove some noise from the images and the preprocessing is used to improve the accuracy of the classification. |
| Disadvantages | In SVM it’s better to scale the data always; because it will extremely improve the results. |

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| 4 | Paper title | Skin disease classification from images.  Author- Tanvi Gosvami  Year-2020 |
| Problem  definition | An automated computer-based system for skin disease identification and classification through images is needed to improve the diagnostic accuracy as well as to handle the scarcity of human experts. Classification of skin disease from an i mage is a crucial task and highly depends on the features of the diseases considered in order to classify it correctly.  This paper presents the survey of different methods and techniques for skin disease classification namely; traditional or handcrafted feature-based as well as deep learning-based techniques. |
| Methodology/  Algorithm | SIFT algorithm identifies and locates the keypoints from the input image and generates the feature vector |
| Advantages | The accurate analysis of such diseases from the image would improve the diagnosis, accelerates the diagnostic time and leads to better and cost-effective treatment for patients. |
| Disadvantages | Many skin diseases have highly similar visual characteristics, which add more challenges to the selection of useful features from the image. |