# Disease Diagnosis System by Mulnutrition Children using Machine Learning

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## ABSTRACT

In this project we are elaborating concept of disease detection of human body using nail image of human fingers and analyzing data from the image of basic of nail color. In this project the procedure of disease detection is as follows: The input to the system is a person nail image. The system will process an image of nail and extract feature of nail which is used for disease diagnosis. Here, first training data is prepared using Machine Learning from nail image of patient of specific disease. A feature extracted from input nail image is compared with training data set. In this project we found that color feature of nail image are correctly matched with training set data.

Keywords:- Disease Diagnosis, Malnutrition, Machine Learning .

## ARTICLE INFO

## I. INTRODUCTION

Malnutrition is a complex topic that draws the attention of the world and many researchers. Nutrition is vital for the health at all ages. The Health and nutritional status of children is one of the benchmarks that can indicates the nutritional condition of the wider community, because the pattern of parenting in many communities more priority to toddler. Malnutrition does not occur suddenly, but begins with insufficient weight gain. Changes in toddler weight within a certain time are an early indication of child nutritional circumstances. In the six-month period, infants who did not gain weight 2 times, were at risk of malnutrition 12.6 times than those with regular weight gain. Based on this, the weight change information can be the parameter to mapping the potential malnutrition problems. Thus, information of area with potential malnutrition is needed as input for government and public policy makers to prevent malnutrition and make a nutritional intervention.

Image processing is a method to convert an image into digital form and perform some operation on it, in order to get an enhanced image or to extract some useful information from it. There are five types of image that is Tagged Image Five Format, Joint Photographic Expert Group, Graphic Interchange Format, Portable Network Graphics, Row Image File. Computer can easily classify more than 16 million colors; whereas eye capability has limitation while identifying color and also same people face the problem such as color blindness. So performing nail color analysis through computer is a superior technique as compared with human eyes. Human eyes have limited resolution , finding deviation in near by pixel intensity are not possible for human eyes, but computer vision can detect every pixel appropriately. Pathological test are complex and painful, patient must be available for pathological test, while analysis performed by the system is calm. This system would be helpful for the patient, as patient need not to be present in person or if the doctor is not available for

consultation purpose therefore just by receiving patient's nail image the doctor can diagnose the symptoms and write appropriate prescription for the disease that is being diagnosed.

The proposed system will extract color feature of human nail image for disease prediction. The system is focusing on image recognition on the basis of human nail color analysis. Many disease could be identified by analyzing nails of human hand. In this system human nail image is captured using camera. Captured image is uploaded to our system and region of interest from nail area is selected from uploaded image manually. The selected area is then processed further for extracting features of nail such as color of nail .This color feature of nail is matched using simple training data set for disease prediction .In this way the system is useful in prediction in their initial stages.

## II. PROBLEM STATEMENT

Malnutrition is one of the largest public health problems in developing countries. India contributes 1/3rd of total malnourished children in the world, with prevalence as high as 29.4%.

The purpose of this study was to assess the association of malnutrition with scholastic performance among 8–12 year children data to analysis the health records. This cross sectional study was done among 8–12 year children, with sample children photos with text input data, taking the prevalence as 50%, precision as 10%.

## III. LITERATURE SURVEY

[1] Cynthia Hayat,Barens Abian, "The Modeling of Artificial Neural Network of Early Diagnosis for Malnutrition with Backpropagation Method", 2018, this research consisted of 2 phases, which were training phase in which it generated ANN weight by using feed-forward of activation function, and testing phase in which the result of the previous stage was tested to obtain output.

[2] Bambang Lareno, Liliana Swastina, Husnul Maad Junaidi, "IT Application to Mapping The Potential of Malnutrition Problems", 2018, this paper focus to find a model of IT application that can be used for mapping the potential of malnutrition problems and the rate of utilization of posyandu. The result, the cross-platform

information model developed is a web-based core system, with a mobile application-based support system.

[3] Anutosh Maitra, Rambhau Eknath Rote, Nataraj Kuntagod, "Managing Child Malnutrition via Digital Enablement: Insights from a Field Trial", 2017, in this paper that malnutrition management requires an integrated digital approach – that not only looks at making data available, but also establishing relationships between various program indicators, overlaying that with socio-economic conditions of the region and family demographics.

[4] Sri Winiarti, Sri Kusumadewi, Izzati Muhimmah, Herman Yuliansyah, "Determining The Nutrition of Patient Based on Food Packaging Product Using Fuzzy C Means Algorithm", 2017, the result of the decision will give 3 clusters on nutritional status is good nutrition, malnutrition and better nutrition. Mobile apps are used as a reminder of the nutritional value or ingredients contained in the packaging of food products while consuming food. The result of system testing for application of FCM algorithm in this mobile application obtained validation of 80%.
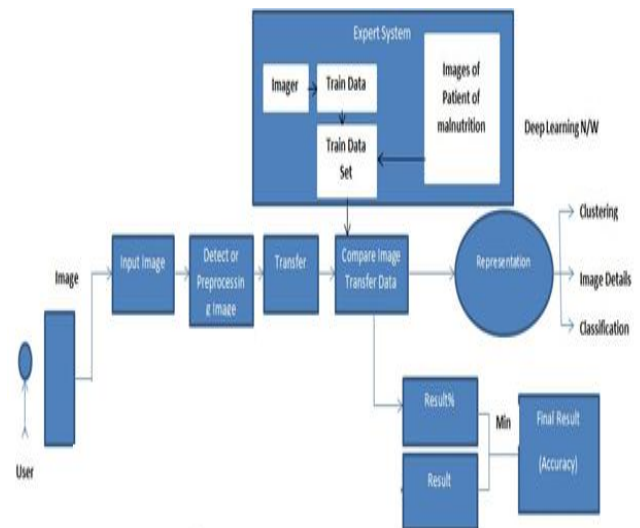
## IV. PROPOSED SYSTEM



Fig 1. System architecture

In this project we are elaborating concept of disease detection of human body using nail image of human fingers and analyzing data from the image of basic of nail color. In this project the procedure of disease detection is as follows: The input to the system is a

person nail image. The system will process an image of nail and extract feature of nail which is used for disease diagnosis. Here, first training data is prepared using Machine Learning from nail image of patient of specific disease. A feature extracted from input nail image is compared with training data set. In this project we found that color feature of nail image are correctly matched with training set data.

## V. CONCLUSION

In presented system, system analyzes the human nail and gives probable disease for person including healthy case. Here, for disease prediction nail color (average RGB) value used as a nail feature. This model gives more accurate results than human eye like subjectivity and resolution power. This may give more accurate result for identifying human health condition using machine learning algorithm.

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