CHRIST
(DEEMED TO BE UNIVERSITY)
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Notice for the PhD Viva Voce Examination

Mr Jibrael Jos (Reg. No. 1445002), PhD scholar at CHRIST (Deemed to be University), will defend his PhD thesis at the public viva voce examination on Wednesday, 02 June 2021 at 03.00 pm. The defense will be conducted online on the WebeEx Meeting platform.

Title of the Thesis	:	**Health Diagnosis of Mango Trees using Image Processing Technique**
Discipline	:	**Computer Science**
External Examiner (Outside Karnataka)	:	**Dr Kapil Kumar Nagwanshi** Associate Professor Department of CSE Amity School of Engineering & Technology Amity University SP-1, Kant Kalwar, RIICO Industrial Area NH-11C, Jaipur Rajasthan - 302006
External Examiner (Within Karnataka)	:	**Dr Reeja S R** Associate Professor Department of CSE Dayanand Sagar University School of Engineering Kudlu Gate, Singasandra Bengaluru - 560068 Karnataka
Supervisor	:	**Dr K A Venkatesh** Professor Department of Computer Science Myanmar Institute of Information Technology Mandalay, Myanmar – 05053 Burma

The faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva.

Registrar

Place: Bengaluru
Date: 24 May 2021

ABSTRACT

A Mango disease detection artificial intelligent model needs robust and effective feature extraction methods. The machine vision system has been designed for the identification of disease in plants from color leaf images. The research done proposes novel algorithms to extract color features Pseudo Color Regions and Texture Features using Pseudo Color Co Occurrence Matrix. A new Mango dataset has been created and algorithms tested on it. An artificial intelligence model has also been created and tested on existing disease dataset of Apple and Tomato plants. Results were compared with existing methods in literature. Effectiveness of each statistical function was studied in classifying the pattern using a Support Vector Machine. For textures which are different like smooth new leaves, dry leaves, growth a Gray Level Co-occurrence based statistics was effective but values failed to discriminate in certain diseases. The proposed and implemented novel method which uses second order statistics on a pseudo color-based co-occurrence matrix has resulted in a better classification. Pseudo Color Region feature is created using a novel intermediate data structure and found to be more effective than hue-based color features. It identifies dots, spots, patches and regions of different colors on the leaf and uses that as a feature vector to classify plant diseases. This generic method can be applied for early disease detection for plants and help farmers take corrective measures to avoid loss of yield.

Keywords: Artificial Intelligence, Color Features, Computer Vision, Feature Extraction, Machine Learning, Plant Disease Detection, Texture Features