

Title: Identifying The Coconut Leaf Disease Using Deep Transfer Learning Approach

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Abstract: Coconut is one of the main economic crops in Bangladesh. It is a tree whose every part is useful in one way or another in public life. The leaves, flowers, fruits, stems, and roots of this tree are used as raw materials for various small and large industries, materials for making various delicious foods, delicious drinks, and food for patients. This is the world's most beautiful tree and is well known and appreciated by all as the 'heavenly tree'. However, it has recently become known that most coconut trees suffer from illnesses that gradually weaken the trees' health and coconut yield. Pest illnesses and nutrient deficits have an impact on the majority of the tree's leaves. The main reason is that most of the farmers in our country are unaware. They do not know what kind of measures to take in the case of any disease. They are using pesticides, assuming ancient principles, sometimes benefiting and sometimes counterproductively, and making the farmers poor. As a result, farmers are showing disinterest in coconut cultivation. Our main objective is to increase the viability of coconut leaves and detect problems early on so that farmers can benefit more from the cultivation of coconuts. The study suggests examining diseases and detecting insect attacks and nutritional deficiencies in coconut leaves. This will help grow more coconuts. It is expected that this model will help the agricultural field on both an economic and ecological level. This study focuses on the three coconut diseases: WCLWD Yellowing, WCLWD Flaccidity, and CCI Caterpillars. Three neural networks have been chosen in this study to identify the best model. After evaluating the VGG19, MobileNet v2, Inception v3, and ResNet50 models, the accuracy for a collection of 3166 images was determined to be 96%, 96.02%, 97.77%, and 99.36%, respectively. As a result of this technology, farmers will be able to produce more coconuts, surely bringing about a revolution in the agricultural industry..

Keywords: Deep Learning , Transfer Learning , Leaf Diseases , Neural Network , Focus Of This Study , Caterpillars , Flaccid

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