

Image Processing-Based Maize Disease Detection Using Mobile Application

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Abstract : In the food chain and in many other agricultural products, corn, also known as maize, which goes by the scientific name *Zea mays* subsp, is a widely produced agricultural product. Corn has the highest adaptability. It comes in many different types, is employed in many different industrial processes, and is more adaptable to different agro-climatic situations. In Ethiopia, maize is among the most widely grown crop. Small-scale corn farming may be a household's only source of food in developing nations like Ethiopia. The aforementioned data demonstrates that the country's requirement for this crop is excessively high, and conversely, the crop's productivity is very low for a variety of reasons. The most damaging disease that greatly contributes to this imbalance between the crop's supply and demand is the corn disease. The failure to diagnose diseases in maize plant until they are too late is one of the most important factors influencing crop output in Ethiopia. This study will aid in the early detection of such diseases and support farmers during the cultivation process, directly affecting the amount of maize produced. The diseases in maize plants, such as northern leaf blight and cercospora leaf spot, have distinct symptoms that are visible. This study aims to detect the most frequent and degrading maize diseases using the most efficiently used subset of machine learning technology, deep learning so, called Image Processing. Deep learning uses networks that can be trained from unlabeled data without supervision (unsupervised). It is a feature that simulates the exercises the human brain goes through when digesting data. Its applications include speech recognition, language translation, object classification, and decision-making. Convolutional Neural Network (CNN) for Image Processing, also known as convent, is a deep learning class that is widely used for image classification, image detection, face recognition, and other problems. it will also use this algorithm as the state-of-the-art for my research to detect maize diseases by photographing maize leaves using a mobile phone.

Keywords : CNN, *zea mays* subsp, leaf blight, cercospora leaf spot

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