

**Abstract**

*Grapevines are susceptible to diseases that can cause physical changes in the leaves that can damage the yield and quality of the grapes. Therefore, a technology is needed that can detect diseases in grape plants quickly and accurately. An application that can detect diseases on grape leaves that helps farmers identify plant health problems early and minimize crop losses. The android-based image processing application allows the retrieval and analysis of grape leaf images to identify what kind of disease is affected on the grape leaves. This research focuses on the application of the Convolutional Neural Network (CNN) algorithm where the proposed algorithm is ResNet-34 (Residual Network 34 Layer) to classify grape leaves by using ResNet-34, which uses hyperparameters such as epoch. This application is based on Flutter with the flow of taking images of grape leaves and using a Convolutional Neural Network (CNN) model that has been trained to identify the type of disease on the leaves. The image data that has been collected is then preprocessed first, and then the CNN model is trained, evaluated, and implemented in the application. The user inputs an image of a grape leaf, and the application provides visual information about the type of disease that may be affected by the leaf.*

**Keywords:** *Grape, CNN, ResNet-34, Mobile Application, Image Classification*

---