# PLANT RECOGNITION USING DEEP LEARNING

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***Abstract*—**
***Index Terms*—Recognition, Plants, DeepLearning,**

## I. Motivation

To detect and categorize plants, [1] deep learning techniques can be used for a number of convincing reasons. Numerous disciplines, such as agriculture, environmental science, conservation, and others, are represented by these motives. Here are a few of the main explanations: Plant identification can help with the conservation of endangered species and habitats. Conservationists might take targeted protective measures for rare or vulnerable plant species by using deep learning to identify and monitor them in their natural settings. Agriculture and crop management: Tasks like disease diagnosis, pest control, and yield prediction can benefit from deep learning-based plant recognition in agriculture. These technologies may be used by farmers to enhance crop management and raise overall yield. Detection of Invasive Species: Invasive plant species can damage native flora and wildlife and disturb ecosystems. Deep learning can help with invasive plant identification and management, enabling more successful control and eradication operations. Herbal and Medicinal Plants: Traditional medicine and pharmaceutical research may both benefit from identifying and classifying herbal and Medicinal Plants. The identification of these important plant species may be automated with the use of deep learning. Botanical Research: Deep learning methods that speed up the process of classifying and identifying plants can be useful to botanists and scholars. This can make it easier to analyze how plants have evolved, spread, and adapted to various habitats. Education and citizen science: Deep learning-based plant recognition can be a useful instructional tool. It can help identify plants and involve students and lay people in science.

According to [2] A major challenge is identifying plants, particularly for biologists, chemists, and environmentalists. Plant recognition may be done manually by professionals, but it is a laborious and inefficient operation. The automation of plant recognition is a crucial step for industries that operate with plants. In this study, a method for identifying plants using photographs of their leaves is presented. To identify different plant species, k-Nearest Neighbor, Support Vector Machines, Naive Bayes, and Random Forest classification methods are combined with shape and color information collected from leaf photos. 32 different types of leaves and 1897 leaf photos were used to evaluate the proposed methodology.



## References

[1] Andreas Kamilaris and Francesc X. Prenafeta-Boldú. Deep learning in agriculture: A survey. *Computers and Electronics in Agriculture*, 147:70–90, April 2018.
[2] Srdjan Sladojevic, Marko Arsenovic, Andras Anderla, Dubravko Culibrk, and Darko Stefanovic. Deep Neural Networks Based Recognition of Plant Diseases by Leaf Image Classification. *Computational Intelligence and Neuroscience*, 2016:1–11, 2016.

## Declaration of Originality

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