

# Identification of Orchid Species in the Moon Orchid Genus which Utilizes Flower Bud Inputs Using Convolutional Neural Network

Hanuji Rahmat Nagoro<sup>1</sup>, Agung Toto Wibowo<sup>2</sup>, Anditya Arifianto<sup>3</sup>

<sup>1,2,3</sup>Informatics Faculty, Telkom University, Bandung

<sup>1</sup>hanujirahmatnagoro@students.telkomuniversity.ac.id,

<sup>2</sup>agungtoto@telkomuniversity.ac.id, <sup>3</sup>anditya@telkomuniversity.ac.id

---

## Abstract

The moon orchid or *Phalaenopsis* flower is a popular ornamental plant because it has many varieties of beautiful shapes and colors as well as its promising economic value. There are 64 species of moon orchids in the world, this diversity certainly makes it difficult for the general public to be able to recognize each species of moon orchid. People need knowledge about the characteristics of each species because it is not uncommon for them to misclassify the existing species of moon orchids. Therefore a more efficient and cost-effective system/technology is needed to help identify *phalaenopsis* species automatically. The purpose of this research is to implement a system that can identify 5 species of orchids in the genus of orchids with a Deep Learning approach using the Convolutional Neural Network (CNN) method to extract features in important parts or region of interest (ROI) of the orchid moon, that is the interesting part is used to classify 5 species of moon orchids. The data used were 2500 images with 500 images per species. The species used in this study were *Phalaenopsis amabilis*, *Phalaenopsis amboinensis*, *Phalaenopsis bellina*, *Phalaenopsis cornucervi*, and *Phalaenopsis deliciosa*. The research that was carried out succeeded in making a CNN model that can obtain 98% accuracy, precision, recall, and f1-score for 500 test data.

**Keywords:** Deep Learning, Convolutional Neural Network, classification, orchid, Moon Orchid

---