

ABSTRACT

The uniqueness and diversity of cactus plants are numerous and spread throughout the world and have a long life and simple care that make cactus plants in great demand for most people. With the advancement of time, the Grafting method is used by many ornamental cactus farmers to enrich the diversity of cactus plants so that they produce small cactus plants, slow plant growth, and have Scion diversity in Grafting cactus plants. Scion is the upper part of the Grafting cactus body structure, this part of the Scion is chosen usually from other cactus species whose shape and color are unique and striking. The results of Grafting that cause diversity in Scion make it difficult for the general public to distinguish Grafting cactus plants, with a system that can recognize and classify Grafting cactus plants, it is hoped that it will make it easier for the general public to recognize Grafting cactus plants that have their own characteristics. This system was made using the Convolutional Neural Network (CNN) method which was built with the RESNET152V2 architecture to validate the CNN model structure, has a dataset of 31,600 upper plant image data called Scion on 10 Grafting cactus plant species, namely *Enchinopsis Peruviana*, *Gymnocalycium Baldianum*, *Mammillaria Spinosissima* cv. *Un Pico*, *Opuntia Microdasys*, *Parodia Warasii*, *Astrophytum Capricorne*, *Blossfeldia Liliputana*, *Copiapoa Laui*, *Cephalocereus Senilis*, and *Echinopsis Chocolate* are common and popular cultivated in the market and produce the best model in version 1 by 94.13% in field testing data, and 97.60% in internet testing data, then version 2 produces the best model of 82.10% on field testing data, and 86.86% on internet testing data.

Keywords: *Grafting Cactus Classification, Convolutional Neural Network (CNN), ResNet152V2, Scion Cactus*