

## **ABSTRACT**

Muhamad Yoga Pratama. 53419947

*IMPLEMENTATION OF INCEPTION V3 TRANSFER LEARNING ON BITTER MELON AND POTATO IMAGES WITH CNN MODELING BASED ON ANDROID STUDIO USING TENSORFLOW, TENSORFLOWLITE, MATPLOTLIB, NUMPHY, AND KERAS.*

*Thesis, Department of Informatics, Faculty of Industrial Technology, Gunadarma University, 2023*

**Keyword :** *bitter gourd and potato, Convolution Neural Network, inception v3, Android, Library.*

*(xiv + 87 + attachment)*

*The identification process of freshness of bitter melon and potato can be seen by the shape and color of bitter melon and potato. One of the algorithms that can be used to identify the freshness of bitter melon and potato based on the characteristics of potato and bitter melon is Convolution Neural Network (CNN). CNN is a development of conventional ANN. CNN has a network architecture consisting of tens to hundreds of layers. CNN processes images through network layers and produces outputs in certain classes. (Mathworks, 2018). With existing research and data, this research will identify freshness based on images of potatoes and bitter melon in the dataset using Convolution Neural Network (CNN). The creation of this program uses the Agile Development Methodology research method. Based on the results of each model with the implementation of convolutional neural network (CNN) of 89.93% while the model with the implementation of inception v3 of 95.82%. The comparison of the performance of the applied models is shown in tabular form as follows. Based on the results of the trials that have been carried out on the implementation of transfer learning on the CNN model on android against bitter melon and potatoes, it can be concluded, among others, that the model was successful in forming training and validation with a ratio of 90:10 with training as many as 20 iterations (epochs). The accuracy value of the model in identifying reached 95.82% with a total of 407 validation images. train data with different ratios and other transfer learning architectures in order to find a better level of accuracy, use datasets with their own image data so that the model can be compared with the level of accuracy.*

*Bibliography (2017-2023)*