

ABSTRACT

The National Disaster Management Agency (in bahasa: BNPB) states that disasters in Indonesia are dominated by hydrometeorological disasters that result a large-scale damage. Quick and comprehensive handling is certainly needed so that the damage that occurs can be analyzed and taken further action by the authorities. One of them is by mapping from the air using Unmanned Aerial Vehicle (UAV) so that the geospatial data can cover a wider area. However, the geospatial data or photogrammetric data that was obtained sometimes do not contain information that is easily recognize visually. This is caused by camera factors and image processing device factors, such as computers, which do not meet the specifications for reconstructing high-quality photogrammetry. Therefore, the Super Resolution method is proposed to improve detailed information on aerial imagery using Convolutional Neural Network (CNN) modeling.

CNN modeling is designed using the TensorFlow framework using the Deep CNN with Skip Connection and Network-in-Network (DCSCN) model which consists of Feature Extraction Network with skip connection feature to extract local and global features. Also, Reconstruction Network with Network-in-Network (NIN) to reconstruct images based on features that have been obtained from the Feature Extraction Network.

The Super Resolution Program that was designed in this study was successful in reconstructing aerial imagery with a scale factor value of two, three and four. Thus, the results obtained are more have a higher resolution in accordance with the value of the scale factor used.

Keywords: *convolutional neural network (CNN), super resolution, unmanned aerial vehicle (UAV), tensorflow*