

ABSTRACT

Rain is a natural condition that occurs in Indonesia. Irregular rain patterns result in hydrometeorological disasters such as floods and landslides. These natural disasters often occur in Indonesia, not only causing material losses, but natural disasters also often take lives.

To reduce the impact of natural disasters, it is necessary to predict rain which is one of the factors in natural disasters. Because of this reason, the rain prediction system was developed using the Convolution Neural Network (CNN) method in this research. One thousand cloud image data from the technology test center camera and space and atmospheric observations directed at the sky in the city of Garut were used for the training process. It consists of two categories, cloudy images and rain images, to build prediction models.

The simulation process is carried out by inputting a cloud image through several processes such as preprocessing, feature extraction, and learning process, so this system can predict the rain the occurrence of rain. The tests are carried out to find the most optimal parameters in order to get the best accuracy. Obtained parameters such as data partition 80:20, learning rate 0.001, and epoch 50 resulting in accuracy reaching 98%. Froms the results of this accuracy the system can predict the occurrence of rain in the future.

Keywords: *Prediction, Rain, Cloud imagery, Digital Image Processing, Convolutional Neural Network (CNN).*