

## **ABSTRACT**

### **APPLICATION OF CONVOLUTIONAL NEURAL NETWORK FOR THE USAGE OF HELMETS IN ATM MACHINE SECURITY**

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Skimming is a banking crime committed at an ATM machine. The perpetrators installed WIFI pocket routers and cameras to capture customer PINs when making transactions in skimming practices. Security in the form of written appeals in the form of pamphlets regarding prohibitions in attitudes and clothing such as not wearing hats, helmets, sunglasses and masks to block facial images and attitudes in maintaining privacy and surveillance systems such as CCTV are considered to be passive. The application of the Convolutional Neural Network method in conducting image classification is commonly used and some have been applied to security systems. This study uses 2 types of datasets, namely datasets of subjects wearing helmets and not wearing helmets. Dataset collection is carried out by taking personal photos at the location of the ATM machine with various directions of vision that show the nature of surveillance cameras or CCTV. The dataset is processed by preprocessing scalar normalization and changing the size of the image. Then the data is trained using 3 Convolutional Neural Network architecture schemes with the concept of decreasing, increasing and fixed filters at the number of filters for each convolution layer and through 30 epochs. The output of the training results produces train loss, train accuracy, val loss, and val accuracy values which are then reprocessed to obtain a confusion matrix value. The final result of this research is the value of the confusion matrix metric for each architectural scheme that produces accuracy, precision, and recall values which will then be compared to determine the scheme with the best concept.

**Keyword : ATM, CCTV, Confusion Matrix, Convolution Neural Network, Skimming**