# ABSTRACT

Hologram is one of the applications of Human Computer Interaction that can make delivering information in 2D more attractive and more efficient. Holograms can be moved using the working principle of Hand Gesture Detection. The working principle of Hand Gesture Detection is a system that allows computers to detect hand movements from humans. Many methods can be used to implement this hand gesture detection, but there are still parameters can reduce the level of accuration, such as the process of image capture or inaccurate gestures.

This final project designs a system that can detect hand movements using the Histogram of Oriented Gradient (HOG) method for image feature extraction and Support Vector Machine (SVM) for image classification. This final project uses the SVM method because in previous research using the Adaboost method there were parameters that made the accuracy of detection from hand motion decreased, and there were conditions where the hand was not detected by the system.

This Final Project uses Cell Size, Block Size and linear kernel which is used as a configuration to analyze the results of hand detection. The dataset used in this study was 600 training images, and 300 images taken from 10-second videos as test data. In this study the parameters used for analysis are accuracy, Intersection of Union (IoU) and computational time. This research gets the best configuration using Cell Size 4×4, Block Size 7×7, and linear kernel. The accuracy obtained is 98%, IoU 0.88 and computing time 44.95 milliseconds.



**Key Word:** *hologram, human computer interaction, hand gesture detection, histogram of oriented gradient, support vector machine.*