

ABSTRACT

Human Computer Interaction is the science used for connecting humans with computers, so they can interact interactively efficient by covering the design, evaluation, and implementation of the interface from computer for easy use. In this Final Project, a system is created to display 2D information holographic use projection media into the mica glass who integrated with object recognition method for hand detection where the hand is use as pointer.

Object recognition is a famous problem in the field of computer vision. Some of human jobs have been replaced by machines (e.g. Artificial Intelligence systems). Many object recognition methods have been developed, one of them is the Haar-Cascade Classifier which is a weak learner so boosting algorithms are needed to improve performance (e.g. Adaptive Boosting).

The writer divides the problem into four scenario (Intersection over Union, accuracy, precision, and computational time) and determines the optimized parameter (number of dataset and minimum neighbour value) which will be tested on 2 model data (open and close hand). From a system that has been optimized, the author get the best result when used 1600 and 1700 dataset on 500 minimum neighbour with IoU 0.71 and 0.58, then on the accuracy is 99.72%and 99.14%, while precision get 14.06 and 40.31pixel, and on computation time which is 0.17 and 0.14 second for each close and open hand.

Keywords: Adaptive Boosting, Haar-Cascade, hologram, Hand Gesture Recognition.