

ABSTRACT

Hologram is a 3-dimensional projection of an object projected on 2-dimensional surface. Holographic image can be applied in various fields such as education, entertainment, etc. Human Computer Interaction is a study about how human interact with computer and how far computer can be developed or not to interact with human. Hand tracking-by-detection can be implemented in interaction between human and hologram.

In this final project, a system is designed to do hand tracking-by-detection using Hidden Markov Model. Hand detection in this system is done using haar-like features. State sequence that would be used as input in HMM is obtained in detection process. This final project using 2 hand gesture, open and close.

The test on the system was carried out using datasets with 1600 and 1800 positive data and 800 and 900 negative data. Analysis are done based on precision, IoU, and accuracy parameters. From the test result, achieved precision 5,3015, IoU 0,5221, and accuracy 56,67% for closed hand, and precision 14,9993, IoU 0,5288, and accuracy 68,72% for open hand with the highest accuracy obtained for whole system is 96,33%.

Keywords: hologram, human computer interaction, tracking-by-detection, hidden markov model, haar-like features.