

ABSTRACT

Human beings, especially humans have different behaviors. For example the rampant crime in the state of Indonesia. The perpetrators of criminal acts will not confess to the crime of criminals criminal class. Therefore the police need a lie detection tool, which lie detection tool can help investigate the perpetrators of crime.

In this final project will be made lie detection by observing the eyes using artificial neural network method and Hopfield Net classification. Lie detection that will be created involves two inputs for the detection is to see the pupil dilation and eye movement. According to the psychology of pupils will experience a change in diameter to be greater 4% to 8% when the person is in a state of distress, including when lying. People who lie will also move their eyes or look towards certain. An pupil dilation and eye movement pattern will be recorded with a camera video which later results from the recording will be processed in software with image processing method. The algorithm used to detect pupils is the Circural Hough Transforms algorithm. Circural Hough Transforms algorithm can detect the input of both indications. Then the data will be analyzed to determine whether the person is lying or not.

From the results of testing and system analysis of 30 respondents with each given 5 questions obtained the accuracy of the average system to detect the movement of the eye is 55.18% accurately, while for the accuracy of the system to detect the enlargement of pupil diameter of 52.83%. So from the total system test result in detecting the respondent answer correctly obtained the total accuracy from the first test until the fifth test is 80%, 78%, 73%, 70%, and 67%.

Keywords: *Lie Detection, Video camera, Pupil dilation, Eye Movement, Image processing, Hopfield Net, Circural Hough Transforms.*