

**COMPARISON OF PRINCIPAL COMPONENT ANALYSIS (PCA)
AND LINEAR DISCRIMINANT ANALYSIS (LDA) BASED
FEATURE EXTRACTION FOR FACE RECOGNITION SYSTEM
AND IMPLEMENTATION FOR BIOMETRICS BASED TIME
ATTENDANCE SYSTEM**

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it does not contain material published previously or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

COMPARISON OF PRINCIPAL COMPONENT ANALYSIS (PCA) AND LINEAR DISCRIMINANT ANALYSIS (LDA) BASED FEATURE EXTRACTION FOR FACE RECOGNITION SYSTEM AND IMPLEMENTATION FOR BIOMETRICS BASED TIME ATTENDANCE SYSTEM

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Face Recognition begins with extracting the coordinates of features such as width of mouth, width of eyes, pupil, and compare the result with the measurements stored in the database and return the closest record. Nowadays, there are a lot of face recognition technique and algorithms found and developed around the world. Facial recognition becomes an interesting research topic. It is proven by numerous number of published papers related with facial recognition including facial feature extraction, facial algorithm improvements, and facial recognition implementations. Main purposes of this research are to get the best facial recognition algorithm (Eigenface uses PCA and Fisherface uses LDA) provided by the Open CV 2.4.8 by comparing the ROC (Receiver Operating Characteristics) curve and implement it in the attendance system as the main case study. Based on the experiments, the ROC curve proves that Eigenface produce better recognition results with less error rate than the Fisherface. Eigenface implemented inside the Attendance System returns between 70% to 90% similarity for genuine face images.

Keywords - face recognition, OpenCV, Eigenface, Fisherface, attendance system, biometrics.



DEDICATION

I dedicate this thesis to my beloved family, my relatives, my friends, my country Indonesia, and to all Indonesian researchers who dedicate their time, efforts, and knowledge to study and develop the face recognition algorithm.



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