

**DEVELOPMENT OF FACIAL SKETCH RECOGNITION SYSTEM  
BASED ON DIGITAL FACE IMAGES**

By

Andrew Japar  
12111002

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SWISS GERMAN UNIVERSITY

SWISS GERMAN UNIVERSITY  
EduTown BSD City  
Tangerang 15339  
Indonesia

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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 contains no material previously published 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.

Andrew Japar

Student

Date

Approved by:

Dr. Anto Satriyo Nugroho

Thesis Advisor

Date

James Purnama, M.Sc.

Thesis Co-Advisor

Date

Dr. Ir. Gembong Baskoro, M.Sc

Dean

Date

## ABSTRACT

### DEVELOPMENT OF FACIAL SKETCH RECOGNITION SYSTEM BASED ON DIGITAL FACE IMAGES

By

Andrew Japar

Dr. Anto Satriyo Nugroho, Advisor  
James Purnama, M.Sc, Co-Advisor

SWISS GERMAN UNIVERISTY

There are many cases of criminal where some biometrics factors difficult to be identified and the photo image of a suspect is not available. Therefore, facial sketch recognition system to identify suspects face from sketches is very important to assist the process of investigation. Main purpose of this research is to get the best facial sketch recognition system by comparing the ROC (Receiver Operating Characteristics) curve using local-feature based approach and appearance-based approach. Based on the experiments, the ROC curve proves that local-feature based approach using LFDA framework (Klare et al. 2011) show better recognition result with less error rate than appearance-based approach. Local-feature based implemented inside facial sketch recognition system return between 85% to 90% accuracy rate against good quality viewed sketches.

*Keywords: Biometrics, Facial Sketch Recognition, Eigenface, Fisherface, Local Feature-based Discriminant Analysis, Scale Invariant Feature Transform, Multi-scale Local Binary Pattern Histogram*



## DEDICATION

I dedicate this work 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 facial sketch recognition algorithm.



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