

DEVELOPMENT OF AN ON PREMISE INDONESIAN HANDWRITING
RECOGNITION BACKEND SYSTEM USING OPEN SOURCE DEEP LEARNING
SOLUTION FOR MOBILE USER

By

Gianino Masasi
11502010

BACHELOR'S DEGREE
in

INFORMATION TECHNOLOGY
ENGINEERING AND INFORMATION TECHNOLOGY

SWISS GERMAN UNIVERSITY



SWISS GERMAN UNIVERSITY
The Prominence Tower
Jalan Jalur Sutera Barat No. 15, Alam Sutera
Tangerang, Banten 15143 - Indonesia

Revision after the Thesis Defense on

19 July 2019

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.

Gianino Masasi

Student

Date

Approved by:

James Purnama, M.Sc

Thesis Advisor

Date

Dr. Maulahikmah Galinium, S.Kom, M.Sc.

Thesis Co-Advisor

Date

Dr. Maulahikmah Galinium, S.Kom, M.Sc.

Dean

Date

Gianino Masasi

ABSTRACT

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By

Gianino Masasi
James Purnama, M.Sc, Advisor
Dr. Maulahikmah Galinium, S.Kom, M.Sc, Co-Advisor

SWISS GERMAN UNIVERSITY

Existing handwriting recognition solution on mobile app provides off premise service which means the handwriting is processed in overseas servers. Data sent to abroad servers are not under our control and could be possibly mishandled or misused. As recognizing handwriting is a complex problem, deep learning is needed. This research has the objective of developing an on premise Indonesian handwriting recognition using open source deep learning solution. Comparison of various deep learning solution to be used in the development are done. The deep learning solution will be used to build architectures. Various database format are also compared to decide which format is suitable to gather Indonesian handwriting database. The gathered Indonesian handwriting database and built architectures are used for experiments which consists of number of Convolutional Neural Network (CNN) layers, rotation and noise data augmentation, and Gated Recurrent Unit (GRU) vs Long Short Term Memory (LSTM). Experiment results shows that rotation data augmentation is the parameter to be change to improve word accuracy and Character Error Rate (CER). The improvement is 64.8% and 23.2% to 69.6% and 20.6% respectively.

Keywords: On premise, Deep Learning, Indonesian Handwriting Recognition, CRNN, Tensorflow.



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DEDICATION

I dedicate this works for my parents and friends for without them encouraging me during this research, I would not be here and successfully complete this research.



ACKNOWLEDGEMENTS

I wish to thank my advisor, Mr. James Purnama and my co-advisor, Mr. Maulahikmah Galinium for their continuous support and willingness to guide me through the process of finishing this research. Their help will not be forgotten. Their confidence in me finishing this research has also helped me. I also wish to thank my parents who have supported me throughout this research.

Thank you to my sister for being always there for me when I have problems. Listening to my stories and complaints. Thank you to my friends for always supporting me and praying for me during Thesis. Your encouragement was not in vain. I would also like to express gratitude to the 50 volunteers that helped me get the data used for this Thesis. Without those data, this thesis will not be completed. Therefore my sincere gratitude are yours. Special thanks to Danny for checking this thesis.

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