



**DEVELOPMENT OF A CLOTHING AND FOOTWEAR  
GIFT RECOMMENDATION SYSTEM USING IMAGE-  
BASED CONVOLUTIONAL NEURAL NETWORKS  
(CNN) AND K-NEAREST NEIGHBORS (K-NN)  
ALGORITHM**

**UNDERGRADUATE THESIS**

**Submitted as one of the requirements to obtain  
Sarjana Komputer (S.Kom)**

**By:**

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**FACULTY OF COMPUTING  
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CIKARANG  
SEPTEMBER, 2023**

## **PANEL OF EXAMINER APPROVAL**

The Panel of Examiners declare that the undergraduate thesis entitled '**DEVELOPMENT OF A CLOTHING AND FOOTWEAR GIFT RECOMMANDATION SYSTEM USING IMAGE-BASED CONVOLUTIONAL NEURAL NETWORKS (CNN) AND K-NEAREST NEIGHBORS (KNN) ALGORITHM**' that was submitted by **AMIIRA AL HUSNAA** majoring in IT from the Faculty of Computer Science was assessed and approved to have passed the Oral Examination on Thursday September 21, 2023.

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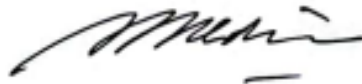
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**DEVELOPMENT OF A CLOTHING AND FOOTWEAR GIFT  
RECOMMENDATION SYSTEM USING IMAGE-BASED  
CONVOLUTIONAL NEURAL NETWORKS (CNN) AND K-NEAREST  
NEIGHBORS (K-NN) ALGORITHM**

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**AI Detection**

How did we do? 👍 🗑️

**Stats**

**Average Perplexity Score: 125.952**

A document's perplexity is a measurement of the randomness of the text

**Burstiness Score: 141.644**

A document's burstiness is a measurement of the variation in perplexity

Your sentence with the highest perplexity, "Rusdianto Roestam MSc., PhD.," has a perplexity of: 604

## **ABSTRACT**

In an increasingly digital world, human relationships are often overshadowed by technology. However, giving gifts remains a fundamental means of strengthening social bonds. Choosing the perfect gift can be a difficult and time-consuming activity, especially when it comes to clothing and footwear, where everyone's fashion tastes vary greatly. Keeping these challenges in mind, this project presents a novel solution in the form of an image-based reward recommendation system that leverages the power of deep learning Convolutional Neural Networks (CNN) and K-Nearest Neighbors (K-NN) algorithms. Through Resnet50's deep learning techniques, the system identifies visual characteristics, while the K-NN algorithm matches user preferences with visually similar products in the dataset, thereby simplifying the reward selection process. This research aims to create a simple and efficient system that increases gift choices by reducing complexity, encouraging meaningful gift giving, and strengthening social relationships.

***Keywords: Gift, Recommendation System, CNN, K-NN Algorithm.***

## **DEDICATION**

*I dedicate it to my mother, Mamkusay Isnayeni, for her endless prayers and unwavering support. Thank you for never giving up and raising me with love from the time I was born into the world until now. Her prayers have guided me to this point in my life, and I am committed to never stop repaying her love and ensuring her everlasting happiness.*

## ACKNOWLEDGMENTS

Thank God for the presence of Allah SWT who has given grace and guidance to me, so that I can complete this final project. I am writing this report to complete the final project at President University. The purpose of this report is to provide a comprehensive overview of the final project I have undertaken at President University.

I would like to thank President University for the great knowledge, so that I can learn many new things, gain many experiences and unforgettable memories during my college period. During my college period at President University, I was helped by the precious people around me. Therefore, I would like to express my deepest gratitude to:

1. All my big family who has provided a lot of enthusiasm and motivation from my first day of college until completing this final report.
2. Mr. Rusdianto Roestam as Final Project Advisor who has provided direction, guidance, suggestions, and advice which is very meaningful for me in completing this final project.
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5. All 2020 batches, thank you guys, you are truly amazing.
6. Thank you to all parties within President University who have provided support, both directly and indirectly, in completing this final project.

This final report is far from perfect, but I hope that this final report can provide benefits and positive contributions to the development of science and society as a whole.

Sincerely,

Amiira Al Husnaa

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