



**UNDERGRADUATE THESIS**

**JAVANESE CHARACTER RECOGNITION USING  
MOBILENETV3 FEATURE EXTRACTION AND  
SUPPORT VECTOR MACHINE (SVM)**

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SURABAYA  
2026**

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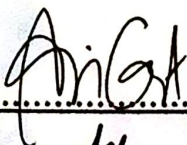
### JAVANESE CHARACTER RECOGNITION USING MOBILENETV3 FEATURE EXTRACTION AND SUPPORT VECTOR MACHINE (SVM)

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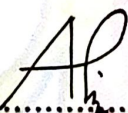
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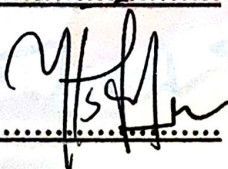
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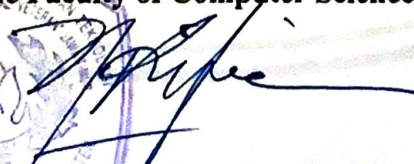
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## ABSTRACT

Student Name / NPM : Dela Ayu Putri Mayona / 22081010008  
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MobileNetV3 Feature Extraction and Support  
Vector Machine (SVM)  
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Javanese script is one of Indonesia's cultural heritages that holds significant historical and educational value. One of the main challenges in preserving Javanese script lies in the complexity of its characters, many of which have visually similar shapes. This study aims to develop an image-based recognition system for Javanese script by utilizing MobileNetV3 for feature extraction and SVM as the classification algorithm. The dataset used consists of 2,500 images of Javanese characters, with 125 images for each class. The preprocessing stage includes the application of Contrast Limited Adaptive Histogram Equalization (CLAHE) to enhance image contrast, resizing images to 224×224 pixels, and normalizing pixel values. Feature extraction is performed using the MobileNetV3 architecture, which is capable of producing efficient and informative feature representations. The SVM model is then trained using various kernel types with different combinations of parameters C and gamma, along with multiple data splitting scenarios to obtain the best performance. The experimental results show that the best model is achieved using a Linear kernel with  $C = 0.1$  and no gamma parameter under an 80:20 data split, resulting in an accuracy of 98.4%, precision of 98.49%, recall of 98.4%, and F1-score of 98.40%. These results indicate that the combination of MobileNetV3 and SVM is effective in recognizing Javanese script. The best-performing model is further implemented into a web-based application using Flask to enable interactive user testing. This study is expected to serve as a foundation for the development of technology-based learning systems for Javanese script.

**Keywords:** Javanese Script, MobileNetV3, SVM, Image Processing, Character Recognition.

## ACKNOWLEDGEMENTS

The author offers heartfelt thanks and praise to Allah SWT for His abundant mercy, guidance, and blessings, which have enabled the successful completion of this thesis titled “Javanese Character Recognition Using MobileNetV3 Feature Extraction and Support Vector Machine (SVM)”. This thesis was prepared as one of the requirements for obtaining a Bachelor’s degree in the Informatics Program, Faculty of Computer Science, Universitas Pembangunan Nasional “Veteran” East Java. The author fully acknowledges that the completion of this thesis would not have been possible without the support, guidance, encouragement, and prayers of various parties, whether moral, spiritual, or material. Therefore, with the utmost respect and sincere gratitude, the author wishes to express his deepest appreciation to:

1. Prof. Dr. Ir. Novirina Hendrasarie, M.T., as the Dean of the Faculty of Computer Science at the Universitas Pembangunan Nasional “Veteran” Jawa Timur, for granting the research permits, providing highly adequate academic facilities, and continuously implementing policies that foster a conducive learning environment to support the students' smooth academic journey.
2. Dr. Intan Yuniar Purbasari, S.Kom., M.Sc., as the Head of the Informatics Study Programme, Faculty of Computer Science, Universitas Pembangunan Nasional "Veteran" Jawa Timur. The author expresses their profound gratitude for her unwavering dedication, administrative and academic guidance, and constant support throughout the course of study.
3. Mr. Chrystia Aji Putra, S.Kom., M.Kom., as the First Supervisor, who with utmost patience, sincerity, and paternal care has guided the author throughout this entire research process from inception to completion. Mr. Hendra Maulana, S.Kom., M.Kom., as the Second Supervisor, who consistently dedicated his time to guide the author with immense patience, warmth, and sincerity during this research journey. The author deeply appreciates his openness in warmly welcoming every question, providing constructive suggestions that clarified the

research methodology, and strengthening the author's resolve during moments of doubt, whilst remaining highly accessible and encouraging throughout the consultation process.

4. Dr. Eng. Ir. Anggraini Puspita Sari, S.T., M.T., as the First Examiner, who evaluated this thesis with full thoroughness, academic firmness, and professionalism. Ms. Yisti Vita Via, S.ST., M.Kom., as the Second Examiner, who provided an objective assessment with full patience, sincerity, and kindness.
5. The highest honor and most profound, boundless gratitude are dedicated to the author's beloved parents, Mr. Supriyono and Mrs. Erna Sudarmiati. They are the author's ultimate pillars of strength, who have raised, educated, and nurtured the author with unconditional love, constantly sacrificing everything to support the author materially and emotionally, while offering unceasing prayers in every single one of their prostrations. The author also extends heartfelt thanks to their dear younger brother, Daffaa Bahy Yafi, whose presence has always brought joy and heartwarming moral support throughout this journey.
6. The author expresses their sincerest gratitude to the family of Mas Eko and Mbak Ira, who so kindly, sincerely, and warmly allowed the author to reside in their home during these years of study. The comfort and sense of family they provided meant everything to the author in this migrant town. Special thanks also go to Wiyannida Mumtaza and Ebim for always being so kind, friendly, and consistently providing daily moral support that kept the author's spirits high.
7. A very special tribute and deep appreciation are directed to the author's best friends in BS: Hanin Fatma Soraya, Aprinia Salsabila Roiqoh, Nabila Anggita Luna, Diva Ristiaji Putri, Choirun Nisa', Cynthia Dwi, and Revelin Putri. Thank you for faithfully walking alongside the author, fighting the same battles, and sharing both laughter and tears from the first semester to the eighth. You are not merely university friends; you have become the ultimate support system and a second home where the author could always lean and seek comfort amidst the hustle and bustle of this migrant city.

8. The author also wishes to express sincere gratitude for the unforgettable bond of friendship, mutual support, and beautiful togetherness shared during these university years to: Rhimba Aulia, Cinta Ramayanti, Muhammad Fajar Saputra, Ade Rizky Panjaitan, Ananda Putra Wahyu Riyanto, and Habib Nurrohmah Sugiharto (BTS). This relationship, which grew far beyond initial expectations, has blossomed into a deeply meaningful emotional bond where you were always ready to help, defend, and offer positive advice in various difficult situations. May success, happiness, and blessings always accompany your future steps.
9. High appreciation and immense gratitude are extended to Kak Tsabita Safana Mustofa, a senior student who so kindly lent her time and thoughts to share meaningful knowledge, provide insights regarding the research topic, and help formulate the title of this thesis. She was constantly present as a patient mentor whenever the author lost direction or felt overwhelmed by confusion. Boundless thanks also go to Kak Sintya, who generously dedicated her time to assist, guide, and responsively answer every single question and technical difficulty the author encountered while completing this thesis.
10. Deepest thanks to Yoni Nada Fayakun, a loyal friend since junior high school up to this very moment, who has always been there, consistently providing support and standing by the author's side through thick and thin without ever changing. Extreme gratitude to Putri Dwi Yulianti, a childhood friend who has always reached out to help, accompany, and strengthen each other in every endeavor for the sake of a brighter future. Thank you as well to the author's dearest sister and childhood friend, Devanda Putri, who has always shown incredible kindness and never grew tired of providing the best support for the author.
11. Finally, the author wishes to extend the most sincere gratitude to themselves. Thank you for possessing a resilient soul, for being willing to fight hard, and for being capable of enduring the lowest points, overcoming exhaustion, loneliness, and anxiety, until finally standing tall to complete this Bachelor's degree (S1) with pride.

12. The author extends their gratitude to the entire faculty and lecturers of the Informatics Study Programme for transferring invaluable knowledge, academic insights, and life lessons during the university years. Thank you to all fellow Informatics Students of the Class of 2022 for the togetherness, solidarity, and assistance provided, whose names cannot be listed individually without diminishing the author's immense respect. Deepest thanks to all officers and members of HIMATIFA (Informatics Student Association) for the 2023/2024 and 2024/2025 periods, which served as an extraordinary platform for the author to process, grow, and hone personal potential, particularly in developing soft skills and leadership qualities.
13. In closing, the author conveys their most sincere thanks and respect to all parties who cannot be mentioned individually, who provided direct or indirect assistance, and who constantly sent prayers, enthusiasm, and positive encouragement for the smooth completion of this thesis. May all the sincerity and kindness given by everyone be rewarded with abundant blessings and the best returns from Allah SWT. I love you all.

The author is aware that this thesis contains many shortcomings. Therefore, constructive criticism and suggestions from all parties are greatly appreciated to improve the quality of this thesis. Finally, despite the author's limitations, it is hoped that this report will be beneficial to all parties in general and to the author in particular. Finally, with all the limitations that the author has, hopefully the following report can be useful for all parties in general and the author in particular.

Surabaya, June 3, 2026

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