



UNDERGRADUATE THESIS

LUNG CANCER CLASSIFICATION USING THE SHIFTED WINDOW TRANSFORMER (SWIN TRANSFORMER) BASED ON HISTOPATHOLOGICAL IMAGES

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SURABAYA
2026**

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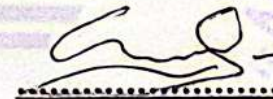
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Hereby declares that this undergraduate thesis contains no part of any other scientific work that has been submitted to obtain an academic degree at any higher education institution. Furthermore, it does not contain any work or opinions previously written or published by others, except for those which are explicitly cited in this thesis and listed completely in references.

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ABSTRACT

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Lung cancer is one of the leading causes of cancer-related deaths worldwide, highlighting the need for a system that can assist the diagnostic process quickly and accurately. This study aims to implement the Shifted Windows Transformer (Swin Transformer) method for classifying lung cancer histopathological images using the LC25000 dataset, which consists of 15,000 images divided into three classes: Lung Adenocarcinoma, Lung Benign Tissue, and Lung Squamous Cell Carcinoma. The research stages include image preprocessing, hyperparameter tuning using Grid Search, model training, evaluation using accuracy, precision, recall, F1-score, confusion matrix, and ROC curve, as well as model deployment into a web-based application using Laravel as the frontend and Flask as the backend. The experimental results show that the Swin Transformer model achieved an accuracy of 98.13% on the testing dataset and 85.00% on blind testing using the LungHist700 dataset, outperforming both the Vision Transformer (ViT) and ResNet50 models. These findings demonstrate that the Swin Transformer is effective for lung cancer classification based on histopathological images and has the potential to serve as a computer-aided diagnostic support system.

Keywords : Lung Cancer, Histopathological Images, Swin Transformer, Classification, Deep Learning, Laravel, Flask.

ACKNOWLEDGEMENTS

All praise is due to Allah SWT for His endless blessings, guidance, and mercy, which have enabled the author to complete this undergraduate thesis entitled **"Lung Cancer Classification Using the Shifted Window Transformer (Swin Transformer) Based on Histopathological Images."**

This undergraduate thesis was prepared in partial fulfillment of the requirements for the Bachelor's degree in Computer Science at the Informatics Study Program, Faculty of Computer Science, Universitas Pembangunan Nasional "Veteran" Jawa Timur. Throughout the completion of this thesis, the author received invaluable guidance, support, encouragement, and assistance from many individuals. Therefore, the author would like to express sincere gratitude to everyone who contributed to the successful completion of this thesis. In particular, the author would like to extend heartfelt appreciation to:

1. Almighty God, for His abundant blessings, grace, and constant guidance throughout the author's academic journey and the completion of this thesis. The author sincerely believes that without His will, mercy, and unwavering support, this thesis would not have been completed successfully.
2. The author's beloved mother, Tegowati, beloved father, Supriyadi, and beloved siblings, for their unconditional love, prayers, unwavering support, encouragement, and endless sacrifices. Their constant care and affection have been the author's greatest source of motivation and strength throughout the journey of completing this thesis.
3. Dr. Rr. Ani Dijah Rahajoe, S.T., M.Cs. and Yisti Vita Via, S.ST., M.Kom., the author's thesis supervisors, for their invaluable guidance, constructive feedback, patience, and continuous support throughout the completion of this thesis.
4. The author's fellow students during the Proposal Seminar and Thesis Defense Seminar, Ken Narendra Ekamartha, Abraham Danar Jovian, and Muhammad Nabil Ramadhani, for their unwavering support, encouragement, assistance, and companionship throughout the completion of this thesis. The discussions, collaboration, and shared experiences with

them were truly invaluable and played an important role in helping the author successfully complete this research.

5. Amanda Chintya Anggraini, the author's beloved partner, for her constant prayers, unwavering support, patience, encouragement, and motivation throughout the completion of this thesis. Her love, understanding, and steadfast presence have been a constant source of strength and inspiration throughout this academic journey.
6. The author's friends in Mamino—Kupluk, Basroil, Fadika, Rizki, Alip, Ryan, Yasir, Kepin, Ojan, Haho, Leon, Erlang, Irfan, and Slotong—for their friendship, support, encouragement, and the unforgettable memories shared throughout university life. The author sincerely appreciates their kindness and support during the completion of this thesis.
7. The author's friends in "Anak Klopok"—Rhafel, Ronald, Rangga, Rapi, Zabdi, Ari, Sihul, and Kepin—for their friendship, encouragement, prayers, and unwavering support throughout the author's academic journey. Their companionship and cherished memories have been a constant source of motivation in completing this thesis.
8. The Orang Senang Surabaya (OSS) family, for their friendship, unwavering support, and memorable experiences, especially in supporting Persebaya together. Their companionship and positive encouragement have been a valuable source of motivation throughout the completion of this thesis.
9. The author is sincerely grateful to everyone who has contributed their support, prayers, and encouragement throughout this academic journey.

The author sincerely welcomes any constructive comments and suggestions for the improvement of this thesis. It is hoped that this work will contribute meaningfully to future research and provide valuable insights for its readers.

Surabaya, July 14th 2026



Author.

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