PERBANDINGAN KINERJA CNN DAN CNN-LSTM DALAM KLASIFIKASI EKSPRESI WAJAH BERDASARKAN DATASET FER2013

SKRIPSI

OLEH:

PUTU ANANDA ADI SAVITRI
2215101057

PROGRAM STUDI ILMU KOMPUTER (S1)
JURUSAN TEKNIK INFORMATIKA FAKULTAS TEKNIK DAN KEJURUAN UNIVERSITAS PENDIDIKAN GANESHA

SKRIPSI

DIAJUKAN UNTUK MELENGKAPI TUGAS DAN MEMENUHI SYARAT-SYARAT UNTUK MENCAPAI GELAR SARJANA KOMPUTER

Menyetujui

Pembimbing I	Dr. Agus Aan Jiwa Permana, S.Kom., M.Cs. NIP.198708042015041001
Pembimbing II	Ni Putu Novita Puspa Dewi, S.Kom., M.Cs., MIM. NIP.199410032020122015

Skripsi oleh Putu Ananda Adi Savitri ini
telah dipertahankan di depan dewan penguji
Pada tanggal 13 April 2026

Dewan Penguji

Ketua	Dr. Ni Wayan Marti, S.Kom., M.Kom. NIP.197711282001122001
Anggota	Prof. Dr. Luh Joni Erawati Dewi, S.T., M.Pd. NIP.197606252001122001
Anggota	Dr. Agus Aan Jiwa Permana, S.Kom., M.Cs. NIP.198708042015041001
Anggota	Ni Putu Novita Puspa Dewi, S.Kom., M.Cs., MIM. NIP.199410032020122015

Diterima oleh Panitia Ujian Fakultas Teknik dan Kejuruan
Universitas Pendidikan Ganesha
guna memenuhi syarat-syarat untuk mencapai gelar Sarjana Komputer

Menyetujui

Ketua Ujian	Ir. Made Windu Antara Kesiman, S.T., M.Sc., Ph.D. NIP.198211112008121001
Sekretaris Ujian	I Nyoman Saputra Wahyu Wijaya, S.Kom., M.Cs. NIP.198910262019031004

Mengesahkan,

Dekan Fakultas Teknik dan Kejuruan

Prof. Dr. Kadek Rihendra Dantes, S.T., M.T.

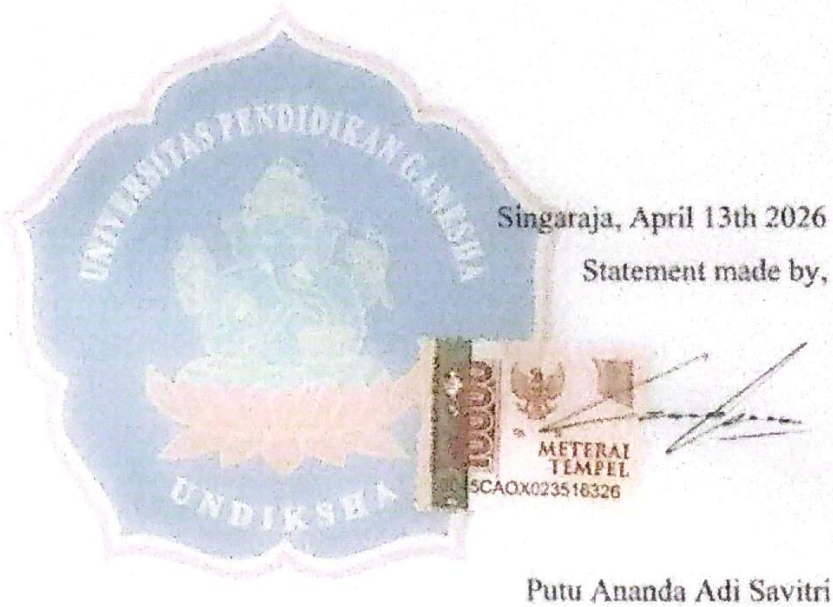
NIP.197912012006041001

STATEMENT OF AUTHETICITY

I hereby declare that the written work entitled "Comparison Of Cnn And Cnn-Lstm Performance In Facial Expression Classification Based On Fer2013 Dataset" and all it's cotents are genuinely my work and do not plagiarize and quote in ways that are not in accordance with the ethics applicable in the scientific community. with this statement, i'm ready to bear the risk of sanctions imposed on me if later there is a violation of scientific ethics in my work and against claims to the authenticity of my work.

Singaraja, April 13th 2026

Statement made by,



Putu Ananda Adi Savitri

NIM. 2215101057

PREFACE

All the praise and gratitude the author extends to the Almighty God, for His bless that this undergraduate thesis, entitled "**Comparison Of CNN And CNN-LSTM Performance In Facial Expression Classification Based On Fer2013 Dataset**", could be completed. This undergraduate thesis is submitted as a requirement to obtain the Bachelor's degree in computer science at Ganesha University of Education.

In the process of completing this undergraduate thesis, the author has received significant support. Therefore, the author would like to express sincere gratitude to:

1. Prof. Dr. Kadek Rihendra Dantes, S.T., M.T., Dean of the Faculty of Engineering and Vocational, for his encouragement and the facilities provided, which enabled the author to complete the study as planned.
2. Made Windu Antara Kesiman, S.T., M.Sc., Ph.D., Vice Dean I of the Faculty of Engineering and Vocational Studies, for the motivation and facilities provided, which enabled the author to complete this undergraduate thesis.
3. Prof. Dr. Ketut Agustini, S.Si., M.Si., Vice Dean III of the Faculty of Engineering and Vocational Studies, for the motivation provided.
4. Dr. Putu Hendra Suputra, S.Kom., M.Cs., Head of the Informatics Engineering Department, for the motivation given throughout the completion of this undergraduate thesis.
5. I Nyoman Saputra Wahyu Wijaya, S.Kom., M.Cs., Coordinator of the Bachelor's Program in Computer Science, for the motivation and facilities provided, which enabled the author to complete this undergraduate thesis.
6. Dr. Ni Wayan Marti, S.Kom., M.Kom. as Examiner 1, for the feedback and evaluation provided on the author's undergraduate thesis.
7. Prof. Dr. Luh Joni Erawati Dewi, S.T., M.Pd. as Examiner 2, for the feedback and evaluation provided on the author's undergraduate thesis.
8. Dr. Agus Aan Jiwa Permana, S.Kom., M.Cs. as the first academic advisor, for his guidance, direction, advice, and motivation throughout the undergraduate thesis writing process.
9. Ni Putu Novita Puspa Dewi, S.Kom., M.Cs., MIM, as the second academic advisor,

for her guidance, direction, advice, and motivation throughout the undergraduate thesis writing process.

10. The staff members of the Faculty of Engineering and Vocational Studies who assisted in the administrative processes.
11. I Made Dana & Gusti Ketut Arwati, the author's parents, along with the author's siblings Anindia Adi, for their unwavering support material, motivational, and spiritual throughout the author's academic journey.
12. The author's close friends, Nita Nathalia, Bayu Saputra, and especially Apriliasari for their support during both joyful and challenging moments throughout the completion of this undergraduate thesis.
13. The Interlace Studies family, especially Interlace Studies Bali, who have helped the author in the writing process, and provided meaningful emotional support during the writing of the thesis.
14. My fellow comrades from the IKI Class, members of the work groups and reasoning (POKJA) of the Faculty of Engineering and Vocational Studies for the 2023/2024 and 2024/2025 term, Peer Tutor Team, and friends whose names cannot be mentioned individually, for their contributions in supporting and encouraging the author during the preparation of this undergraduate thesis.
15. And finally, the author herself, who has struggled, persevered, and never given up despite facing various difficulties along the way.

The author acknowledges that this thesis is not without its shortcomings and sincerely welcomes constructive feedback. It is hoped that this work may offer meaningful contributions to technology development.

Singaraja, April 13th 2026

Author

TABLE OF CONTENTS

Page

LIST OF TABLES

Table Page

LIST OF FIGURES

Figure Page

LIST OF APPENDICIES

Appendix Page