COMPARATIVE ANALYSIS OF DETECTION OF TEXT FROM MORSE CODE IN HANDWRITTEN IMAGES USING CONVOLUTIONAL NEURAL NETWORKS

A
Project Report Submitted
in partial fulfillment of the requirements for the award of the Degree of

BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE & ENGINEERING
By

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Under the esteemed guidance of

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)
Accredited by NAAC with 'A' Grade & NBA (Under Tier - I), ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B. REDDY NAGAR, MYLAVARAM, NTR DIST., A.P.-521 230.

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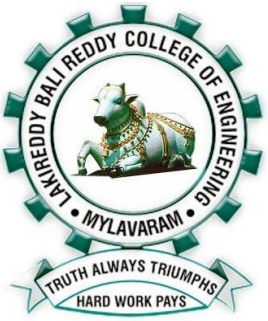

CERTIFICATE

This is to certify that the project entitled **"Comparative Analysis of Detection of Text from Morse Code in Handwritten Images using CNN"** is being submitted by

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in partial fulfillment of the requirements for the award of degree of **B.Tech** in **Computer Science & Engineering** from **Jawaharlal Nehru Technological University Kakinada** is a record of bonafide work carried out by them at **Lakireddy Bali Reddy College of Engineering (A).**

The results embodied in this Project report have not been submitted to any other University or Institute for the award of any degree or diploma.

PROJECT GUIDE — **Sk. Johny Basha**

HEAD OF THE DEPARTMENT — **Dr. D. Veeraiah**

EXTERNAL EXAMINER

ACKNOWLEDGEMENT

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DECLARATION

We are here by declaring that the project entitled **"Comparative Analysis of Detection of Text from Morse Code in Handwritten Images using CNN"** work done by us. We certify that the work contained in the report is original and has been done by me under the guidance of supervisor. The work has not been submitted to any other institute in preparing for any degree or diploma. We have followed the guidelines provided by the institute in preparing the report. We have conformed to the norms and guidelines given in the Ethical Code of Conduct of the institute. Whenever we have used materials (data, theoretical analysis, figures, and text) from other sources, we have given due credit to them by citing them in the text of the report and giving their details in the references. Further, we have taken permission from the copyright's owner of the sources, whenever necessary**.**

Name(s) of the Student(s) **Signature(s) of the students(s)**

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ABSTRACT

Morse code is a method used in telecommunication to encode text characters as standardized sequences of two different electronic pulses usually represented as short pulse(dot) and long pulse(dash). Detection of text from images of morse code is a complex process and there is no active research on this area. As these are morse code images, different images have different style of strokes. This project aims to develop an automated Morse code recognition system by training a convolutional neural network (CNN) model using a self-built dataset. The proposed approach involves collecting and preprocessing images of Morse code characters and creating a labeled dataset for training and testing the CNN model. The dataset creation process includes capturing images of different Morse code characters, augmenting the data to increase the dataset size, and annotating the images to label them correctly. The CNN model is then trained using the created dataset and evaluated for its accuracy in recognizing Morse code characters in images. The results demonstrate that the proposed approach achieves high accuracy in recognizing Morse code characters in images, making it a promising solution for automated Morse code recognition systems.

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1. **CNN:** Convolutional Neural Networks
2. **GPU:** Graphics Processing Unit
3. **BLSTM:** Bi-Directional Long Short-Term Memory
4. **RNN:** Recurrent Neural Networks
5. **CTC:** Connectionist Temporal Classification
6. **ML:** Machine Learning
7. **AI:** Artificial Intelligence
8. **ReLU:** Rectified Linear Unit
9. **TPU:** Tensor Processing Unit
10. **OpenCV:** Open-Source Computer Vision
11. **SSD:** Solid State Drive
12. **ILSVRC:** ImageNet Large Scale Visual Recognition Challenge
13. **HTML:** Hyper Text Markup Language