## NAGARJUNA COLLEGE OF ENGINEERING AND TECHNOLOGY

(An Autonomous College under VTU, Belagavi)



## A Mini-Project Report

On

“**CLASSIFICATION OF BRAIN MRI IMAGE USING** **CNN**”

submitted in partial fulfillment for the completion of the course

Submitted by

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**2023-24**

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# CERTIFICATE

Certified that the Mini-Project work entitled **“CLASSIFICATION OF BRAIN MRI IMAGE USING** **CNN”** carried out by **Mr. JULA HARSHA VARDHAN (1NC21CI023), Mr. DUPATI SHIVA HEMANTH (1NC21CI017),** Bonafide students of Nagarjuna College of Engineering and Technology, an autonomous institution under Visvesvaraya Technological University, Belagavi in partial fulfillment for the completion of the course Mini Project (21CIP67) in **Computer Science and Engineering(AI&ML)** during the academic year 2023-2024. It is certified that all corrections/ suggestions indicated for internal assessment have been incorporated in the report deposited in the departmental library. The Mini-Project work has been approved, as it satisfies the academic requirement in respect of Mini-Project work prescribed for the said degree.

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**Abstract**

The classification of brain MRI images remains a pivotal task for medical diagnostics, assisting doctors in detecting and analysing various neurological disorders. Leveraging the profound power of deep learning, this novel investigation aims to cultivate an proficient and precise model for categorizing brain MRI images. We employ convolutional neural networks due to their unparalleled capacity to seize spatial hierarchies within images. Our approach involves preprocessing the MRI datasets, augmenting the images to reinforce model robustness, and employing an optimized CNN architecture tailored for this undertaking. The model undergoes training and validation on a databank containing labelled MRI images, representing diverse brain conditions. Performance metrics including accuracy, precision, recall, and F1-score are applied to assess the model's efficacy. The results illustrate the deep learning model accomplishes high accuracy in classifying brain MRI images, showcasing its potential as a trustworthy tool for aiding medical professionals in diagnosing brain-related afflictions. This exploration underscores the significance of deep learning in medical image examination and its potential to better diagnostic accuracy and efficiency in clinical settings.

## **ACKNOWLEDGEMENT**

The satisfaction and euphoria that accompany the successful completion of any task would be incomplete without the mention of the people who made it possible, whose consistent guidance and encouragement crowned our effort with success. We consider it our privilege and duty to express our gratitude and respect to all those who guided us in the completion of this project report. I want to thank **NGI Management** for the constant support and facilities provided in the carrying out of the Mini-project I wish to record my sincere gratitude to **Dr. B V Ravishankar**, Principal, Nagarjuna college of Engineering and Technology for his constant support and encouragement in preparation of this Mini-project and for providing the library and laboratory facilities needed to complete this Mini project. I would like to thank **Dr. Lohith J J**, HoD, Department of CSE(AI&ML), Nagarjuna College of Engineering and Technology for his valuable suggestions and guidance throughout this Mini-project. I thank our Mini-project coordinator and guide **Dr. Rajani K C,** Associate Professor, Department of CSE(AI&ML), Nagarjuna College of Engineering and Technology for your valuable suggestions and all the encouragement that led to the completion of my Mini-project. Last but not least, we would like to thank our parents, friends, teaching, and non-teaching staff of NCET.

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