



ATMIYA UNIVERSITY

Medical Image Analysis for Pneumonia Detection using Deep-CNN Multimodal & Transfer Learning Model – A Machine Learning Application

A
Thesis
Submitted to the
Atmiya University,
For the Degree
of

Doctor of Philosophy
in
Faculty of Engineering & Technology

by
Baraiya Mehul Mohanbhai
Enrolment No.190156001

Under the Guidance of
Dr. Ashish M. Kothari
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Rajkot-360005, Gujarat (India)

2023

Declaration by the Candidate

I declare that thesis entitled "*MEDICAL IMAGE ANALYSIS FOR PNEUMONIA DETECTION USING DEEP-CNN MULTIMODAL & TRANSFER LEARNING MODEL – A MACHINE LEARNING APPLICATION*" is my own work conducted under the supervision of **Dr.Ashish M. Kothari** at Department of **Electronics & Communication**, Faculty of **Engineering & Technology**, Atmiya University, Rajkot, Gujarat, India and approved by the Director of Research.

I further declare that to the best of my knowledge the thesis does not contain any part of any work which has been submitted for award of any degree either in this University or any other University without proper citation.

Date: 02-09-2023

Place: Rajkot



Signature of Candidate

BARAIYA MEHUL MOHANBHAI

Certificate of Supervisor

This is to certify that work entitled "**MEDICAL IMAGE ANALYSIS FOR PNEUMONIA DETECTION USING DEEP-CNN MULTIMODAL & TRANSFER LEARNING MODEL – A MACHINE LEARNING APPLICATION**" is a piece of research work done by **BARAIYA MEHULKUMAR MOHANBHAI** under my supervision for the degree of Doctor of Philosophy in Department of **Electronics & Communication**, Faculty of **Engineering & Technology**, Atmiya University, Rajkot, Gujarat, India

To the best of my knowledge and belief the research work and thesis

- I. Embodies the work of candidate himself / herself,
- II. Has duly been completed,
- III. Fulfils the requirement of ordinance related to Ph.D. degree of the University&
- IV. is up to the standard both in respect of content and language for being referred to the examiner.

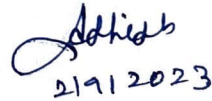
Date: 02-09-2023

Place: Rajkot



Signature of Candidate

BARAIYA MEHUL MOHANBHAI



21/9/2023

Director
Research, Innovation & Translation
Atmiya University, Rajkot



Certificate

Pre Thesis Submission Presentation

This is to certify that **Baraiya Mehul Mohanbhai** has made Pre Ph.D. presentation on the research work entitled **Medical image analysis for pneumonia detection using Deep-CNN multimodal & Transfer Learning model – A machine learning application** in the Faculty of Engineering & Technology, Atmiya University, Rajkot on 17/04/2023 before Departmental Research Committee for getting feedback and comments.

This is also to certify that all the suggestions and comments given by the Doctoral Progress Review Committee are incorporated. Moreover the presented research work was appreciated and recommended by all attendees.

Date: 17/04/2023

Place: Rajkot

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Thesis Approval Form

The Viva-Voce of the Ph.D. thesis entitled "*Medical image analysis for pneumonia detection using Deep-CNN multimodal & Transfer Learning model – A machine learning application*" submitted by **Baraiya Mehul Mohanbhai (Enrolment No. 190156001)** was conducted on **26/08/2023 (Saturday)** at Atmiya University, Rajkot, Gujarat

Based on the Performance of the Candidate, We, the panel of examiners, recommend that
(Please tick any of the following)

1. He / She be awarded Ph.D. Degree
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Please Suggest Modification

3. The following modifications are to be incorporated in the thesis within one month and viva-voce be re-conducted by the same panel of examiners


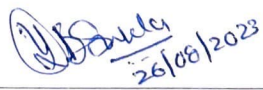

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Please mention Reason for Rejection

Date: 26/08/2023

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Signature		 26/08/2023	
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Declaration by Research Scholar

Submission of Thesis

I declare that the submitted thesis entitled "*MEDICAL IMAGE ANALYSIS FOR PNEUMONIA DETECTION USING DEEP-CNN MULTIMODAL & TRANSFER LEARNING MODEL – A MACHINE LEARNING APPLICATION*" incorporates

1. All the suggestions / directions / modifications / additions / deletions received from the supervisor and the external examiners through their thesis evaluation reports.
2. All the suggestions / directions / modifications / additions / deletions received from the panel of examiners during the public viva-voce (Open Defence) conducted on 26/08/2023

Date: 02 - 09 - 2023

Place: Rajkot



Signature of the Research Scholar

BARAIYA MEHUL MOHANBHAI

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