INVESTIGATING THE ROLE OF CRITICAL SCAN PARAMETERS IN IMPROVING DIAGNOSTIC ACCURACY IN MICROWAVE IMAGING

A PROJECT REPORT

Submitted by,

Ms. LEENA ZAWAHIR - 20211CSD0010

Under the guidance of,

Dr. RUHIN KOUSER R

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

At

PRESIDENCY UNIVERSITY

BENGALURU

JANUARY 2025

PRESIDENCY UNIVERSITY

SCHOOL OF COMPUTER SCIENCE ENGINEERING

CERTIFICATE

This is to certify that the Project report **"INVESTIGATING THE ROLE OF CRITICAL SCAN PARAMETERS IN IMPROVING DIAGNOSTIC ACCURACY IN MICROWAVE IMAGING"** being submitted by "LEENA ZAWAHIR" bearing roll number "20211CSD0010" in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide work carried out under my supervision.

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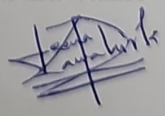
DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **INVESTIGATING THE ROLE OF CRITICAL SCAN PARAMETERS IN IMPROVING DIAGNOSTIC ACCURACY IN MICROWAVE IMAGING** in partial fulfillment for the award of Degree of **Bachelor of Technology** in **Computer Science and Engineering**, is a record of our own investigations carried under the guidance of **Dr. Ruhin Kouser R, Assistant Professor, School of Computer Science Engineering, Presidency University, Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

Leena Zawahir -20211CSD0010



ABSTRACT

The optimization of scan parameters plays a critical role in advancing breast microwave imaging technologies, particularly in improving diagnostic accuracy. This study examines the influence of Intermediate Frequency Bandwidth (IFBW) settings on contrast sensitivity and differentiation in imaging results. The findings highlight that specific IFBW values significantly enhance contrast between materials with differing dielectric properties, enabling better distinction. Additionally, bandwidth ranges that yield consistent imaging outcomes were identified, offering insights to reduce ambiguities in diagnostic interpretation. These results emphasize the critical role of IFBW tuning in improving imaging performance for clinical applications.

Keywords: dielectric properties, intermediate frequency, microwave imaging, signal-to-noise ratio.

ACKNOWLEDGEMENT

First of all, we indebted to the **GOD ALMIGHTY** for giving me an opportunity to excel in our efforts to complete this project on time.

We express our sincere thanks to our respected dean **Dr. Md. Sameeruddin Khan**, Pro-VC, School of Engineering and Dean, School of Computer Science Engineering & Information Science, Presidency University for getting us permission to undergo the project.

We express our heartfelt gratitude to our beloved Associate Deans **Dr. Shakkeera L** and **Dr. Mydhili K Nair,** School of Computer Science Engineering & Information Science, Presidency University, and **Dr. Saira Banu Atham**, Head of the Department, School of Computer Science Engineering, Presidency University, for rendering timely help in completing this project successfully.

We are greatly indebted to our guide **Dr. Ruhin Kouser R,** Assistant Professor, School of Computer Science Engineering, Presidency University for her inspirational guidance, and valuable suggestions and for providing us a chance to express our technical capabilities in every respect for the completion of the project work.

We would like to convey our gratitude and heartfelt thanks to the PIP2001 Capstone Project Coordinators **Dr. Sampath A K, Dr. Abdul Khadar A and Mr. Md Zia Ur Rahman,** department Project Coordinators **Dr. Manjula HM** and Git hub coordinator **Mr. Muthuraj.**

We thank our family and friends for the strong support and inspiration they have provided us in bringing out this project.

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