

A very interesting Title

Submitted in partial fulfilment of the
requirements of the degree of

DOCTOR OF PHILOSOPHY

Kate Researcher

(A-123456)

Supervisor: Dr. Alice A

Co-Supervisor: Dr. Black B



Department of ABC

College of Engineering

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Thiruvananthapuram

2023

Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/ data/ fact/ source in my submission. I understand that any violation of the above will be cause for disciplinary action by the University and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permissions have not been taken when needed.

Kate Researcher
A-123456

Date: _____

CERTIFICATE

It is certified that work contained in the thesis titled “**A very interesting Title**” by “Kate Researcher” has been carried out under my supervision and that this work has not been submitted elsewhere for a degree.

Dr. Alice A
Professor,
Dept. of Electronics and Communication Engineering
Govt. Engineering College, Thrissur

Dr. Black B
Professor,
Dept. of Electronics and Communication Engineering
Govt. Engineering College, Thiruvananthapuram

Date: _____

Place: _____

ACKNOWLEDGMENTS

It is a great pleasure for me to express my respect and deep sense of gratitude to my Ph.D. supervisor **Professor name**, Professor, Department of Electronics & Communication Engineering, National Institute of Technology, Kurukshetra, for his wisdom, vision, expertise, guidance, enthusiastic involvement and persistent encouragement during the planning and development of this research work. I also gratefully acknowledge his painstaking efforts in thoroughly going through and improving the manuscripts without which this work could not have been completed.

I am highly obliged to **Director name**, Director, National Institute of Technology, Kurukshetra and **HOD name**, Head of the Department, ECE for providing all the facilities, help and encouragement for carrying out the research work.

I am obliged to my parents **Father name** and **Mother name** for their moral support, love, encouragement and blessings to complete this task. I am especially thankful to my wife **Wife name** for her patience, love and encouragement during this journey.

I wish to express my appreciation to my friends **Friend name** and **Friend name** and grateful thanks to research fellows at department for their help and motivation throughout my research work. I also would like to express my deep and sincerely thanks to my friends and all other persons whose names do not appear here, for helping me either directly or indirectly in all even and odd times.

I am also thankful to the anonymous reviewers of my research publications. Their comments and suggestions were very helpful in shaping my research work. I would also like to thank DRC members for their constructive suggestions, support and encouragement.

I would also like to extend my special thanks to **XYZ** and other staff members of computer center in ECE Department, for their timely help and cooperation extended throughout the course of investigation.

Finally, I am indebted and grateful to the Almighty for helping me in this endeavor.

Kate Researcher

ABSTRACT

Type Abstract here.

Contents

Declaration	iii
Certificate	v
Acknowledgement	vii
Abstract	ix
List of Figures	xiii
List of Tables	xv
List of Acronyms	xvii
List of Symbols	xviii
1 Introduction	1
1.1 Background	1
1.2 Motivation for the present research work	1
1.3 Problem statement	1
1.4 Organization of the thesis	3
2 Literature Review	5
2.1 abcs	5
2.1.1 xyz	5
3 Adaptive Algorithm	7
3.1 Background	7
3.2 Proposed algorithm	7
3.3 Experimental results	7
3.4 Summary	7
4 Adaptive Algorithms	9
4.1 Introduction	9
4.2 Experimental results	9
4.2.1 Choice of parameters in the proposed methods	9

4.3	Summary	9
5	Wavelet-based denoising algorithms	11
5.1	Introduction	11
5.2	Proposed approach	11
5.3	Experimental results	11
5.3.1	Choice of parameters in the proposed approach	11
5.4	Summary	11
6	Adaptive hybrid algorithms	12
6.1	Introduction	12
6.2	Experimental results	12
6.3	Summary	12
7	Conclusions and future directions	13
7.1	Conclusions	13
7.2	Scope for future study	13
	List of Publications	15
	Bibliography	17

List of Figures

1.1	abcdefgh	1
2.1	Image	5

List of Tables

3.1 XYZ	7
-------------------	---

List of Acronyms

GCD Greatest Common Divisor.

LCM Least Common Multiple.

List of Symbols

latex Is a markup language specially suited for scientific documents.

Chapter 1

Introduction

This Chapter provides.....

1.1 Background

Type introduction part here. [1]

1.2 Motivation for the present research work

Type motivation here.

1.3 Problem statement

Type Problem statement here.

Given a set of numbers, there are elementary methods to compute its Greatest Common Divisor, which is abbreviated GCD. This process is similar to that used for the Least Common Multiple (LCM).



Figure 1.1: abcdefgh

The Latex typesetting markup language is specially suitable for documents that include

1.4 Organization of the thesis

The research work presented in the thesis is organized and structured in the form of seven chapters, which are briefly described as follows:

- i) **Chapter 1** describes the
- ii) **Chapter 2** provides a comprehensive review of
- iii) **Chapter 3** presents a
- iv) **Chapter 5** deals with
- v) **Chapter 6** presents a
- vi) **Chapter 7** concludes the thesis with overall discoveries of the present research work. The scope for future work is also mentioned.

Chapter 2

Literature Review

This Chapter presents a survey of most commonly used

2.1 abcs

Noise is a random variation of brightness in digital images that often occurs due to imperfections in imaging devices and [1]

$$v(i) = u(i) + \eta(i) \tag{2.1.1}$$

2.1.1 xyz



Figure 2.1: Image

Chapter 3

Adaptive Algorithm

The choice of smoothing parameter

3.1 Background

To preserve the inherent [2]

3.2 Proposed algorithm

An image contains

3.3 Experimental results

This section presents quantitative and qualitative results of the proposed algorithm

Table 3.1: XYZ

SSSS	PPP					BBB					
	PPP	3 × 3	5 × 5	7 × 7	9 × 9	11 × 11	3 × 3	5 × 5	7 × 7	9 × 9	11 × 11
9 × 9		30	29	28	-	-	27	26	26.5	-	-
11 × 11		30	30	29	28	-	27	28	27	26.6	-
13 × 13		29	30	30	29	28	27	28	28.1	27.5	26.5
15 × 15		29.88	30.27	30.13	30.05	29.51	27.71	28.11	27.97	27.87	27.43
17 × 17		29.92	30.04	30.04	29.89	29.88	27.73	28.03	27.90	27.82	27.73
19 × 19		29.89	29.99	29.84	29.91	29.82	27.58	27.90	27.81	27.66	27.70
21 × 21		29.75	29.85	29.47	29.53	29.66	27.5	27.83	27.68	27.59	27.51

3.4 Summary

The selection of

Chapter 4

Adaptive Algorithms

In addition to the issue of

4.1 Introduction

NLM algorithm [2].....

4.2 Experimental results

In this section, the performances of the proposed algorithms

4.2.1 Choice of parameters in the proposed methods

Several authors

4.3 Summary

In this chapter, some new approaches.....

Chapter 5

Wavelet-based denoising algorithms

The shape of a local window

5.1 Introduction

Wavelet-based image [3].....

5.2 Proposed approach

The shape of the local window

5.3 Experimental results

In this section, the performance of anisotropic shaped region

5.3.1 Choice of parameters in the proposed approach

For all experiments, the size of region and subregion

5.4 Summary

In this chapter, a statistical approach

Chapter 6

Adaptive hybrid algorithms

This Chapter explores the possibility

6.1 Introduction

Generally, non-local methods.....

6.2 Experimental results

The performance of the proposed approaches

6.3 Summary

This chapter presents a simple a.....

Chapter 7

Conclusions and future directions

The research work presented

7.1 Conclusions

The research work embodied in this thesis has addressed the problem of various aspects of the research problem are investigated and the main findings are summarized below.

7.2 Scope for future study

There are many issues in

- The present research work can be extended to
- Images may be affected by multiple degradations
- Some new features
- The proposed approaches

List of Publications

Referred journals:

- [1] A and B, “Methods to improve Speech Recognition”, *Artificial Intelligence Review* (2022), Springer. <https://doi.org/10.15>.
-

International conferences:

- [1] A and B, “Methods to improve Speech Recognition”, *Artificial Intelligence Review* (2022), Springer. <https://doi.org/10.15>.
-

Papers communicated in referred journals:

- [1] A and B, “Methods to improve Speech Recognition”, *Artificial Intelligence Review* (2022), Springer. <https://doi.org/10.15>.

Bibliography

- [1] Kiseon Kim and Georgy Shevlyakov. Why gaussianity? *IEEE Signal Processing Magazine*, 25(2):102–113, March 2008.
- [2] P. Chatterjee and P. Milanfar. Is denoising dead? *IEEE Transactions on Image Processing*, 19(4):895–911, April 2010.
- [3] Rafael C Gonzalez, Richard E Woods, et al. Digital image processing, 2002.