Bachelor Thesis at Lucerne University of Applied Sciences and Arts
School of Computer Science and Information Technology

Automated Image Quality Assessment in Teledermatology

Name of Student: Nyungmartsang Choekyel
Degree Program: B.Sc. in Artificial Intelligence and Machine Learning
Year of Graduation: 2024

Main Advisor: Dr. Amruthalingam Ludovic
External Expert: xxx
Industry partner/provider: ABIZ, University Hospital of Basel and derma2go

Code / Thesis Classification:

- ✓ Public (Standard)
- ☐ Private

Declaration

I hereby declare that I have completed this thesis alone and without any unauthorized or external help. I further declare that all the sources, references, literature and any other associated resources have been correctly and appropriately cited and referenced. The confidentiality of the project provider (industry partner) as well as the intellectual property rights of the Lucerne University of Applied Sciences and Arts have been fully and entirely respected in completion of this thesis.

Rotkreuz, Monday 4th March, 2024 _____

Submission of the Thesis to the Portfolio Database:

Confirmation by the student

I hereby confirm that this bachelor thesis has been correctly uploaded to the Portfolio Database in line with the code of practice of the University. I rescind all responsibility and authorization after upload so that no changes or amendments to the document may be undertaken.

Rotkreuz, Monday 4th March, 2024 _____

Expression of Thanks and Gratitude

Expression of thanks and gratitude here...

Abstract

Text

Text

Text

Contents

List of Figures

List of Tables

1. Introduction

text

1.1. Background and Motivation

text

1.2. Problem Statement

text

1.3. Objectives of the Thesis

text

1.4. Scope and Limitations

text

1.5. Structure of the Thesis

text

2. Literature Review

text

2.1. Image Quality Assessment (IQA)

text

2.1.1. Introduction to IQA

text

2.1.2. Metrics Used in IQA

text

2.1.3. Benchmark Datasets for IQA

text

2.1.4. State-of-the-Art in IQA

text

2.1.5. Quality Criteria for Image Assessment

text

2.1.6. Challenges and Opportunities in IQA

text

2.1.7. Previous Research in IQA

text

2.2. Teledermatology

text

2.2.1. Introduction to Teledermatology

text

2.2.2. Importance of Image Quality in Teledermatology

text

2.2.3. Quality Criteria for Teledermatology Images

text

2.2.4. Challenges and Opportunities in Teledermatology

text

2.2.5. Previous Research in Teledermatology

text

3. Methodology

text

3.1. Literature Review Methodology

text

3.1.1. Overview of Different Review Techniques

text

3.1.2. Selection of Systematic Literature Review Approach

text

3.1.3. Rationale for Chosen Methodology

text

3.2. Image Quality Assessment (IQA) Methodology

text

3.2.1. Criteria for Selecting IQA Methods

text

3.2.2. Selection of Benchmark Datasets for IQA

text

3.2.3. Implementation Plan for IQA Methods

text

3.3. Teledermatology Methodology

text

3.3.1. Criteria for Selecting Teledermatology Methods

text

3.3.2. Selection of Benchmark Datasets for Teledermatology

text

3.3.3. Implementation Plan for Teledermatology Methods

text

4. Implementation

text

5. Results and Analysis

text

6. Discussion and Conclusion

text

A. Code

Listing A.1: Caption on PDF

```
import numpy as np
```