

**Enhancing Accuracy in Optical Character Recognition of Sensor Readings: A Comparative Study of Tesseract and CRNN Models with Emphasis on Image Preprocessing**

**Aidan Dennehy**

**Student No: R0145278**

**Supervisor: Dr Alex Vakaloudis**

**For the module DATA9003 – Research Project as part of the**

**Master of Science in Data Science and Analytics, Department of Mathematics, August 2023**

**Declaration of Authorship**

I, Aidan Dennehy, declare that this thesis titled ‘Enhancing Accuracy in Optical Character Recognition of Sensor Readings: A Comparative Study of Tesseract and CRNN Models with Emphasis on Image Preprocessing’ and the work presented in it are my own. I confirm that,

* This work was done wholly or mainly while in candidature for the Masters’ degree at Munster Technological University
* Where any part of this thesis has previously been submitted for a degree or any other qualification at Munster Technological University or any other institution, this has been clearly stated.
* Where I have consulted the published work of others, this is always clearly attributed
* Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this project report is entirely my own work
* I have acknowledged all main sources of help
* I understand that my project documentation may be stored in the library at MTU, and may be referenced by others in the future

Signed:

Date:

**Acknowledgment (Dedication also if desired).**

*Thanks to.*

**Table of Contents**

[Abstract 5](#_Toc74327369)

[1. Introduction 6](#_Toc74327370)

[1.1 6](#_Toc74327371)

[1.2 6](#_Toc74327372)

[2. Literature Review 7](#_Toc74327373)

[2.1 7](#_Toc74327374)

[2.2 7](#_Toc74327375)

[3. Methodology 8](#_Toc74327376)

[3.1 8](#_Toc74327377)

[4. Results 9](#_Toc74327378)

[4.1 9](#_Toc74327379)

[5. Discussion and Conclusion 10](#_Toc74327380)

[References 11](#_Toc74327381)

[Appendix 11](#_Toc74327382)

**Table of Figures**

[Figure 1:[4] **Error! Bookmark not defined.**](#_Toc35939488)

# Abstract

# 1. Introduction

## 1.1

## 1.2

# 2. Literature Review

## 2.1

## 2.2

# 3. Methodology

## 3.1

# 4. Results

## 4.1

# 5. Discussion and Conclusion

# References

# Appendix