

# **Towards Translation of Portable, Non-invasive, Near-infrared Imaging Systems**

A Dissertation Presented

by

**Morris D. Vanegas**

to

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in partial fulfillment of the requirements  
for the degree of

**Doctor of Philosophy**

in

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**Author:** Morris D. Vanegas.

**Department:** Bioengineering.

Approved for Dissertation Requirements of the Doctor of Philosophy Degree

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Dissertation Advisor: Dr. Qianqian Fang

---

Date

---

Dissertation Reader: Dr. Mark Niedre

---

Date

---

Dissertation Reader: Dr. Meryem Yücel

---

Date

---

Department Chair: Dr. Lee Makowski

---

Date

Director of the Graduate School:

---

Dean: Dr. Gregory D. Abowd

---

Date

# **ABSTRACT**

Towards Translation of Portable, Non-invasive, Near-infrared Imaging  
Systems

by

Morris D. Vanegas

Doctor of Philosophy in Bioengineering

Northeastern University, May 2023

Dr. Qianqian Fang, Adviser

*To...*

# **ACKNOWLEDGEMENTS**

Here I wish to thank those who have supported me during the process of the thesis work...

# PREFACE

Here I'll write a dope section. More personal. Something that states why I started this research.

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# **LIST OF FIGURES**



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# LIST OF ACRONYMS

**3-D** Three Dimensional. Is this better?

# **CHAPTER 1**

## **INTRODUCTION**

This part will discuss the significance of this study

# **CHAPTER 2**

## **BACKGROUND**

This is where the background goes.

### **2.1 Basics of Optical Imaging**

#### **2.1.1 Light-Tissue Interactions**

#### **2.1.2 Components of Optical Measurement Systems**

#### **2.1.3 Optical Phantom Fabrication**

### **2.2 Imaging Modalities**

#### **2.2.1 Pulse Oximetry**

#### **2.2.2 Functional Near-Infrared Spectroscopy**

#### **2.2.3 Diffuse Optical Tomography**

#### **2.2.4 Structured-Light Imaging**

### **2.3 “-ilities” of Near-infrared Imaging Systems**

### **2.4 Thesis Aims**

## **CHAPTER 3**

# **MOBILE-PHONE-BASED OXIMETER (MOXI)**

This is where the writing goes.

## **CHAPTER 4**

# **MODULAR OPTICAL BRAIN IMAGER (MOBI)**

This is where the writing goes.

## **CHAPTER 5**

# **OPTICAL MAMMOGRAPHY CO-IMAGER (OMCI)**

This is where the writing goes.

## **CHAPTER 6**

# **3-D PRINTED PHANTOMS**

This is where the writing goes.



## **CHAPTER 7**

# **CONCLUSION**

Writing a long manuscript is easy ... only if one starts early enough.

# REFERENCES