

# Non-intrusive Testing of Liquid Culture Medium using Online NIR Spectroscopy and Machine Learning for Qualitative Analysis

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## Abstract

This capstone report.

*Keywords:* Bioprocess Monitoring, Machine Learning, Near-Infrared Spectroscopy (NIR), 1D Convolutional Neural Network (1D-CNN), Qualitative Analysis

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## 1. Introduction

Introduction

## 2. Materials and Methods

### 2.1. Materials

Materials

### 2.2. Methods

Methods

## 3. Results

Results

### 3.1. Data Analysis

Analysis

## 4. Discussion

Discussion

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<sup>1</sup>Conceptualization

<sup>2</sup>Validation & Software

<sup>3</sup>Investigation & Methodology

<sup>4</sup>Principle Investigator & Capstone Supervisor

## **5. Conclusion**

Conclusion

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