Technical Report for Assignment 3

**Name: Email:**

Statement:

For this assignment's preparation, the author(s) did not use any generative AI tools.

For this assignment's preparation, the author(s) have utilized [Generative AI Tool Name], a language model created by [Generative AI Tool Provider]. Within this assignment, the [Generative AI Tool Name] was used for purposes such as [e.g., brainstorming, grammatical correction, writing paraphrasing, citation, specific sections of the assignment].”

1. Introduction

2. CNN Implementation

2.1 Methodology

2.1.1 Dataset Loading and Preprocessing

2.1.2 CNN Model Design and Implementation

2.1.3 Training and Validation

2.1.4 Performance Evaluation

2.2 Results

2.2.1 Test Accuracy and Loss

3. Visualization

3.1 Visualization of Filters and Kernels

3.2 Feature Map Visualization

3.3 Advanced Visualizations (Optional)

4. Discussion

4.1 Insights from Visualizations

4.2 Implications and Future Work

5. Lessons Learned

6. References