[TITLE PLACEHOLDER]

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Abstract—[Abstract placeholder]

I. INTRODUCTION

[Placeholder]

II. METHODS

A. Data Engineering

[placeholder]

1) Normalization: To prepare the data for the model, we implemented a normalization procedure using the Normalizer class from sklearn. The normalize function applies L2 normalization to both the training and test datasets. With L2 normalization, each vector is scaled so that its norm equals 1, while preserving the direction of the original data. This helps reduce differences in scal or magnitude across the different sensor readings and labels, this will improve the models' learning process. The normalize function works by first fitting separate normalizers on the training data for X and y. These fitted normalizers are then used to transform both the training and test sets so that the test data is placed on the same scale as the training data.

2) Downsampling: [Placeholder]

B. Model Description

[Placeholder]

C. Hyperparameter Tuning

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III. RESULTS

[Placeholder]

IV. DISCUSSION

[Placeholder]

AI STATEMENT

SUPPLEMENTARY MATERIALS

[Placeholder for supplementary figures or results]