

# Anomaly Detection for Time Series Data using VAE-LSTM Model

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**Abstract**—Here is a abstract...  
**Index Terms**—Here are some keywords...

## I. INTRODUCTION

This is an introduction...

## II. METHODOLOGY

### A. Preprocessing

Here is the preprocessing...

### B. Variational Autoencoder

Here is the VAE...

### C. Long Short-Term Memory

Here is the LSTM...

### D. VAE-LSTM Model Training

Here is the VAE-LSTM model training...

### E. Anomaly Detection

Here is the anomaly detection...

### F. Evaluation Metrics

Here are the evaluation metrics...

## III. EXPERIMENTS

Here are the experiments...

### A. Inertial Measurement Unit Dataset

Here is the dataset...

### B. Synthesized Photoplethysmography Dataset

Here is the dataset...

### C. Electric Vehicle Drive Cycle Dataset

Here is the dataset...

## IV. RESULTS

Here are the results...

### A. Inertial Measurement Unit

Here is the dataset...

### B. Synthesized Photoplethysmography

Here is the dataset...

### C. Electric Vehicle Drive Cycle

Here is the dataset...

## V. CONCLUSION

Here is a conclusion...

### A. Future Work

Here is some future work...

## REFERENCES

- [1] Citation 1
- [2] Citation 2
- [3] Citation 3
- [4] Citation 4
- [5] Citation 5