

# Wi-Fi IDS Project Deployment Guide

## Overview

This project provides a Machine Learning-based Intrusion Detection System (IDS) specifically for Wi-Fi Deauthentication (DoS) attack detection and mitigation, aligned with MSc Cyber Security standards.

## Deployment Steps

1. Install Python 3.x and necessary packages:

```
pip install -r requirements.txt
```

2. Capture real network traffic:

```
python preprocessing/real_time_feature_extraction.py
```

3. Preprocess and prepare dataset:

```
python preprocessing/data_preprocessing_pipeline.py
```

4. Train the CNN Model:

```
python model/cnn_training_script_enhanced.py
```

5. Start real-time detection and automatic mitigation:

```
python detection_mitigation/real_time_cnn_detection_enhanced.py
```

6. Monitor the system via the Dashboard:

```
python ui_dashboard/real_time_monitoring_dashboard.py
```

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## Important Notes

- Administrative access may be required (sudo).
- Only use on authorized networks.
- Update email credentials for alerting functionality.
- Ensure datasets are regularly updated for best ML performance.