Machine Learning based Real-Time Attack Detection in 5G Networks using Traffic Analysis

Team Name:

Team

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Abstract

Problem Domain/Issue: Securing 5G networks against cyberattacks that exploit faster speeds and massive connectivity.

Importance of the Work: Ensures 5G security by preventing disruptions, protecting data, and maintaining trust.

Methodology/Framework: ML-based IDS with Wireshark traffic capture, feature extraction, and real-time attack detection.

Key Results & Implications: Enables early attack detection, securing telecom, healthcare, smart cities, and Industry 4.0.

Domains where our solution can be implementedT

Telecom 5G networks, smart cities with IoT devices, autonomous vehicles, healthcare with remote monitoring and Industry 4.0

Our solution helping the selected domains

Our system secures telecom networks, protects IoT devices in smart cities, ensures safe communication for autonomous vehicles, safeguards remote healthcare, and prevents downtime in Industry 4.0

Our engineering solution

Technical Approach

Simulated a 5G network with four nodes (one attacker), Capturing and preprocessing traffic using Wireshark, ML models (Random Forest, SVM, Deep Learning) classify traffic, Python, Scikit-learn, and 5G simulators support real-time detection.

Project Guide

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Team's vision

We aim to build a secure, intelligent system that strengthens 5G networks. Our solution will help industries and society stay protected from evolving cyber threats.
Our goal: Make real-time 5G security a trusted standard for future communication. We aim to build a secure, intelligent system that strengthens 5G networks.