

Artefact

The machine learning model, developed using Python and scikit-learn, serves as the primary artefact for this research. Specifically, an Extra Trees classifier was implemented and evaluated. This choice was deliberate, as Extra Trees, an ensemble method leveraging multiple decision trees with increased randomness, have demonstrated strong performance in various machine learning tasks, particularly those involving high-dimensional data and complex decision boundaries, which are often characteristics of intrusion detection datasets. This artefact directly addresses the research question by demonstrating the practical application of a specific machine-learning technique to enhance intrusion detection capabilities within IoT environments. Furthermore, the model's performance, assessed through metrics such as accuracy, precision, recall, and F1-score, provides empirical evidence to support the research findings and their potential impact on improving the security of IoT systems.

Link to the GitHub Repository: https://github.com/DonaM12/Machinelearning_IoT.git