**Research of Machine Learning Algorithms for the Development of Intrusion Detection Systems in 5G Mobile Networks and Beyond**

This study delves into the utilization of machine learning and deep learning methodologies for network intrusion detection systems (NIDS) designed for 5G networks. Employing the CIC IDS-2017 and CSE-CIC-IDS-2018 datasets, the research unfolds across three segments. In the initial phase, the Gradient Boost algorithm demonstrates robust efficacy but grapples with issues related to misclassification in specific attack classes. The second explores unsupervised learning with autoencoder architectures, revealing limitations in achieving sufficient performance compared to traditional machine learning models. In the final phase, a supervised learning approach employing deep neural network (DNN) models attains noteworthy outcomes. However, challenges emerge in accurately distinguishing penetration attacks due to statistical resemblances between benign and penetrating traffic. The research concludes with a comparative analysis, naming the Gradient Boosted Tree model as the most effective intrusion detection in 5G networks.

**Reference**: Imanbayev, A.; Tynymbayev, S.; Odarchenko, R.; Gnatyuk, S.; Berdibayev, R.; Baikenov, A.; Kaniyeva, N. Research of Machine Learning Algorithms for the Development of Intrusion Detection Systems in 5G Mobile Networks and Beyond. Sensors 2022, 22, 9957. https://doi.org/10.3390/s22249957