**Individual Report**

**Member name: Justin Young**

**Evaluated by:** [Yeshwanth Reddy Chennur](mailto:ychennur@asu.edu)

**Date: Sep 11, 2023**

**Tasks Assigned:**

* In-depth report on “Comparative Analysis of Machine Learning Models in Computer Network Intrusion Detection”
* Prepared weekly report

**Summary:**

* Created an in-depth report on the chosen research paper.
* This research paper reviews a procedure that was used to prepare a dataset to be used in the study.
  + This procedure covered cleansing the data, splitting the data, selecting features and implementing the algorithms for analysis.
* 6 algorithms were chosen for comparative analysis:
  + XGB Classifier
  + Decision Tree Classifier
  + Random Forest Classifier
  + Multi-Layer Perceptron
  + K-Nearest Neighbors Classifier
  + Quadratic Discriminant Analysis
* The authors present a binary classification of network traffic as either malicious or benign, using the CICIDS 2017 Dataset for the study.
* The overall performance of each algorithm was evaluated by its accuracy, precision, recall and F1 scores, containing ten and twenty features respectively.
* The study concluded that the Decision Tree Classifier had the best performance overall among the rest of the models.

**Outcome:**

When we are considering network intrusion detection systems relating to social media, this study provides statistics on the performance of machine learning models we might consider using, along with a procedure that can be used to analyze any other models of interest.

**References** *(with citation)*

[27] E. Osa and O. E. Oghenevbaire, “Comparative Analysis of Machine Learning Models in Computer Network Intrusion Detection”, In *2022 IEEE Nigeria 4th International Conference on Disruptive Technologies for Sustainable Development*, Lagos, Nigeria, 2022, pp. 1-5, doi: 10.1109/NIGERCON54645.2022.9803175

**Evaluation of Report  
  
Evaluation by:** Yeshwanth Reddy Chennur **Date: 09/11/2023**

**Is the weekly member report complete with all the major result(s) of the paper(s)? If not, provide as many examples of the major result(s) missing in the written report as possible. (in bullet form). [within 100 words]**

* Yes, Every important element in the individual progress report has been examined in detail.

**Is each section of the guidelines sufficiently completed? If not, point out what is missing. [Normally within 40 words].**

* Yes, Each section of the guidelines has been completed to an adequate level.

**Is the quality of this version of the written report satisfactory? If not, then why not? [Normally within 40 words]**

* Yes, the quality of the report is satisfactory.

**Approved by:** [Krupaben Kothadia](mailto:kkothadi@asu.edu) **Date: 09/11/2023**