model's capabilities, guiding toward a more informed and nuanced evaluation paradigm. The results of the experimentation were as below:-

Seg. Length	SVM G/NG Acc.	SVM R/NR Acc.	SVM IR/NIR Acc.	SVM Ensem. Acc
3000	86.81%	87.62%	78.07%	78.22%
6000	93.81%	89.40%	84.85%	85.4%
10000	96.37%	90.77%	87.66%	88.44%
14000	96.40%	91.25%	88.25%	88.92%
18000	**96.85%**	91.03%	**88.62%**	89.22%
22000	96.77%	**91.29%**	88.51%	**89.48%**

Table 5.4: Overall classification performance of the 4 SVM classifiers, where we can see accuracy improving, with the increase in length of data fed to the model

Seg. Length	SVM G/NG Loss	SVM R/NR Loss	SVM IR/NIR Loss	SVM Ensem. Loss
3000	28.18%	28.07%	43.51%	52.22%
6000	16.41%	24.07%	33.64%	37.62%
10000	11.86%	21.75%	27.97%	31.23%
14000	10.42%	21.45%	26.2%	29.28%
18000	10.07%	21.79%	25.93%	28.85%
20000	**9.96%**	**21.36%**	**25.44%**	**28.61%**

Table 5.5: Overall classification performance of the 4 SVM classifiers, where we can see log loss decreasing, with the increase in length of data fed to the model

Seg. Length	SVM G/NG Prec.	SVM R/NR Prec.	SVM IR/NIR Prec.	SVM Ensem. Prec.
3000	95.41%	93.32%	87.9%	78.04%
6000	97.17%	94.43%	92.5%	85.51%
10000	98.4%	95.08%	94.47%	88.43%
14000	98.24%	95.51%	94.86%	88.91%
18000	**98.63%**	95.50%	**95.21%**	89.2%
20000	98.63%	**95.52%**	95.09%	**89.45%**

Table 5.6: Overall classification performance of the 4 SVM classifiers, where we can see precision score improving, with the increase in length of data fed to the model

Seg. Length	SVM G/NG Rec.	SVM R/NR Rec.	SVM IR/NIR Rec.	SVM Ensem. Rec.
3000	84.27%	87.72%	77.83%	78.22%
6000	93.44%	89.38%	84.11%	85.40%
10000	96.11%	90.88%	86.55%	88.44%
14000	96.33%	91.16%	87.11%	88.92%
18000	**96.61%**	90.83%	**87.33%**	89.22%
20000	96.5%	**91.22%**	87.27%	**89.48%**

Table 5.7: Overall classification performance of the 4 SVM classifiers, where we can see Recall value improving, with the increase in length of data fed to the model

Seg. Length	SVM G/NG F1-S.	SVM R/NR F1-S.	SVM IR/NIR F1-S.	SVM Ensem. F1-S.
3000	89.49%	90.43%	82.55%	78.06%
6000	95.26%	91.83%	88.09%	85.41%
10000	97.24%	92.92%	90.33%	88.42%
14000	97.27%	93.28%	90.81%	88.9%
18000	**97.61%**	93.1%	**91.1%**	89.19%
20000	97.55%	**93.32%**	91.02%	**89.45%**

Table 5.8: Overall classification performance of the 4 SVM classifiers, where we can see F1-Score improving, with the increase in length of data fed to the model

The models learn different features and patterns from all the parts of the audio data, where we see Grunts being very well classified from other voices, but Roar and Moans are quite a bit difficult to understand as Moans are also considered as the First Big Roar of a Lion in it's complete long Roar communication sequence, so it contains quite similar characteristics as compared to Roar. It can be seen that a maximum of 1 Second of audio is sufficient to tell which kind of voice actually is the instance belongs to, after which the model stops learning more and there is not much significant improvement in the performance of the model.

This signifies that sometimes Machine learning algorithms perform quite better in terms of Audio data as compared to Deep learning algorithms.