

VISUALIZATION OF THE PROPOSED ALGORITHM

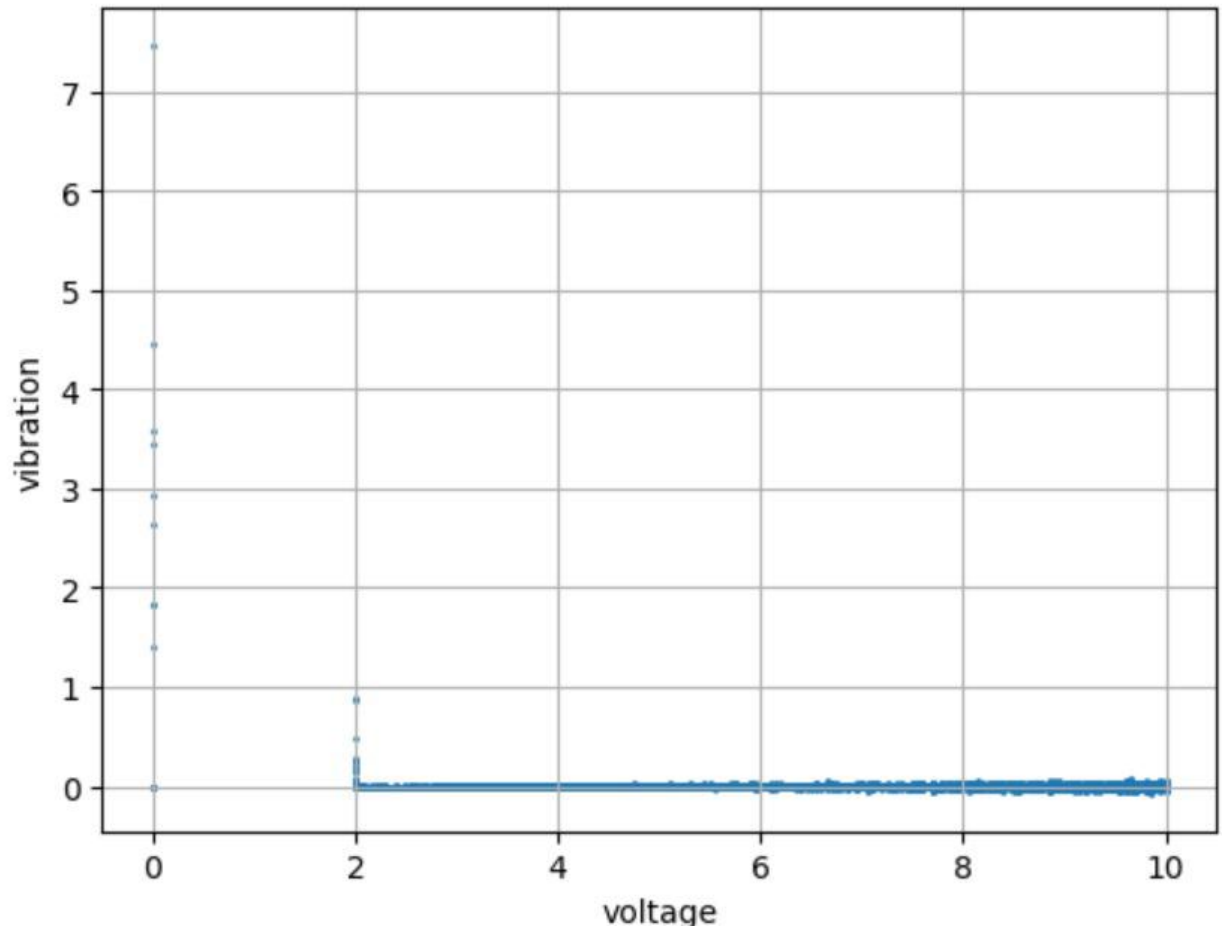


Fig 1 shows the relation between voltage and vibration of the rotating shaft

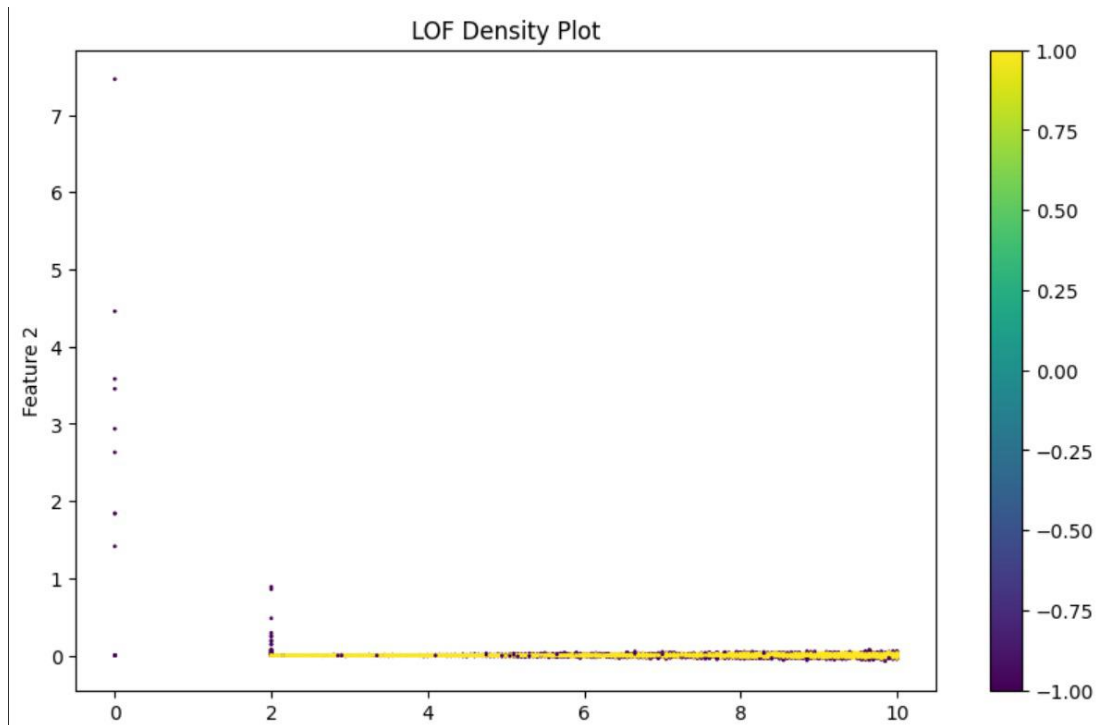


Fig 2

Fig 2 differentiates anomaly points and normal points where yellow dots represents normal data points and violet dots represents anomaly points

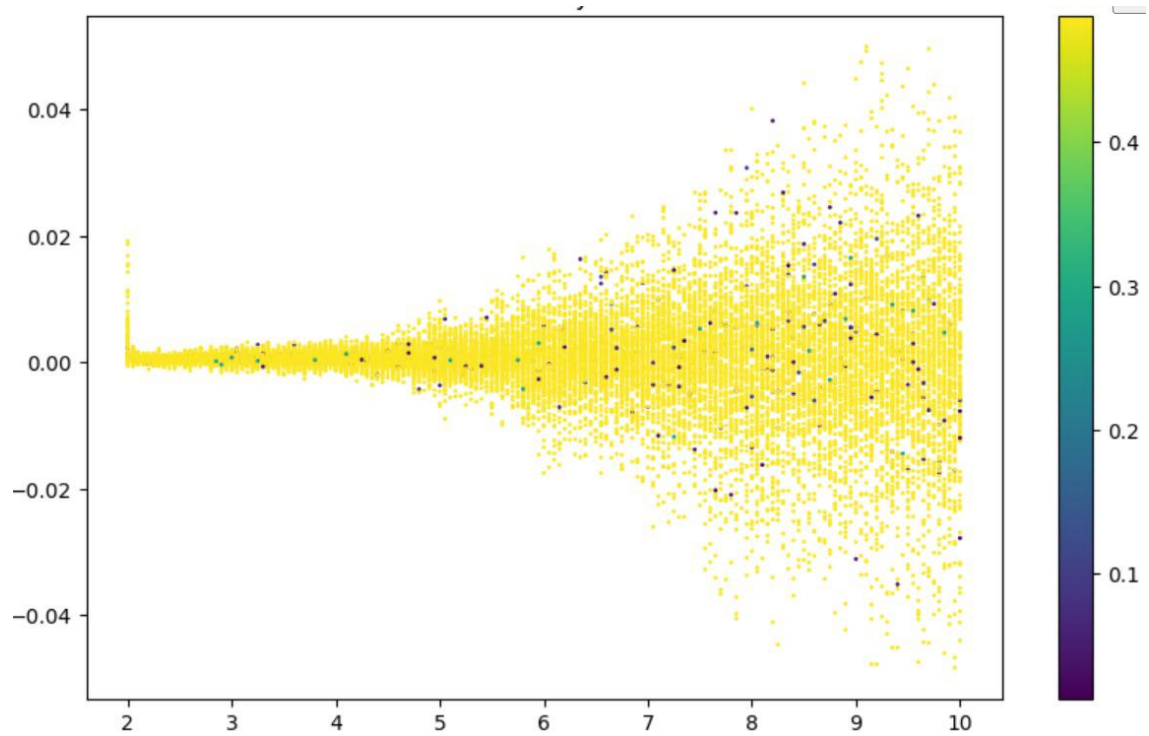


Fig 3 depicts the entropy value of the anomaly points using the suggested Entropy Weighted Matrix method

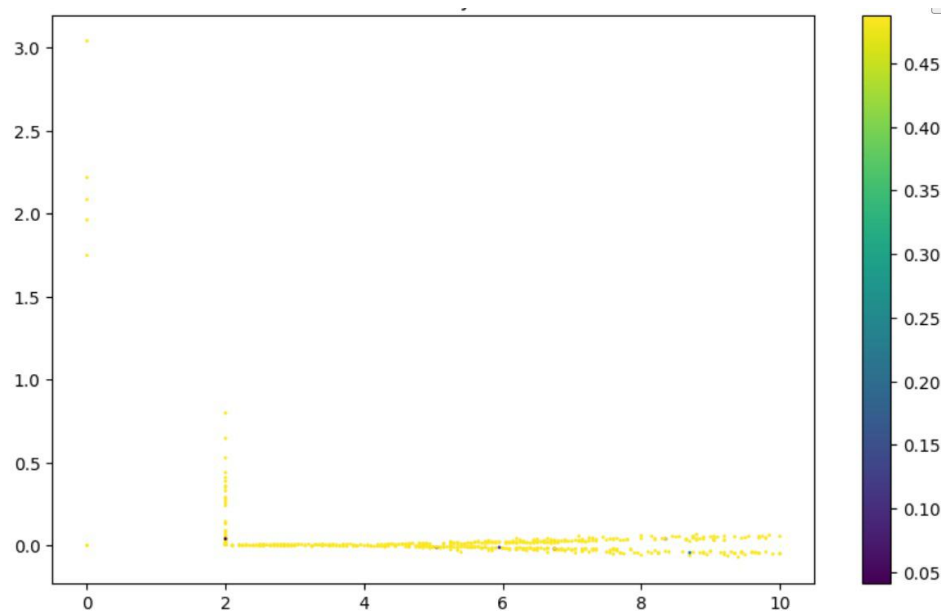


Fig 4

Fig 4 show the entropy value of the normal data points

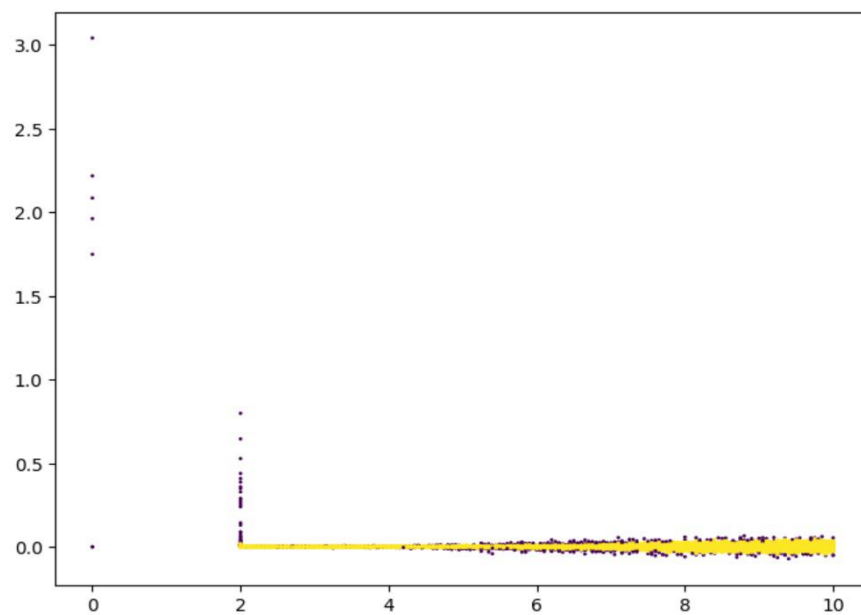


Fig 5 picturizes the updated anomaly points found using the enhanced algorithm.

```
from sklearn.metrics import silhouette_score
clusters = np.where(outlier_scores == -1, 0, 1) # Example: cluster 0 for outliers, cluster 1 for inliers

silhouette_avg = silhouette_score(df, clusters)
print("The average silhouette_score is :", silhouette_avg)
```

✓ 6.8s

The average silhouette_score is : 0.8780256321901896

Fig 6 gives the silhouette score of the normal LOF algorithm (silhouette score is a clustering metrics used for finding how well the clustering is done)

```
clusters = np.where(df['ua'] == -1, 0, 1) # Example: cluster 0 for outliers, cluster 1 for inliers

silhouette_avg = silhouette_score(df, clusters)
print("The average silhouette_score is :", silhouette_avg)
```

✓ 6.7s

The average silhouette_score is : 0.8788421628834083

Fig 7 reveals the improved silhouette score of the Weighted Matrix Local Outlier Factor(WMLOF)