**Intuition behind the models**

1. Mesonet : inspired from the article : “MesoNet: a Compact Facial Video Forgery Detection Network”

Une image contenant texte, capture d’écran, Police, oiseau

Description générée automatiquement

Une image contenant capture d’écran, texte, Rectangle, carré

Description générée automatiquement

1. Xception: inspired from the article: “DEEPFAKE DETECTION BASED ON THE XCEPTION”

Une image contenant capture d’écran, art

Description générée automatiquement

In this project, we employed LIME, a versatile tool for model interpretability, to elucidate the predictions generated by the Xception model. LIME facilitates the identification of regions within the image that exert the most significant influence on the predicted class.

The first image generated through LIME illustrates the positive contributions to the prediction, effectively concealing regions lying outside the generated mask. This selective approach emphasizes and isolates the highlighted areas.

The second image, on the other hand, incorporates both positive and negative contributions to the prediction. Unlike the first image, in this instance, we ensure visibility for all regions, including those outside the mask. This comprehensive representation provides a holistic view of the factors influencing the model's decision-making process.

1. LR and SVM:

Une image contenant texte, capture d’écran, Tracé, ligne

Description générée automatiquement

Well, the technique used in here is frequency domain analysis. We perform a Fourier transform on our input image which consists of spectral decomposition indicating how the signal's energy is distributed over a range of frequencies.

At elevated spatial frequencies, it becomes evident that genuine and counterfeit images exhibit distinct spectral behaviors, facilitating their discernment. The spectral characteristics of real images demonstrate continuous variations, eventually diminishing to near-zero values. Conversely, counterfeit images exhibit static spectral patterns marked by irregularities and anomalies.