IMAGE FORGERY DETECTION USING DEEP LEARNING

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Abstract

Advancements in deep learning have made image forgery or what some others call "image editing" to be done with such ease . Nowadays, with more powerful image editing tools along with the help of AI has made image manipulations so easy and complex to differentiate from the original images. With these inventions, many manipulated images are being circulated throughout the social network and some even pose a threat to the people. Currently the main sources of image forgery is done through photoshop, with powerful tools such as Adobe, second GANs, where the machine creates faces of people that do not even exist, and third being the most popular nowadays are Deepfakes where people's faces are swapped with other people's faces.

 Fake image detection models have been proved in assistance of finding and justifying these said fake images from being used to manipulate the public. With the utilization of visual interpretability, it has proven to be much easier to identify and understand how the image has been manipulated.

The proposed model can differentiate from real and fake images created by different types of forgery tools. This tool can give a clear visual explanation of the forged image for the user to get an understanding on the how it is classified to be as a 'fake'.

Keywords : Detection system, Hybrid detection system, Deep learning, Explainable AI (XAI), Image manipulation

Subject Descriptors

- Computing methodologies $\longrightarrow$ Machine learning $\longrightarrow$ Machine learning algorithms $\longrightarrow$ Ensemble methods

- Computing methodologies $\longrightarrow$ Machine learning $\longrightarrow$ Machine learning approaches $\longrightarrow$ Neural networks

- Computing methodologies $\longrightarrow$ Artificial intelligence $\longrightarrow$ Computer vision $\longrightarrow$ Computer vision representations $\longrightarrow$ Image representation