UNIVERSITY OF SOUTH FLORIDA

Defense of a Master's Thesis

Detecting Digitally Forged Faces in Online Videos

By

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for the MSCS degree in Computer Science and Engineering

Using the FaceForensics dataset of 1004 online videos and their corresponding forgeries, we investigate the ability to distinguish digitally forged facial images from original images with deep learning. The proposed deep network is smaller than the current state-of-the-art solutions. Nevertheless, the network maintains a high level of accuracy (99.6%), all while using the entire FaceForensics dataset. We also replicate a known XceptionNet experiment for classifying images as originals or forgeries and examine some underlying issues with this approach: using a subset of data that is not representative of the full dataset and lack of generalization because of network overfitting when using transfer learning. We implement majority voting and show the impact on accuracy (99.67%), where only 1 video of 300 is misclassified. We examine why the model misclassifies this one video. With network tuning, we observe how changing hyperparameters affects training time for each epoch and accuracy for training, validation, and testing datasets. Lastly, we explore future work, including forged audio, different network types, and new image datasets.

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9:00 AM
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THE PUBLIC IS INVITED

Examining Committee:

Major Professor: Shaun Canavan, Ph.D.
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