

Motivation and About the Project

- It is essential to plan and allocate resources to the affected areas of the Hurricane. To find out which areas need immediate attention is a time-consuming process.
- To help alleviate this we are trying to build a neural network model, which will take into consideration the satellite images of the area and classify them as 'Damaged' or 'Not Damaged' using which we can decide where to allocate resources and helpers.

Data and Labels



References

<https://neurohive.io/en/popular-networks/vgg16>  
<https://towardsdatascience.com/a-comprehensive-guide-to-convolutional-neural-networks-the-eli5-way-3bd2b1164a53>

Model

Custom CNN Model

- For the custom model we are using a combination of 2 Conv2D layers, a Batch Norm layer, a Max Pooling layer and Dropout in the end.
- We repeat the above layer architecture 3 times and then Flatten the network into two Fully Connected layers before adding the final output layer.

Vgg16 Model

- In this approach we are using a pre-built VGG16 model provided in the Keras library. We load up the model and freeze all the layers.
- We are using image augmentation on both training and testing data and then fit the model on the preprocessed training data.

Conclusion and Future Work

- In our approach we can see our custom cnn architecture is outperforming the VGG16 model in this use case.
- This is probably due to the fact that we have frozen all the layers in VGG16 model and therefore it is not able to train itself to our problem and more accurately classify the data.
- If we unfreeze certain layers and let it train over the dataset it could perform better than our current implementation.

Results

