

DATA ARCHITECTURE

So, this is our architecture or block diagram. We have done until building a model and partially evaluated that model and currently working on Image masking for detecting ships in the images.

Coming into the steps:

1st) one is **Data Acquisition** :

We took data set from Kaggle which is approximately 29.25 Gb in size . We have 1,93,000 images for training and 15,600 images for testing. We also have CSV file which contains pixel coordinates for each image . If there are no pixel coordinates for a particular image that means that image doesn't have any ship.

2nd) one is **Data Preprocessing**:

We did not do much pre-processing work like image labelling etc because of the already existing csv file that contains pixel coordinates.

So, we imported necessary libraries such as Keras for CNN, and numpy for mathematical operations , matplotlib for plotting graphs and imfor for image loading etc.

3rd) one is **Data Augmentation**:

Initially we thought of using ImageDataAugmentation that is provided by keras to expand

training set size by flipping images etc . But as of now we did not do any augmentation . We would be implementing it after completely training the model and depending on accuracy and loss.

4th) one is **Building a Model:**

We are using Mask RCNN algorithm which mask regional convolutional neural network . It is mainly used in image segmentation. As of now we did the basic CNN training and next step would be the masking.

5th) one is **Evaluating a Model :**

For CNN training we got an accuracy of approx. 73% with 20 epochs