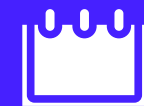


Team - Underfitters

Members -

Laksshay, Chaitanya, Harshit
, Anandiya, Sneha, Utkarsh



Organization -

**Department of Space, Indian Space
Research Organisation (ISRO).**

Problem Statement -

Development of a deep Convolutional Neural Network (CNN) for Tropical Cyclone intensity estimation using half-hourly INSAT-3D IR Images and development of a web application for visualization of the imagery. INSAT3D/3DR observations are available at every 15-minute interval and these observations are very useful in understanding the instantaneous structural changes during evolution, intensification, and landfall of Tropical Cyclones. Datasets of Cyclones captured by INSAT-3D over the Indian Oceans are available since 2014. These datasets can be used for training and testing of the Model. Traditional methods for Intensity estimation require accurate center determination for intensity estimation. Development of CNN based model for intensity estimation will be very useful during the initial stage of cyclone formation when determination of accurate center becomes difficult.



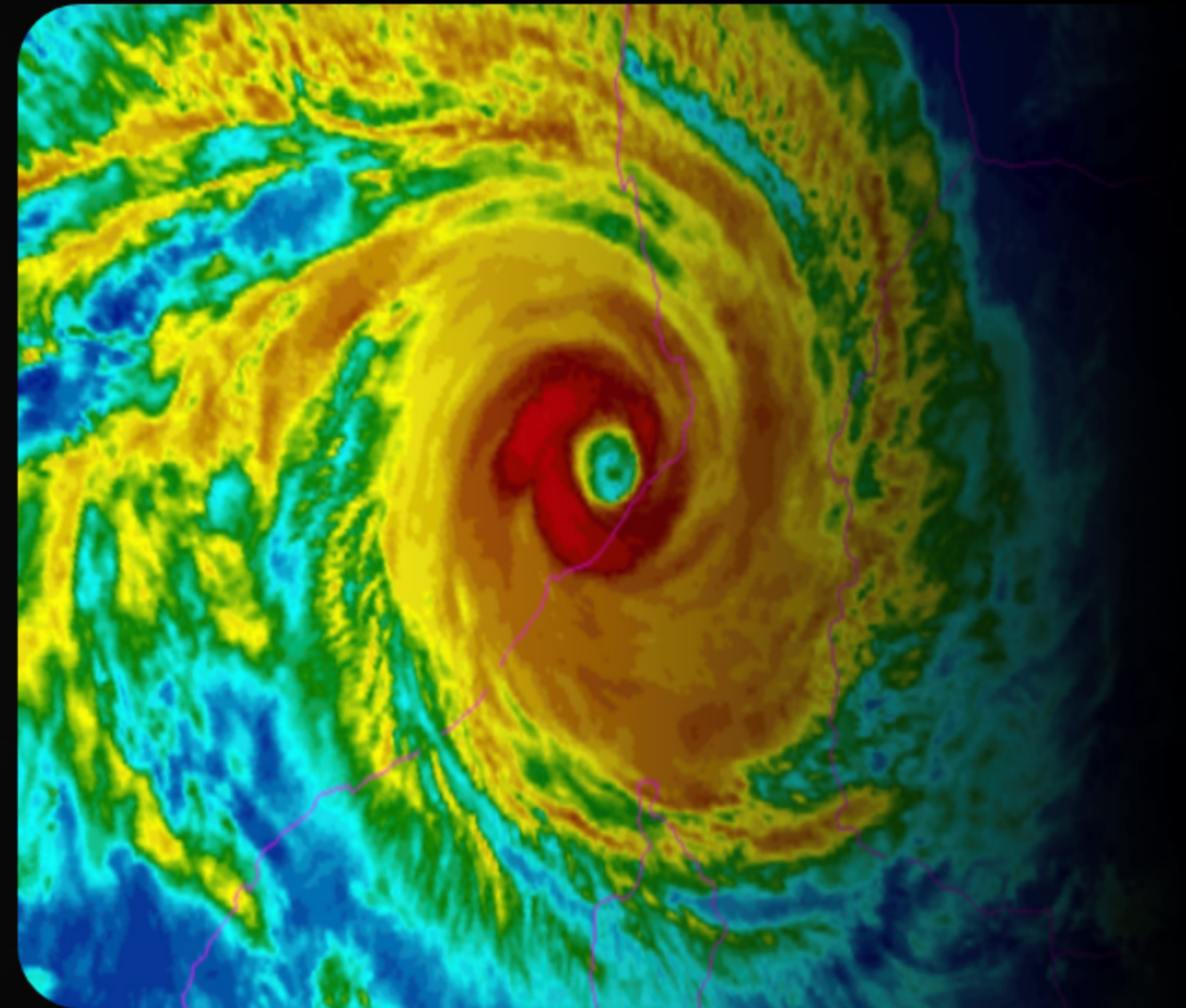
Our Solution

SCIE.ai

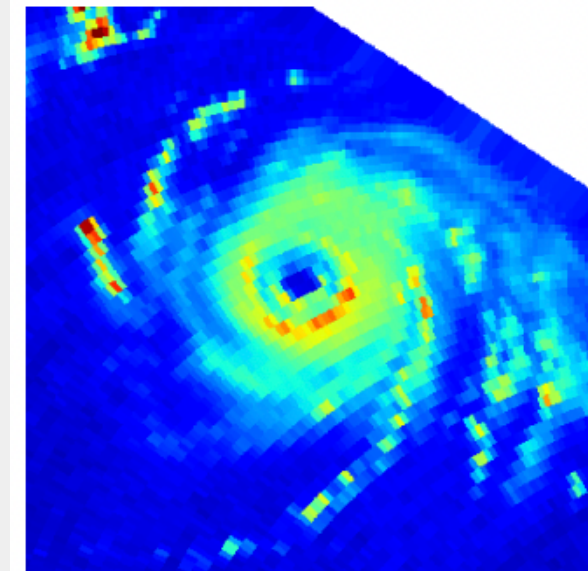
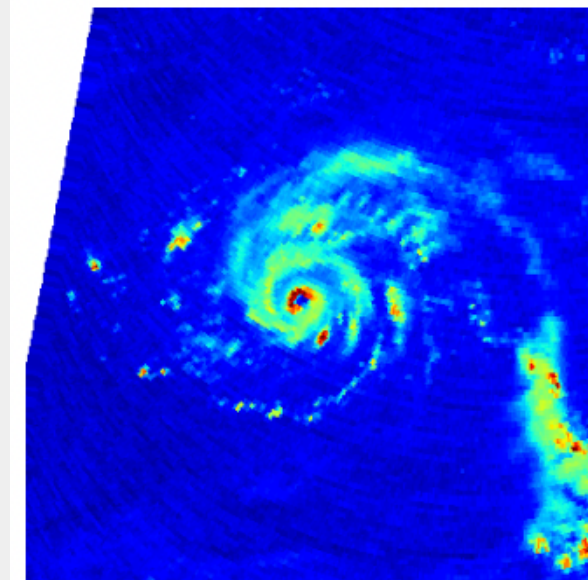
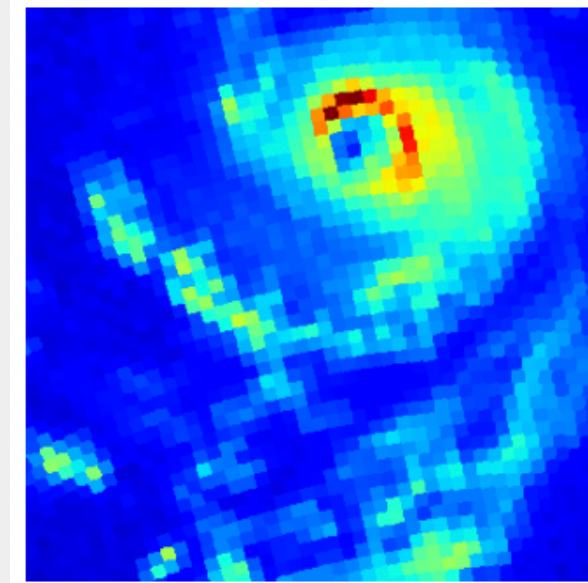
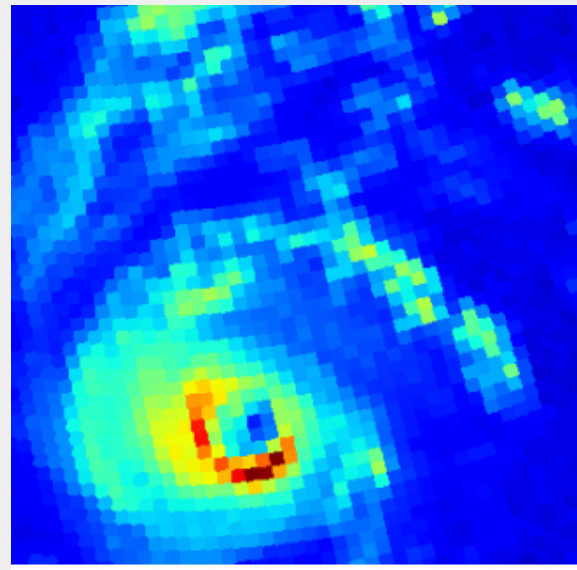
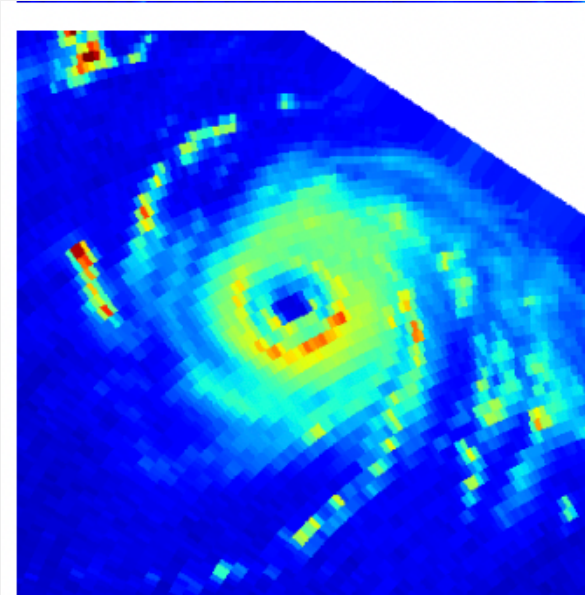
(Smart Cyclone Intensity Estimator.ai)

Predicting the Cyclone Intensity

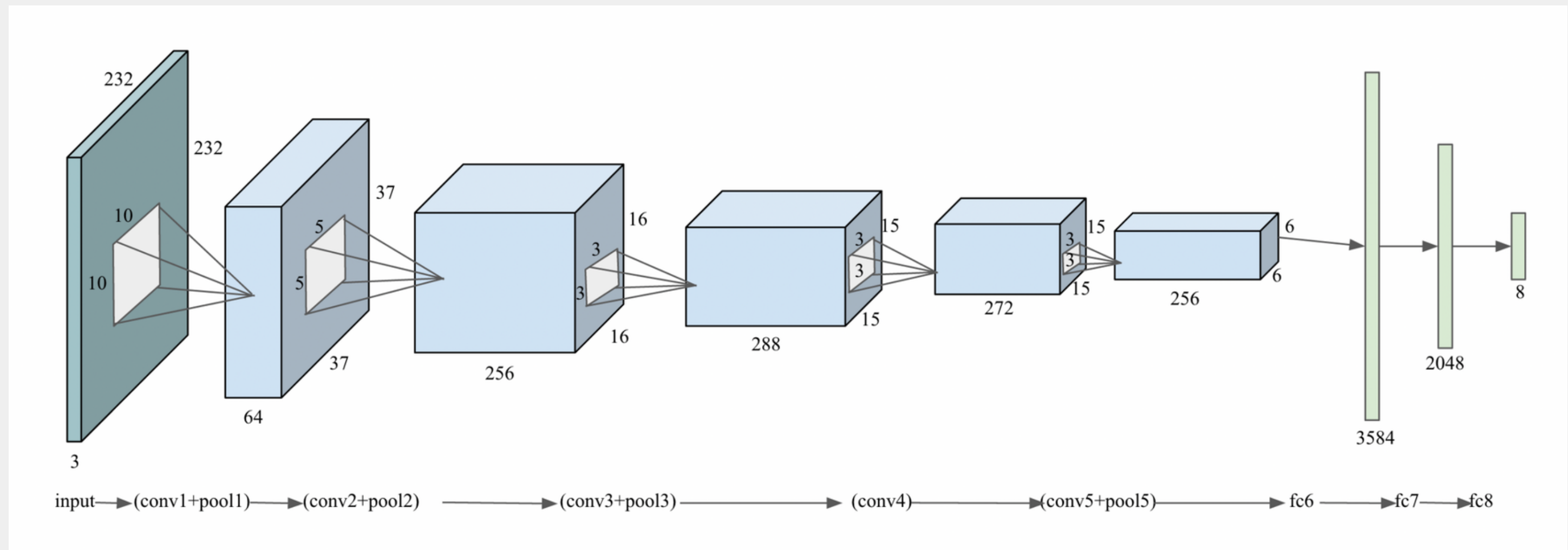
Using CNN to predict the intensity of cyclone using INSAT-3D IR Images.

[Github](#)[Predict](#)

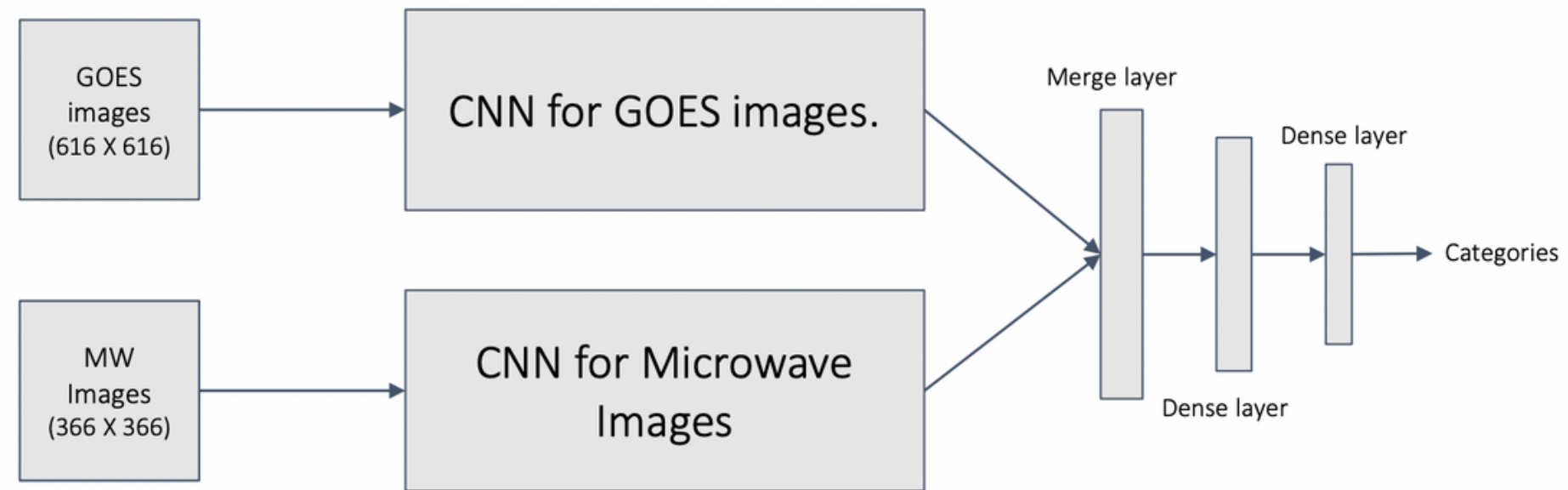
Dataset visualisation -



Architecture -



Flow chart -



How our solution works -

- We have made a Convolutional Neural Network-based architecture that uses Deep learning to estimate the intensity of cyclones using INSAT-3D satellite images.
- Our model gives around 90% accuracy as of now and we plan to increase it further in the coming future.
- We have also made a web application that would take an image as an input and give the prediction in a very user-friendly way.
- Our Aim is to forecast eddy currents that causes cyclones several hours prior to them happening.

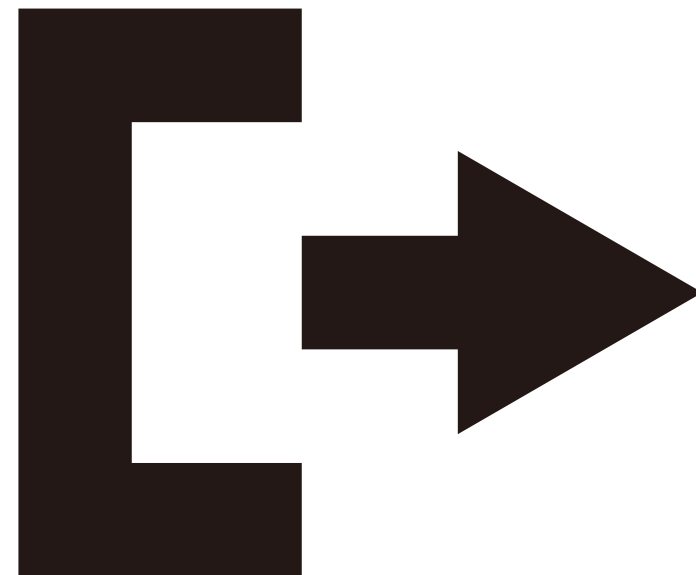
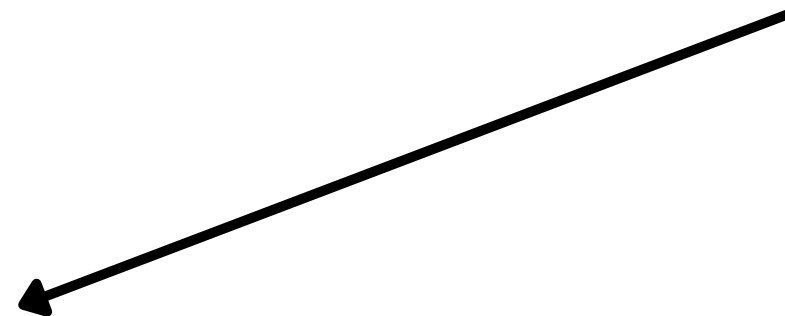
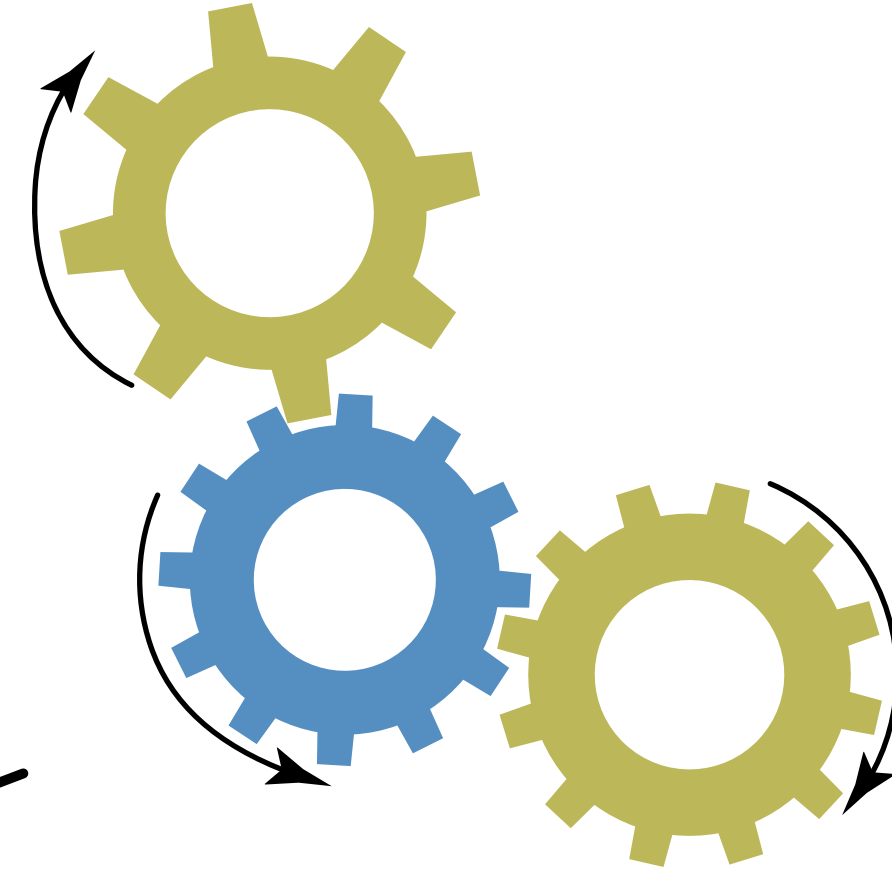
Technologies -

- Python
- Tensorflow(keras)
- React
- Javascript
- CNN
- Fast api

Step 1 - Image provided by the user



Step 2- Image goes to the model



Summary

Step 3- Model outputs the estimated chance of the cyclone happening

Future Plans -

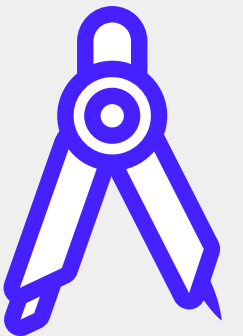
- Using a better database that has a lot more images so as to increase our accuracy.
- We also plan to use other factors of the cyclone like hole size and latitudes and longitudes and using historic data, Predict wind speed and thus, cyclone intensity.



Issues That we may face -



- Lack of Proper Dataset
- Inconsistency in Data
- Complexity



Thank You <3