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# The Nature Conservancy Fisheries Monitoring

Our project comes from an unsolved open challenge from Kaggle. The goal is to differentiate between a certain number of fish species. So, the input will be a photo taken in the deck of a fishing boat where there might or might not be a fish. In case there is, we have to classify it into a specie. Therefore the output will be for each image a vector containing the probability of each class.

The next bullet points summarize the steps that we are going to take to solve this problem:

- Data acquisition: The data is provided by the challenge in two sets: training and test set.
- Data exploration: The acquired data consists on a set of images. The first step is to determine if there is a fish in the image. This is a computer vision problem whose most basic approach is to scan the image with a template. However we will search for more efficient algorithms to do this. Once a fish is detected we will take the region of it and we will use it as the input of our classifier.
- Date exploitation: Our first idea is to use a convolutional neural network since it provides good performances for image classification. We will train it using the train data and adjust the parameters to obtain the best possible accuracy. We will test it using the available test data.
- Evaluation: To measure the accuracy of the system we will use the multi-class logarithmic loss, as is done in the challenge.

The link for the Kaggle challenge is:

https://www.kaggle.com/c/the-nature-conservancy-fisheries-monitoring