# Schneider Electric Hackathon

Data science challenge - Zero deforestation mission

# Overview of processing steps

## Image augmentation to remove biases in training data

The original training dataset is biased away from scenarios of ‘Grassland and Shrubland’ (coded 1). Here we balance the number of images for each scenario by selecting images from under-represented scenarios and rotating and flipping them to increase the number of images for this scenario. After repeating this process for 200 images we have an unbiased training dataset.

## Training of the Convolutional Neural Network

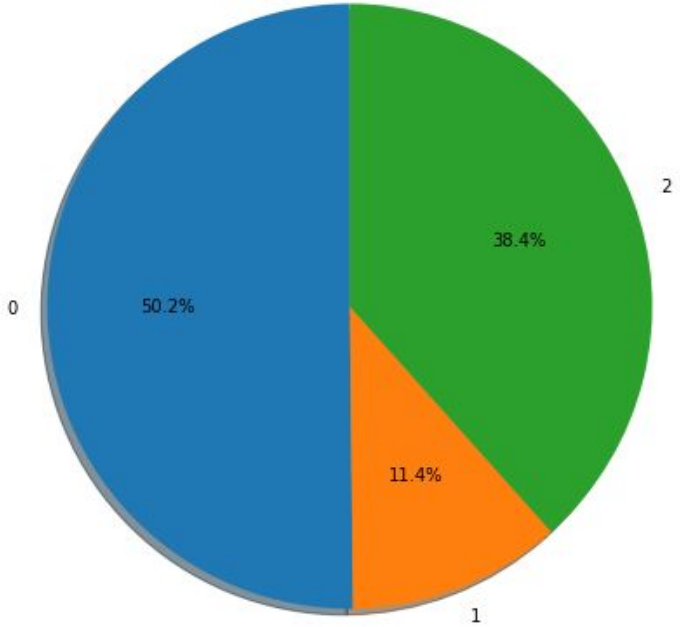
The convolution neural network is built for detecting and recognising various image patterns in grids and in multiple layers. Here we use a pretrained network called “Resnet18”. Rasnet18 has several basic blocks that each contains two convolution layers over an input signal composed of several input planes. The first convolutional layer is followed by Batch Normalization and ReLU activation, whilst the second is only followed by Batch Normalization. The final layer is a fully connected layer, which help map the representation between the input and the output.

## Testing against test dataset

Testing of the convolutional neural network model on the test dataset and return the prediction for the image classification.

# Image augmentation

Ratio of different labels BEFORE augmentation




Ratio of different labels AFTER augmentation