

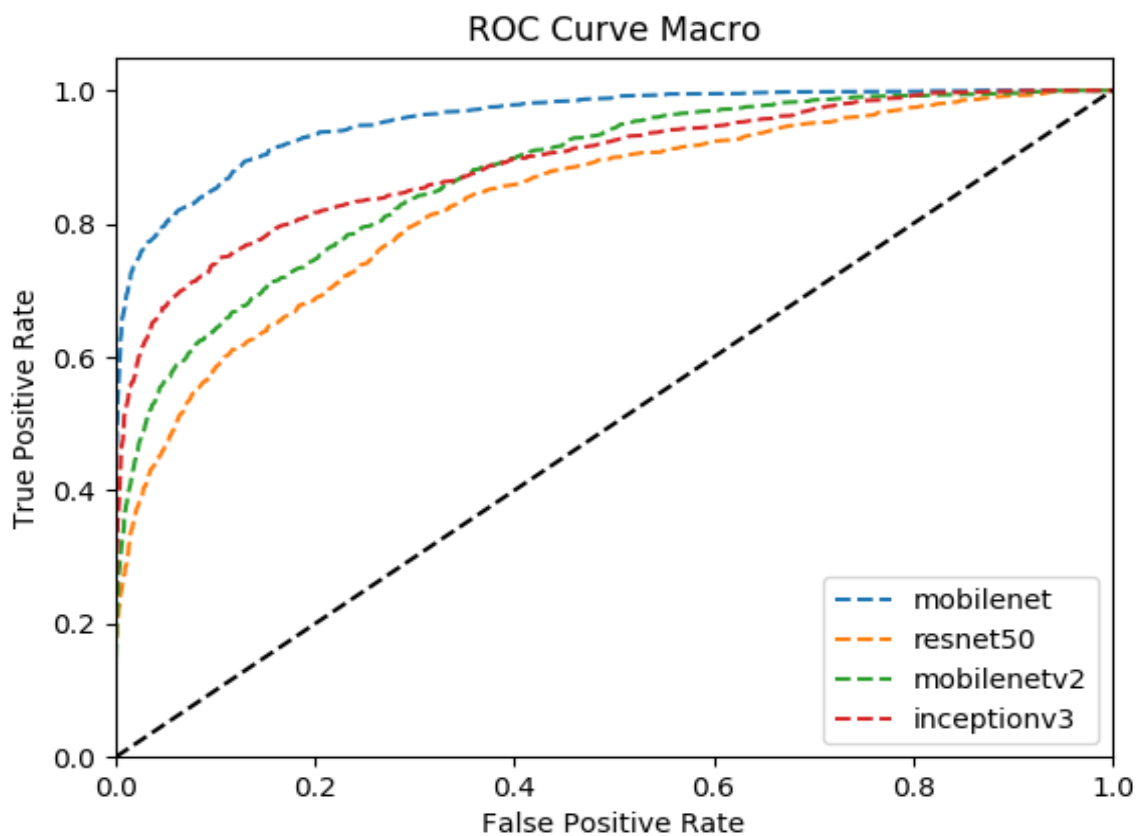
Comparison Results

This document is intended to present the results of the comparison process between selected convolutional neural network models. For the evaluation of the models, metrics such as: ROC Curve, Precision Score, Recall Score, F1 Score and Kappa Coefficient were taken into account. Additionally, a total of 1239 images were used, distributed in 8 classes: Airplane, Airport, Commercial Area, Forest, Freeway, Island, Ship and Stadium. These images were taken from the NWPU-RESISC45 dataset

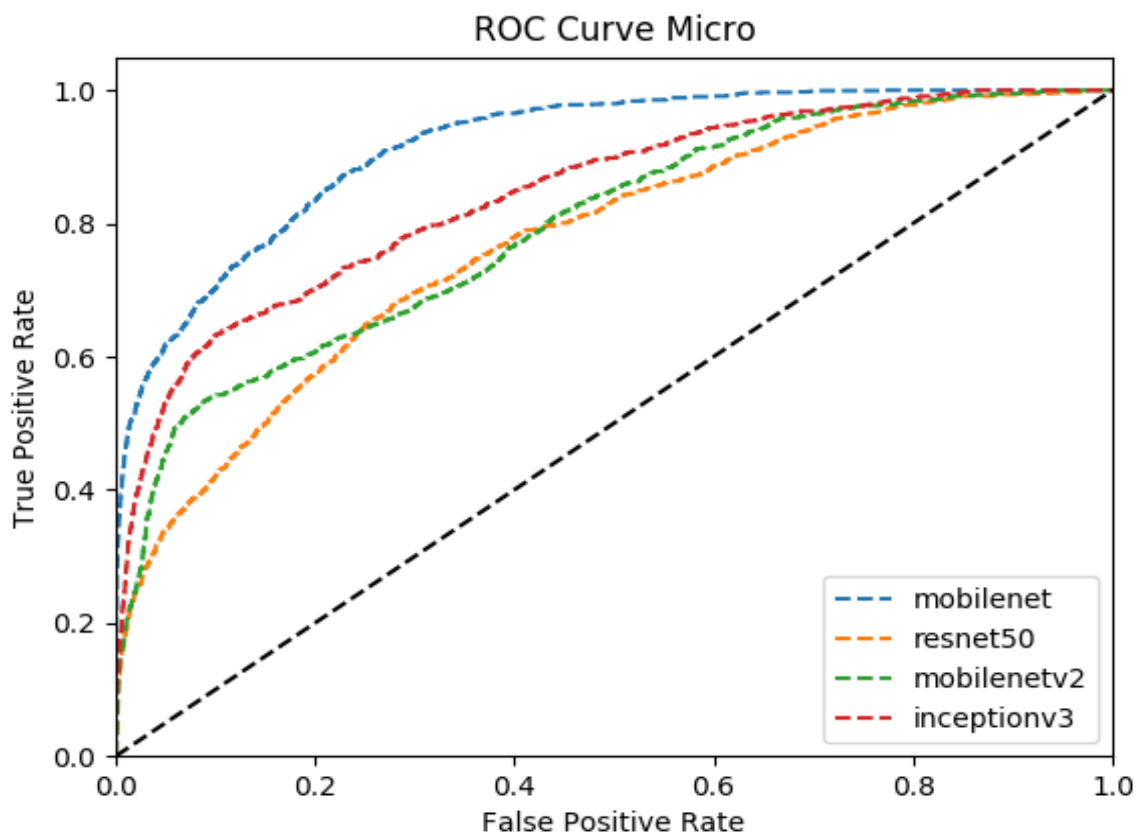
Cuvas de ROC

A receiver operating characteristic curve or ROC curve is considered as a factor commonly used to determine the level of precision in multi-classifier models.

Macro ROC



Micro ROC



Report Classification

This section presents the evaluation of the models using metrics such as Precision Score, F1 Score, Recall Score, the average of the macro and micro Roc curve, denoted as Area Under Curve (AUC) and Kappa Coefficient.

Precision is the ability of a classifier not to label an instance positive that is actually negative. For each class it is defined as the ratio of true positives to the sum of true and false positives.

Recall is the ability of a classifier to find all positive instances. For each class it is defined as the ratio of true positives to the sum of true positives and false negatives.

The F1 score is a weighted harmonic mean of precision and recall such that the best score is 1.0 and the worst is 0.0. Generally speaking, F1 scores are lower than accuracy measures as they embed precision and recall into their computation. As a rule of thumb, the weighted average of F1 should be used to compare classifier models, not global accuracy.

| Model | AUC | Precision score | Recall Score | F1 Score | Kappa Coeff. |
|-------------|--------|-----------------|--------------|----------|--------------|
| mobilenet | 0.9363 | 0.6207 | 0.6207 | 0.6207 | 0.5672 |
| resnet50 | 0.8027 | 0.5479 | 0.5479 | 0.5479 | 0.4629 |
| mobilenetv2 | 0.8334 | 0.5085 | 0.5085 | 0.5085 | 0.4398 |
| inceptionv3 | 0.8678 | 0.5577 | 0.5577 | 0.5577 | 0.496 |