# Identification of Aircraft

# (Final Project Summary)

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Problem Statement:

Aircraft manufacturer Identification given the aircraft image.

Dataset:

The dataset was extracted from the Fine-Grained Visual Classification of Aircraft **(FGVC-Aircraft)** project.

Project Website: <http://www.robots.ox.ac.uk/~vgg/data/fgvc-aircraft/>

Dataset Description:

The dataset contains 10000 images of aircraft. The Aircraft models are organized in a four-levels hierarchy. The four levels, from finer to coarser, are: Model, e.g. Boeing 737-76J. Variant, e.g. Boeing 737-700. Family, e.g. Boeing 737. The dataset comprises 70 different families and Manufacturer, e.g. Boeing. The dataset comprises 41 different manufacturers.

Approach:

Utilize Keras/Tensorflow backend to build a Sequential Convolutional Neural Network (CNN) model that can classify the aircraft manufacturer. The model was designed and trained to differentiate between two different classes [*Boeing* and *Airbus*]

Challenges:

Aircrafts are nearly visually indistinguishable and requires a large neural network and computational resources to capture the aircraft features.

Solution:

Utilize image augmentation techniques to increase the classification accuracy.

Results:

The average validation accuracy for the last 5 training epochs of 50 epochs was 80.08%.

Links:

Two minute (short): <https://youtu.be/nMAg5-aPYaY>

15 minutes (long): <https://youtu.be/XIISTZKJPHg>

Project GitHub URL: <https://github.com/kaliweh/identificationofaircraft>