

PROJECT SPECIFICATION

Dog Breed Classifier**Files Submitted**

CRITERIA	MEETS SPECIFICATIONS
Submission Files	The submission includes all required files.

Step 1: Detect Humans

CRITERIA	MEETS SPECIFICATIONS
Question 1: Assess the Human Face Detector	The submission returns the percentage of the first 100 images in the dog and human face datasets with a detected human face.
Question 2: Assess the Human Face Detector	The submission opines whether Haar cascades for face detection are an appropriate technique for human detection.

Step 2: Detect Dogs

CRITERIA	MEETS SPECIFICATIONS
Question 3: Assess the Dog Detector	The submission returns the percentage of the first 100 images in the dog and human face datasets with a detected dog.

Step 3: Create a CNN to Classify Dog Breeds (from Scratch)

CRITERIA	MEETS SPECIFICATIONS
Model Architecture	The submission specifies a CNN architecture.
Train the Model	The submission specifies the number of epochs used to train the algorithm.
Test the Model	The trained model attains at least 1% accuracy on the test set.

Step 5: Create a CNN to Classify Dog Breeds

CRITERIA	MEETS SPECIFICATIONS
Obtain Bottleneck Features	The submission downloads the bottleneck features corresponding to one of the Keras pre-trained models (VGG-19, ResNet-50, Inception, or Xception).
Model Architecture	The submission specifies a model architecture.
Question 5: Model Architecture	The submission details why the chosen architecture succeeded in the classification task and why earlier attempts were not as successful.
Compile the Model	The submission compiles the architecture by specifying the loss function and optimizer.

CRITERIA	MEETS SPECIFICATIONS
Train the Model	The submission uses model checkpointing to train the model and saves the model weights with the best validation loss.
Load the Model with the Best Validation Loss	The submission loads the model weights that attained the least validation loss.
Test the Model	Accuracy on the test set is 60% or greater.
Predict Dog Breed with the Model	The submission includes a function that takes a file path to an image as input and returns the dog breed that is predicted by the CNN.

Step 6: Write Your Algorithm

CRITERIA	MEETS SPECIFICATIONS
Write your Algorithm	The submission uses the CNN from Step 5 to detect dog breed. The submission has different output for each detected image type (dog, human, other) and provides either predicted actual (or resembling) dog breed.

Step 7: Test Your Algorithm

CRITERIA	MEETS SPECIFICATIONS
Test Your Algorithm on Sample Images!	The submission tests at least 6 images, including at least two human and two dog images.