

# Flower Image Classifier

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# Introduction

There are different kinds of flower species and through the use of labelled image dataset, we seek to classify flower images into classes of different species.

# Use Case

## Research in Botanical studies

As there large no. of flower species, an image classifier of flowers is extremely useful in their studies and finding new flower species



# Scope

- Supervised deep learning classification task
- Develop a model to classify flower images into 102 different species

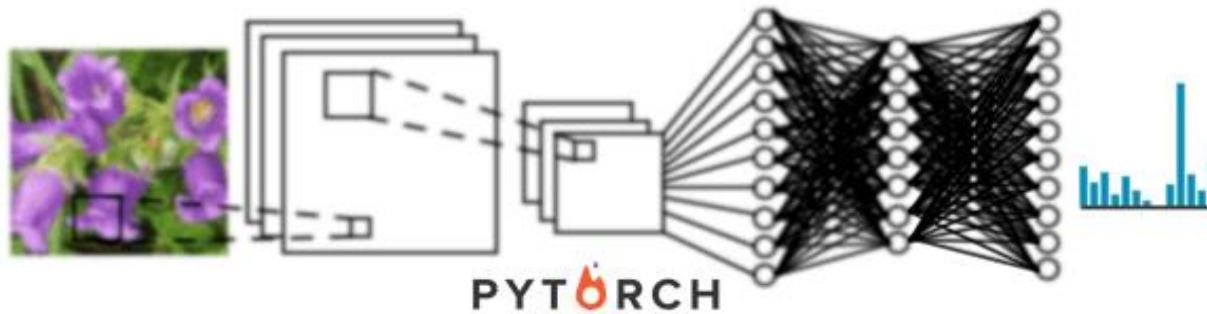
# Features

- Data Augmentation
- Transfer learning from a pre-trained model (ResNet 152) for feature extraction
- Convolutional Neural Network (CNN) using PyTorch

# Data Source

- Automated flower classification over a large number of classes:  
Proceedings of the Indian Conference on Computer Vision,  
Graphics and Image Processing (2008)  
<http://www.robots.ox.ac.uk/~vgg/data/flowers/102/>
- 102 flower categories. Each class consists of between 30 to 158 images.
  - Training and validation dataset contains 6552 images
  - Testing dataset consists 2860 images

# How CNN Works





# AWS Cloud Services



Amazon SageMaker



Amazon S3



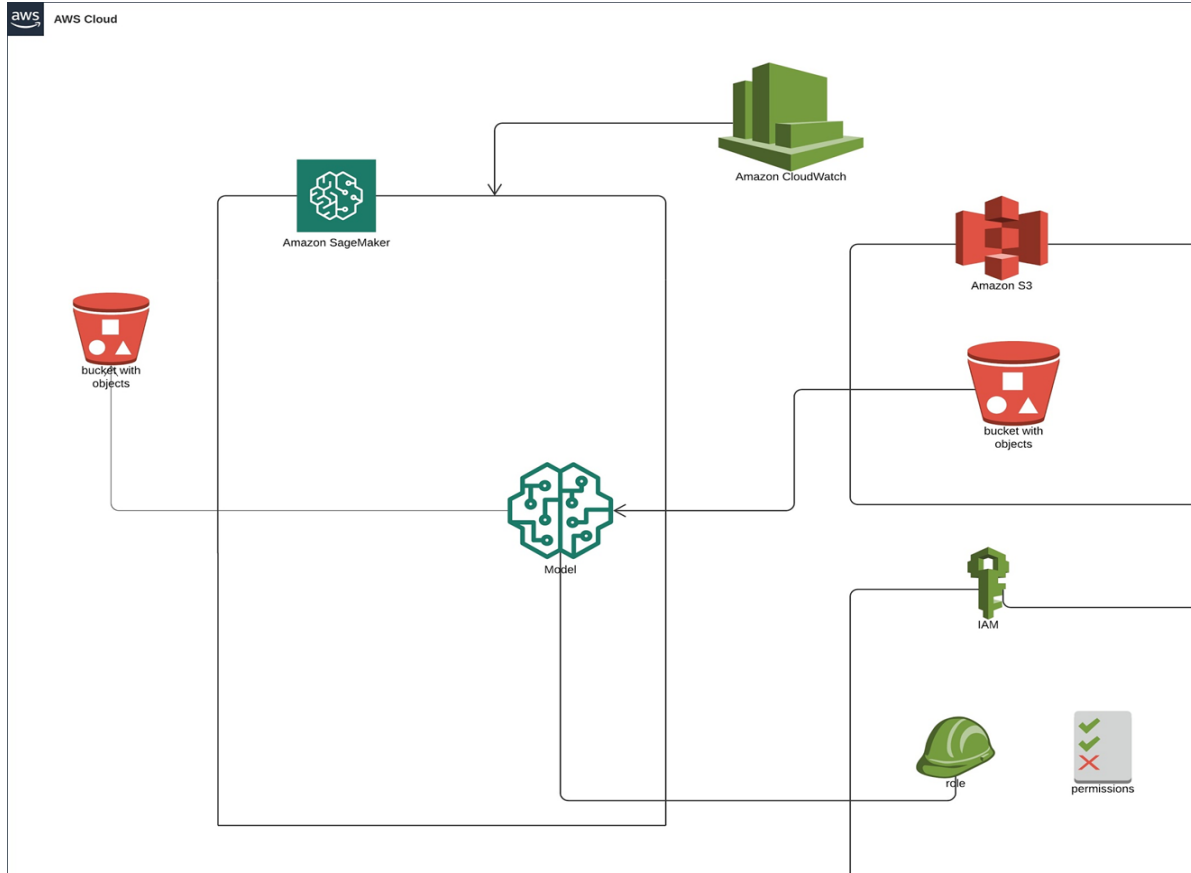
AWS Identity and Access  
Management



Amazon CloudWatch



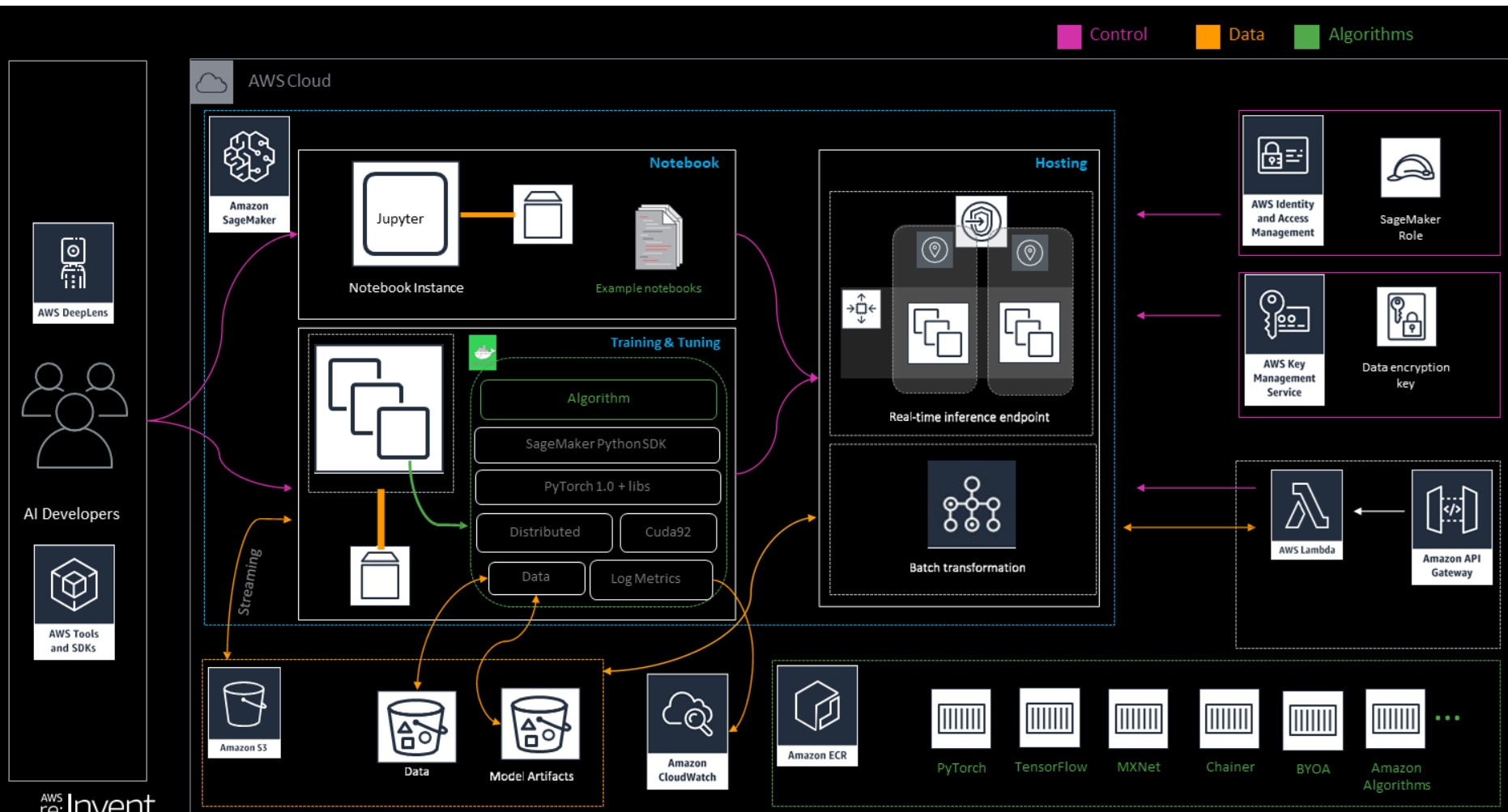
# Architecture



# Training Parameters

Parameter	Value
Pre-trained Model	ResNet 152
Fully Connected Layer I	2048 x 512
Fully Connected Layer II	512 x 102
Activation Function	ReLU
Dropout	0.25
ML Instance (Compute)	ml.p2.xlarge
Learning Rate	0.01
Deep Learning Framework	PyTorch

# Logical Structure of Sagemaker

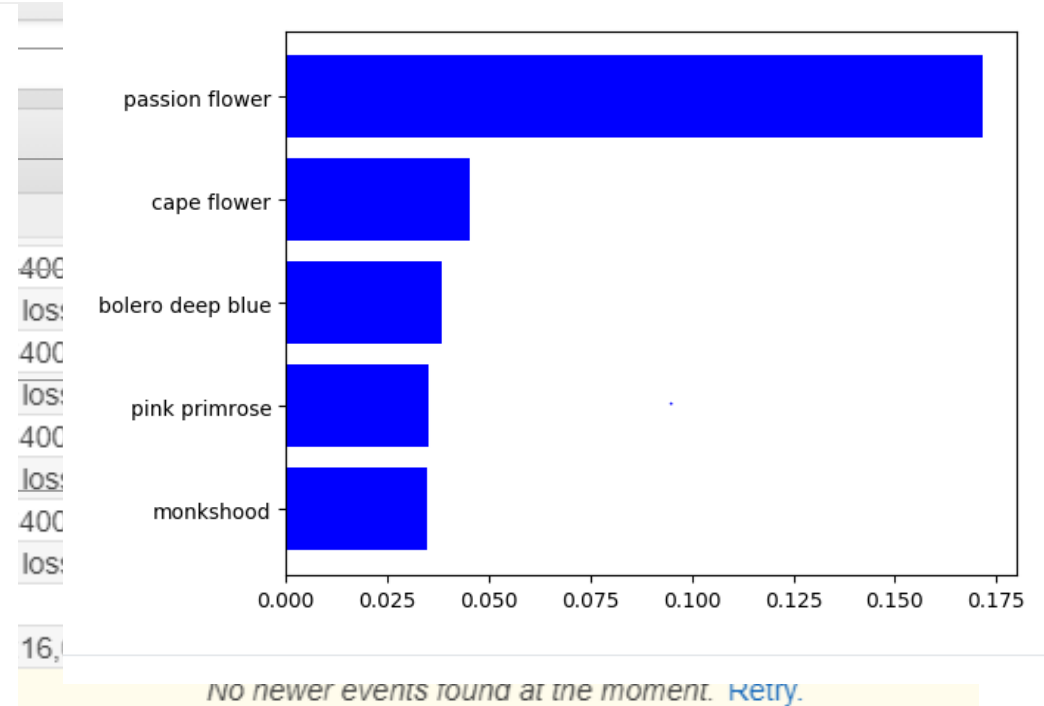
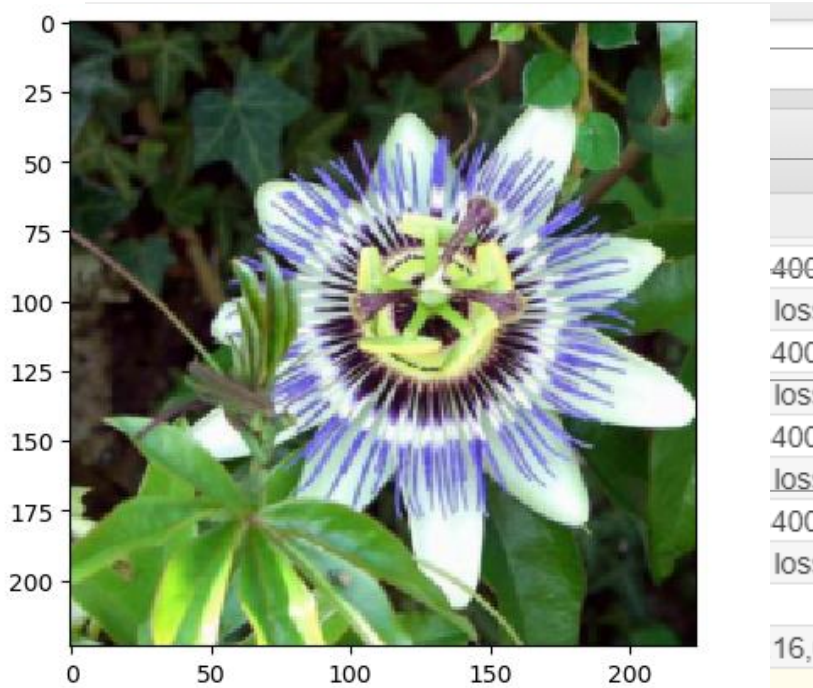


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# Results



# Demo

# Thank You