iWildCam 2019 - FGVC6

Categorize animals in the wild

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開放平台軟體期末專題, 2019

Outline

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Introduction
成員介紹

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- 1043310　施紹唐

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Introduction

專題問題描述

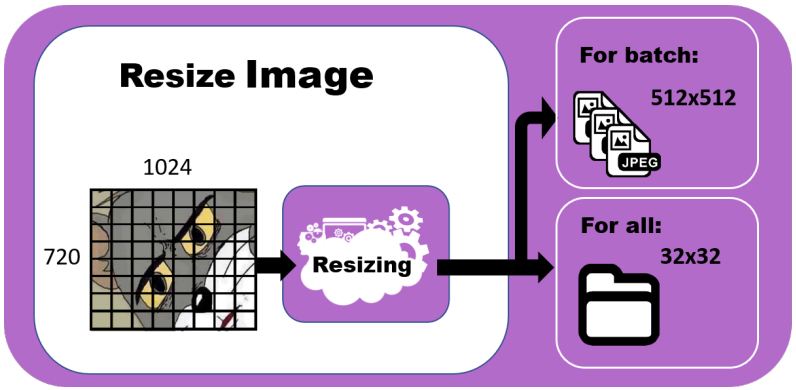
- 我們挑選的主題是Categorize animals in the wild，一個在kaggle上面舉辦的比賽，利用kaggle提供的資料集來訓練出一個模型，讓我們可以藉由這個模型來爲輸入影像分類，模型可以區分22種動物，希望可以藉由訓練出模型來監測觀察不同地區生物生態以及遷移情況，讓研究人員可以更輕易的掌握生態變遷。

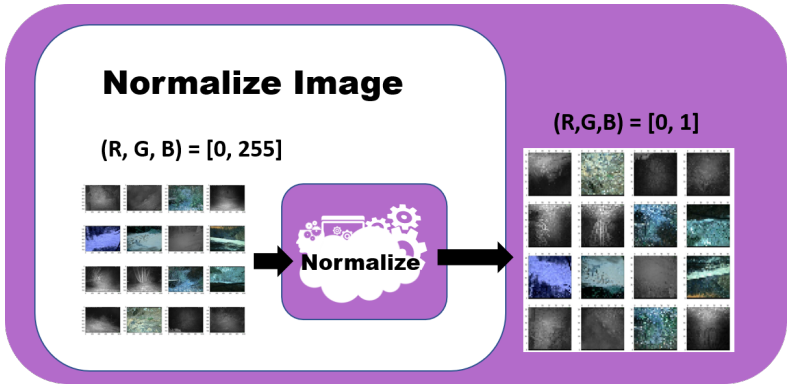
Outline

Methodology

Input of model

- 一個(32,32,3)圖片





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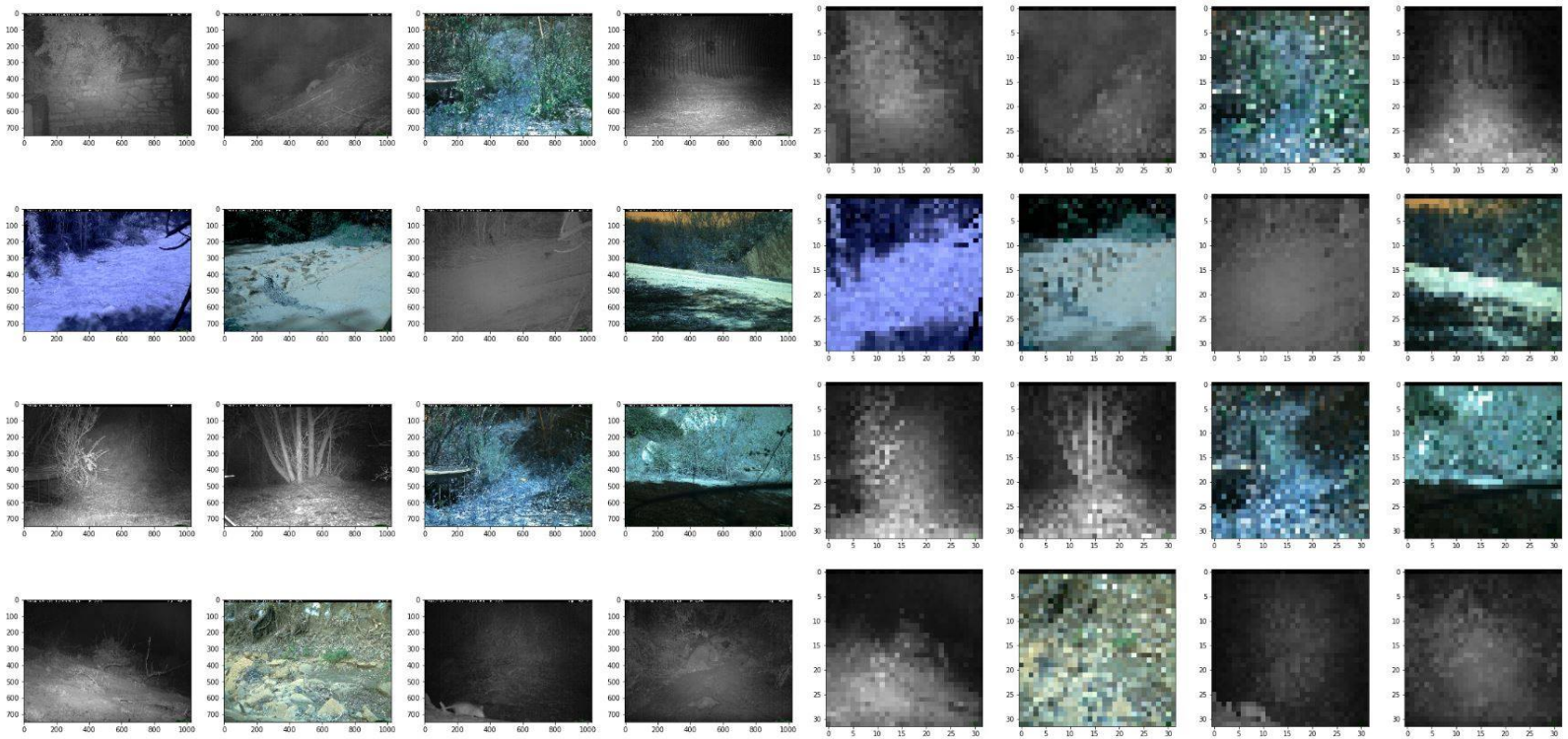
Methodology

Input of model

- 一個(32,32,3)圖片



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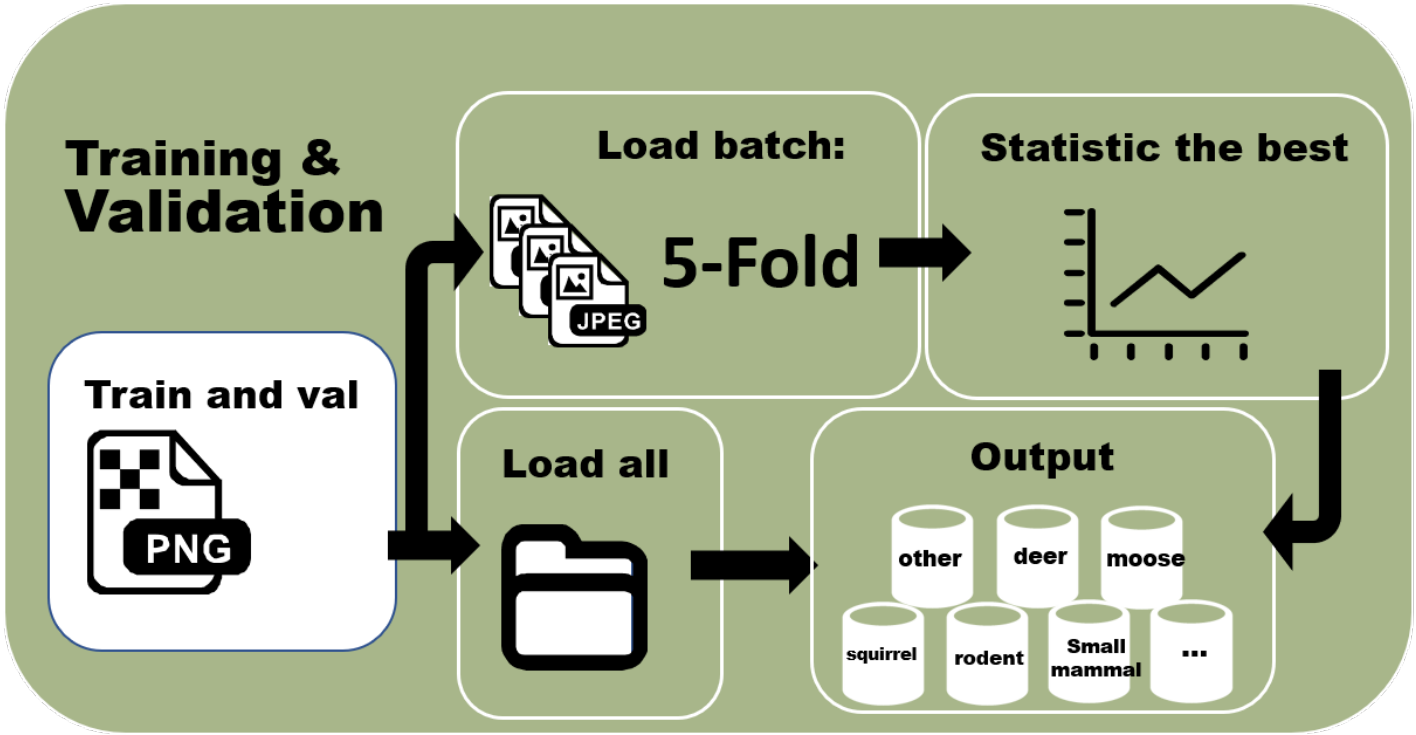
Methodology

Output of model

- 輸出一個權重檔案，model.h5



Outline

Methodology

Layers of model

- Dense121
  GlobalAveragePooling2D(池化層)
  激活函數(將輸出轉爲機率)

```
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
densenet121 (Model)          (None, 1, 1, 1024)        7037504
_________________________________________________________________
global_average_pooling2d_1 ( (None, 1024)              0
_________________________________________________________________
dense_1 (Dense)              (None, 14)                14350
=================================================================
Total params: 7,051,854
Trainable params: 6,968,206
Non-trainable params: 83,648
_________________________________________________________________
```

Outline

Methodology

Model save

- 使用ModelCheckpoint函式儲存框架以及權重

Outline

Methodology

File size of model

```
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
densenet121 (Model)          (None, 1, 1, 1024)        7037504
_________________________________________________________________
global_average_pooling2d_1 ( (None, 1024)              0
_________________________________________________________________
dense_1 (Dense)              (None, 14)                14350
=================================================================
Total params: 7,051,854
Trainable params: 6,968,206
Non-trainable params: 83,648
_________________________________________________________________
```

Outline

Methodology

Loss function

- 使用categorical crossentropy loss function
  因爲我們在最後一層使用softmax激活函數計算機率，通常會搭配categorical crossentropy loss function 使用

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Methodology

Optimizer and hyperparameter

- Optimizer使用adam
  沒有使用hyperparameter

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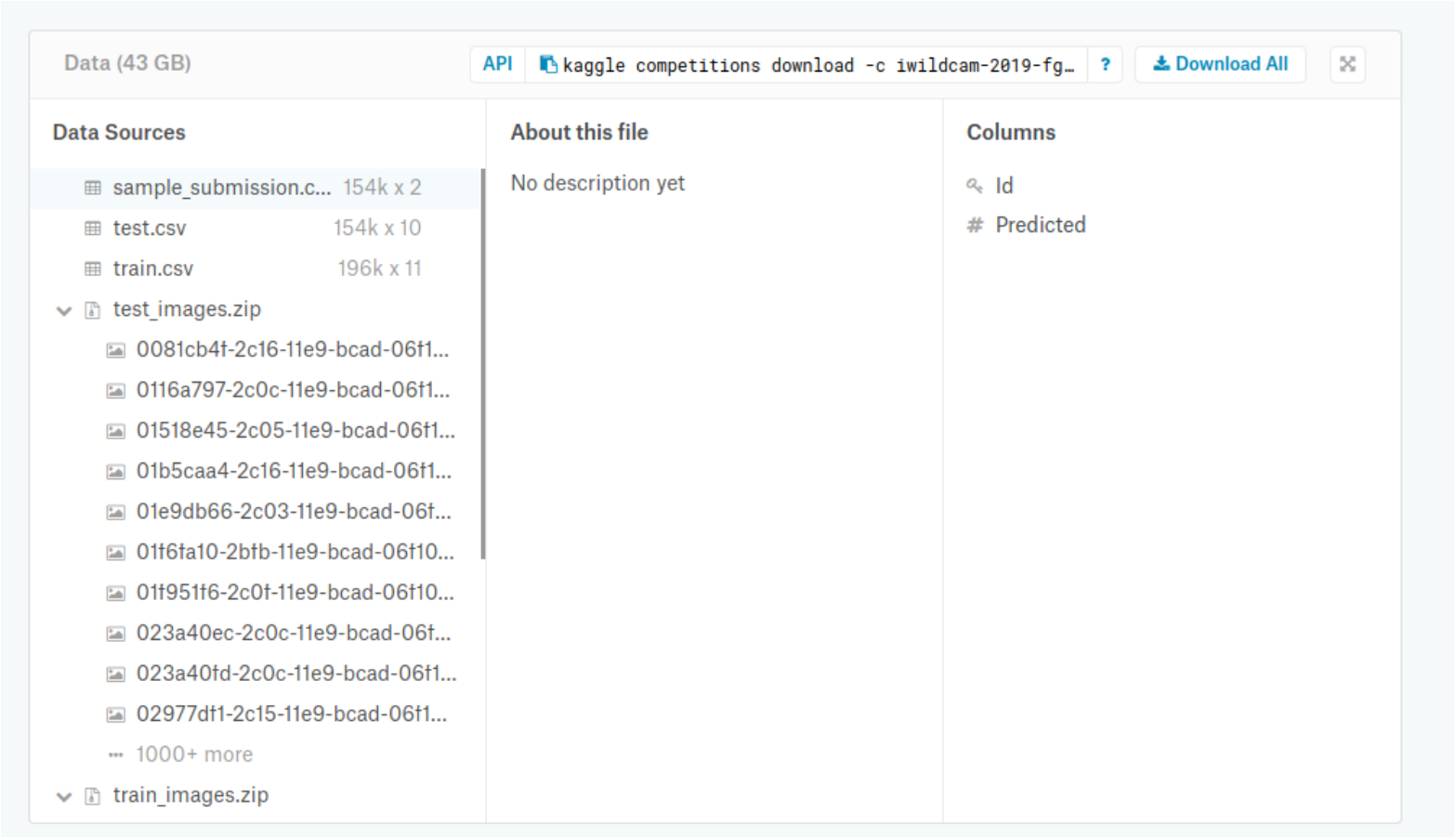
Dataset
資料集大小

- kaggle 競賽提供的資料集43G



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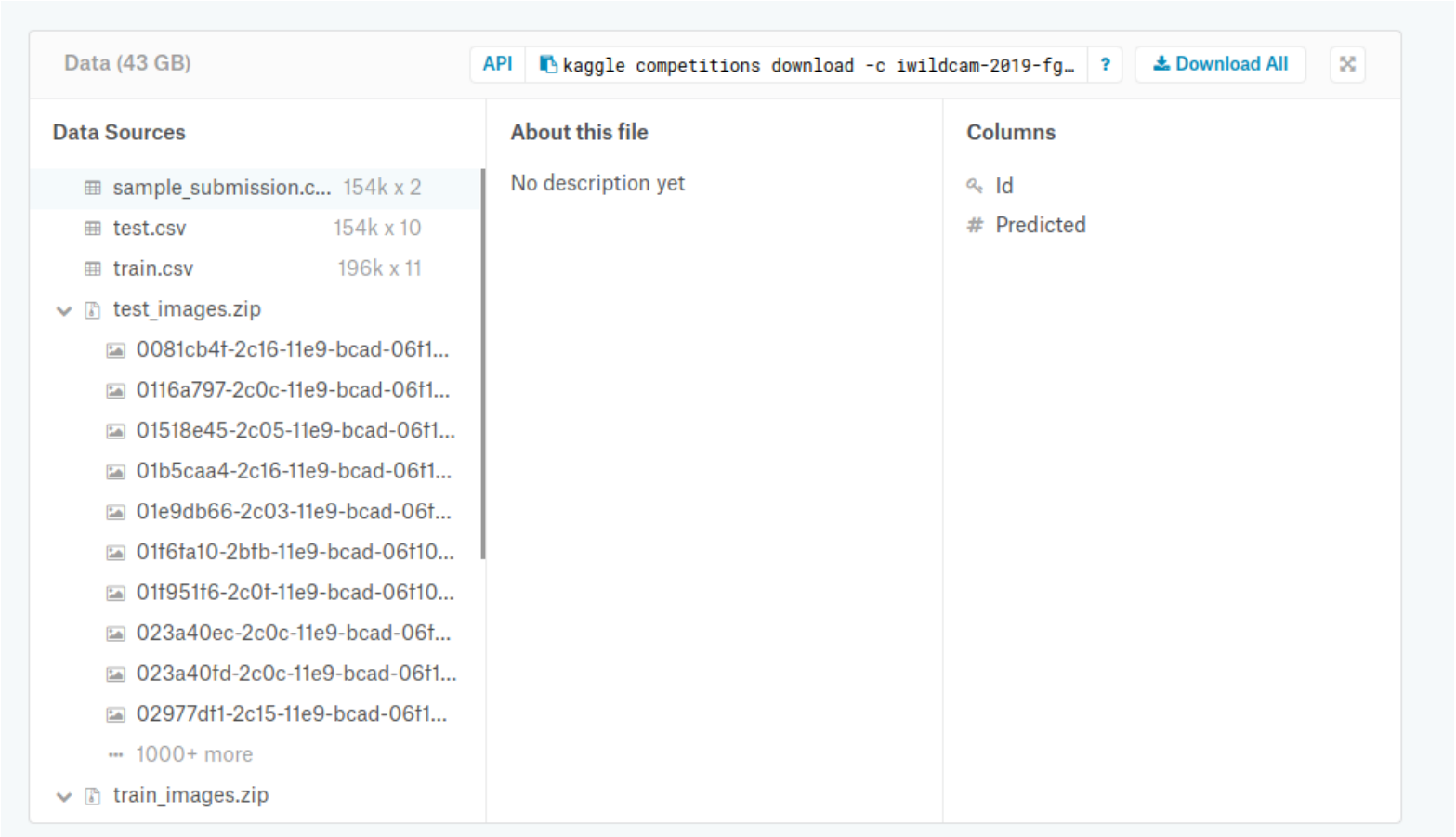
Dataset
資料集來源

- kaggle 競賽提供



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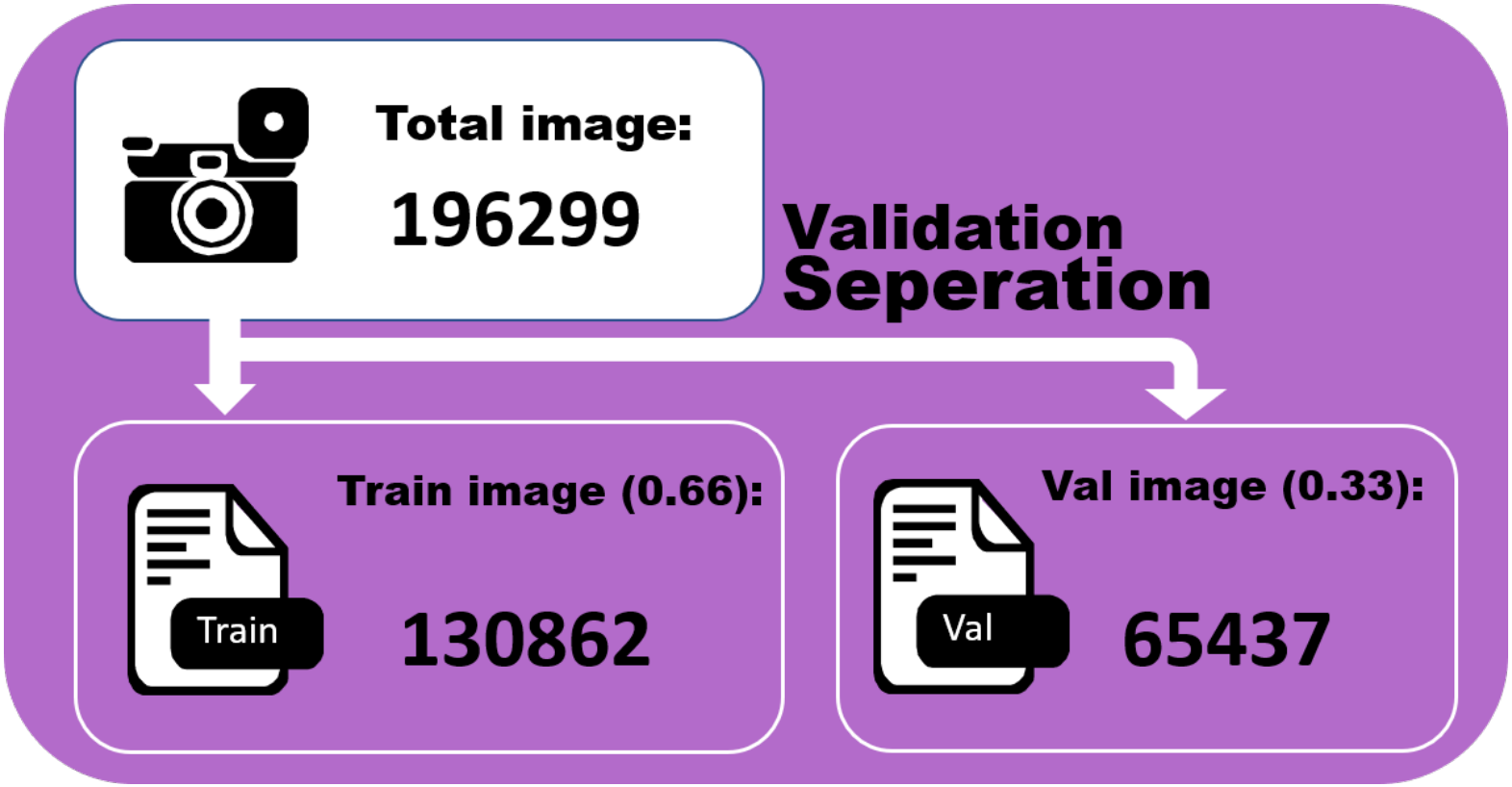
Methodology

訓練樣本數量

- 130862張圖片



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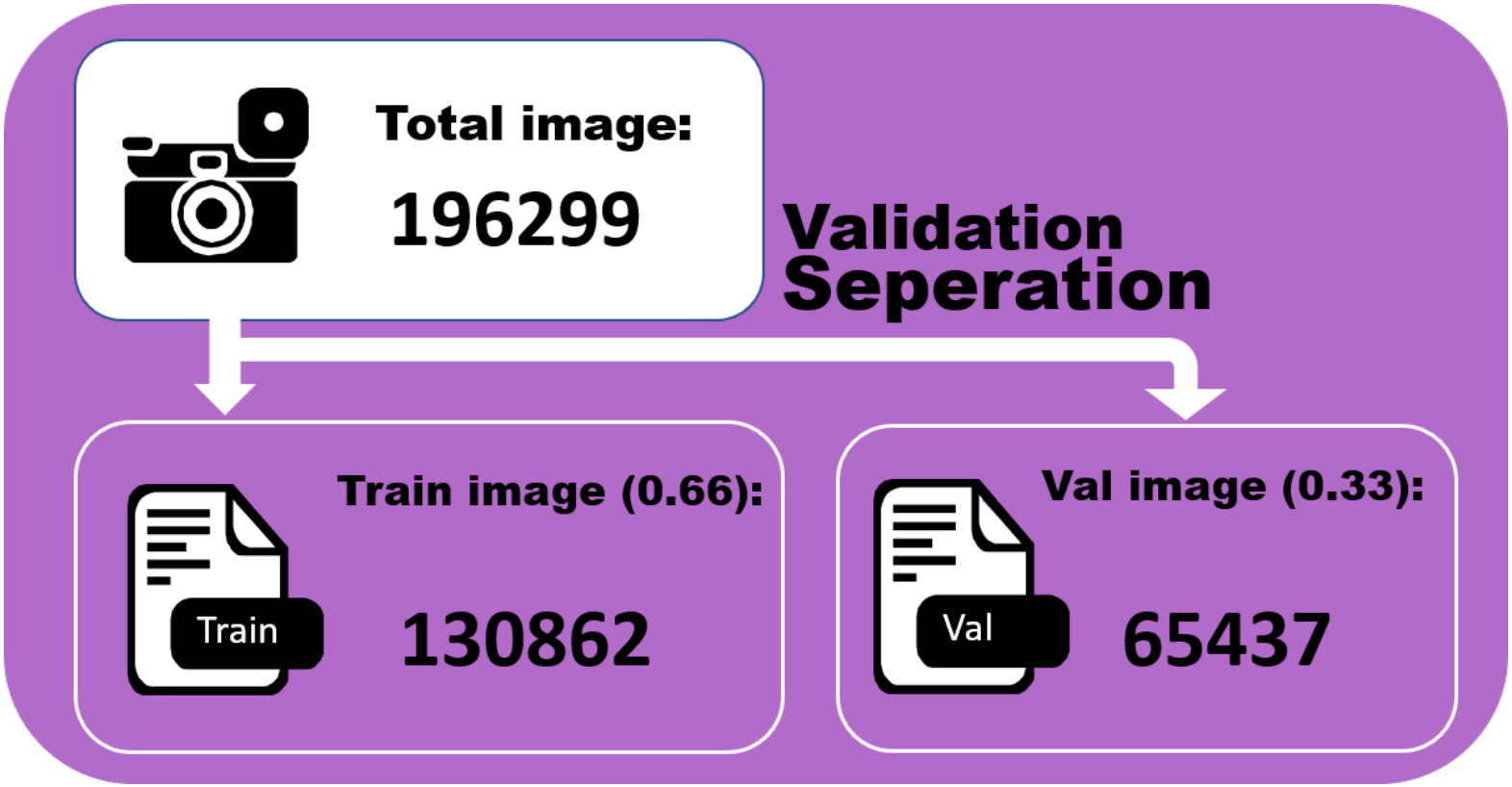
Dataset

驗證樣本數量

- 65437張圖片



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Dataset

測試樣本數量

- 153730張圖片

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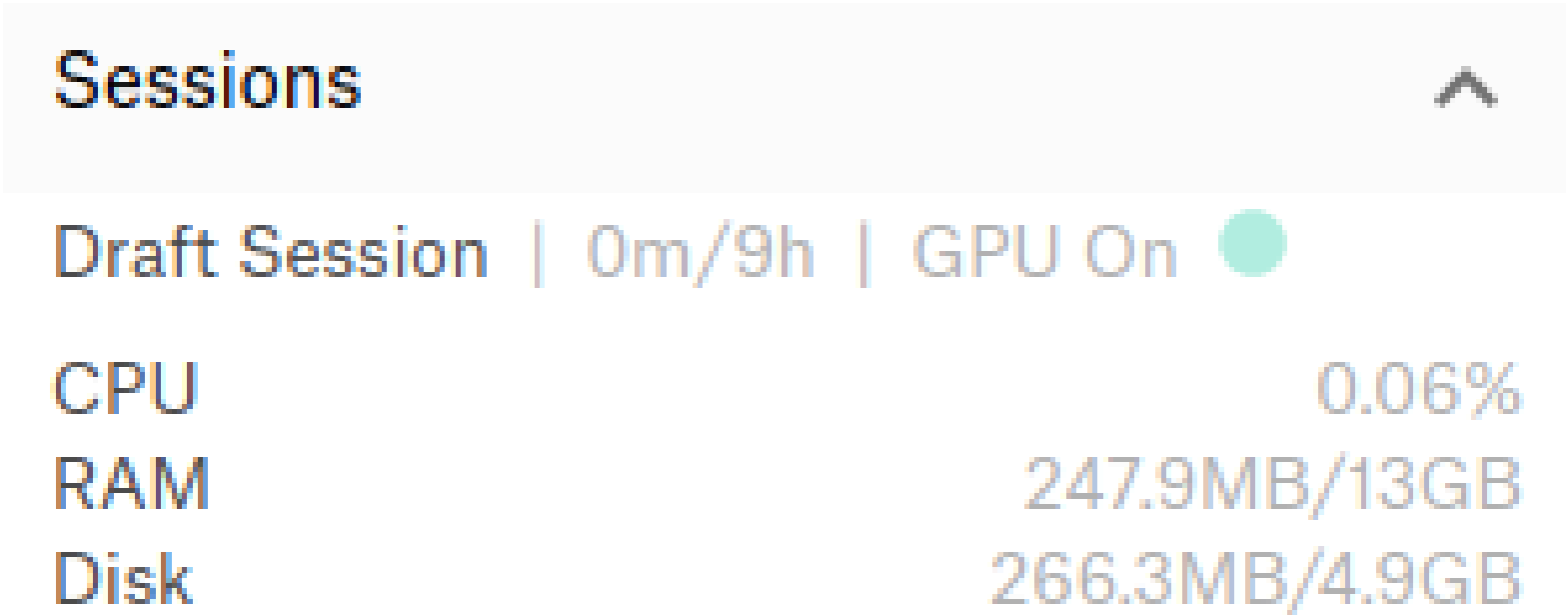
Experimental Evaluation

Experimental environment

- kaggle 競賽提供的kernel



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Experimental Evaluation

Epochs of training

- 35個epochs

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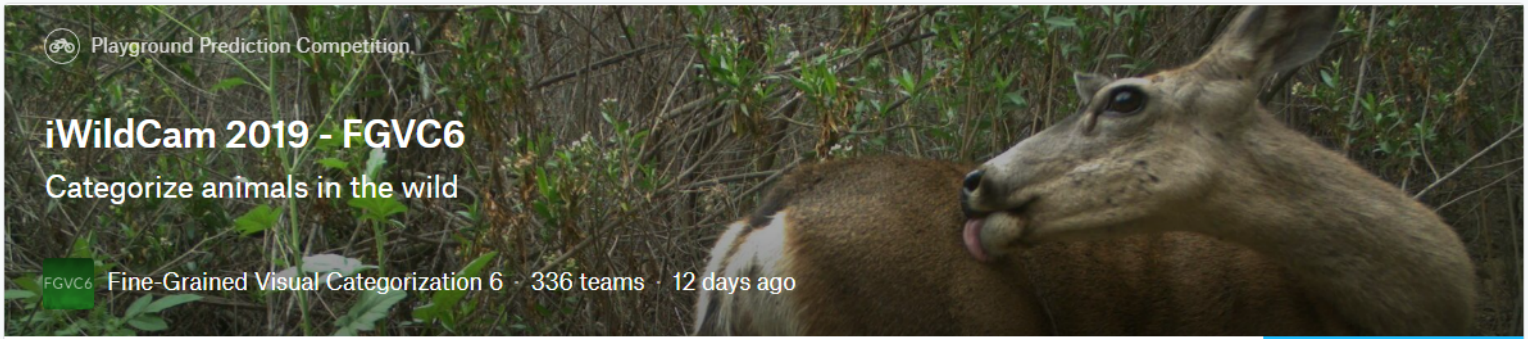
Experimental Evaluation

Qualitative evaluationQualitative evaluation



Overview Data Kernels Discussion Leaderboard Rules Team My Submissions **Late Submission**

rules

Your most recent submission

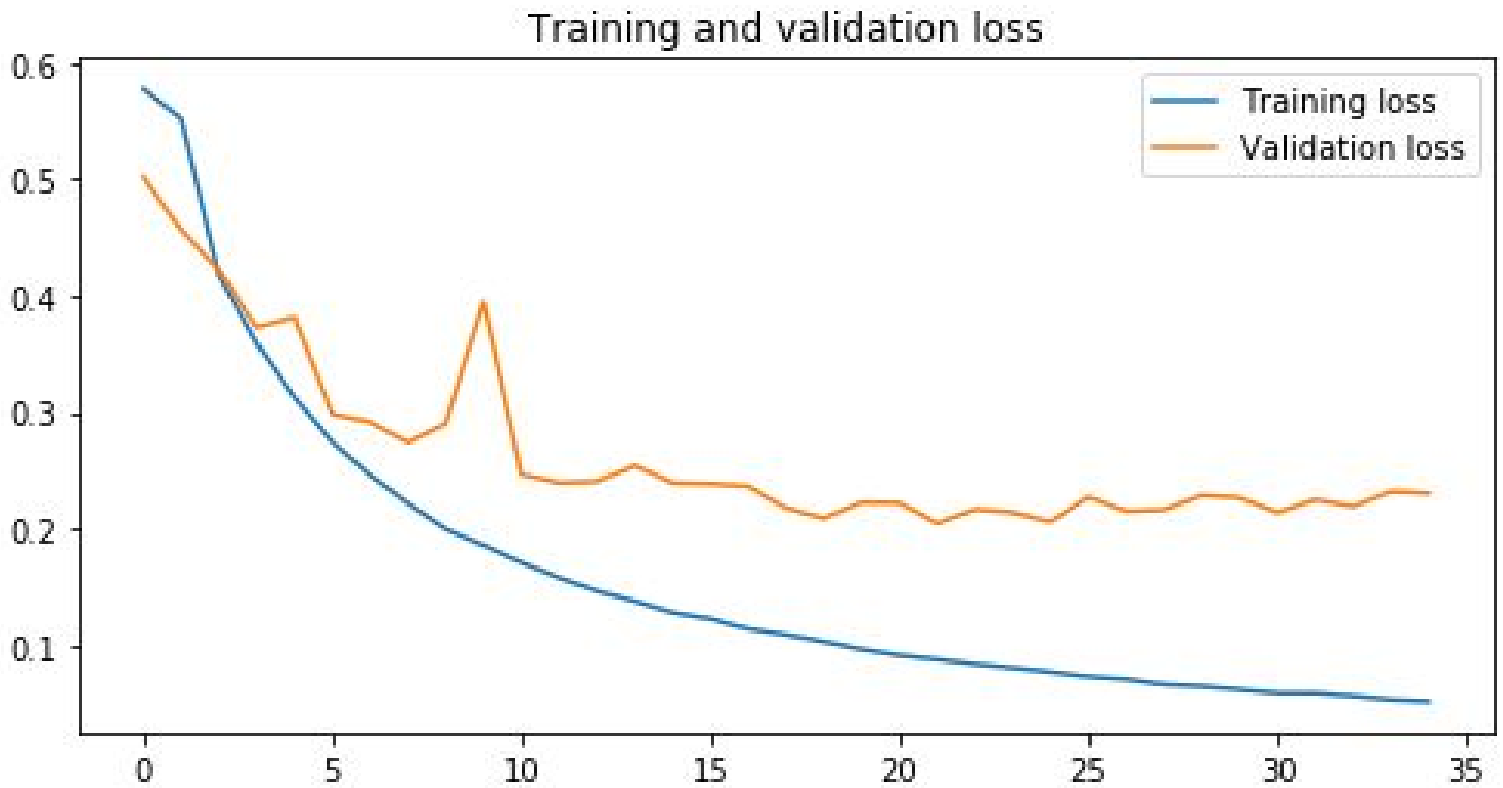
Name	Submitted	Wait time	Execution time	Score
submission.csv	7 days ago	0 seconds	2 seconds	0.125

Complete

Jump to your position on the leaderboard

Experimental Evaluation

Qualitative evaluationQualitative evaluation



Experimental Evaluation

Qualitative evaluationQualitative evaluation