université
de **BORDEAUX**

Report

Deep Learning

Author:
Manh Tu Vu

Supervisor:
MarieBeurton-Aimar

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Contents

Abstract

In this project, we use Deep Learning method to automatic classify images from https://heobs.org into 4 classes, include:

- Heritage

- Beings

- Scenery/Landscape

- Other

1 Introduction

2 Preparing images

2.1 Fetch all images

The entire image dataset described on the text file "photos.txt" line by line. Each line include the image id and image description.

```
5a36f382-dbdf-11e6-95fd-d746d863c3eb | Những người ăn xin  | vie
5a36f382-dbdf-11e6-95fd-d746d863c3eb | Mendiants  | fra
17be8122-dbe0-11e6-860c-5fea02802d0a | Chợ Cũ (3) | vie
17be8122-dbe0-11e6-860c-5fea02802d0a | Vieux marché (3) | fra
400286c8-dbe1-11e6-bb4d-ff975c68de04 | Ngân hàng Đông Dương  | vie
400286c8-dbe1-11e6-bb4d-ff975c68de04 | La Banque de l'Indochine  | fra
```

In order to get the image dataset, we have to fetch each images one by one by join the image id with heobs cdn url https://cdn.heobs.org/photo/. For example, with the first line in the record above, we have the following URL:

```
https://cdn.heobs.org/photo/5a36f382-dbdf-11e6-95fd-d746d863c3eb
```

Finally, we write a smaill python script to automatic read this text file & download images one by one.

2.2 Remove dupplicate images

In the "photos.txt", some image have two languages and then, it consume two lines. As the record above, we have 6 lines but
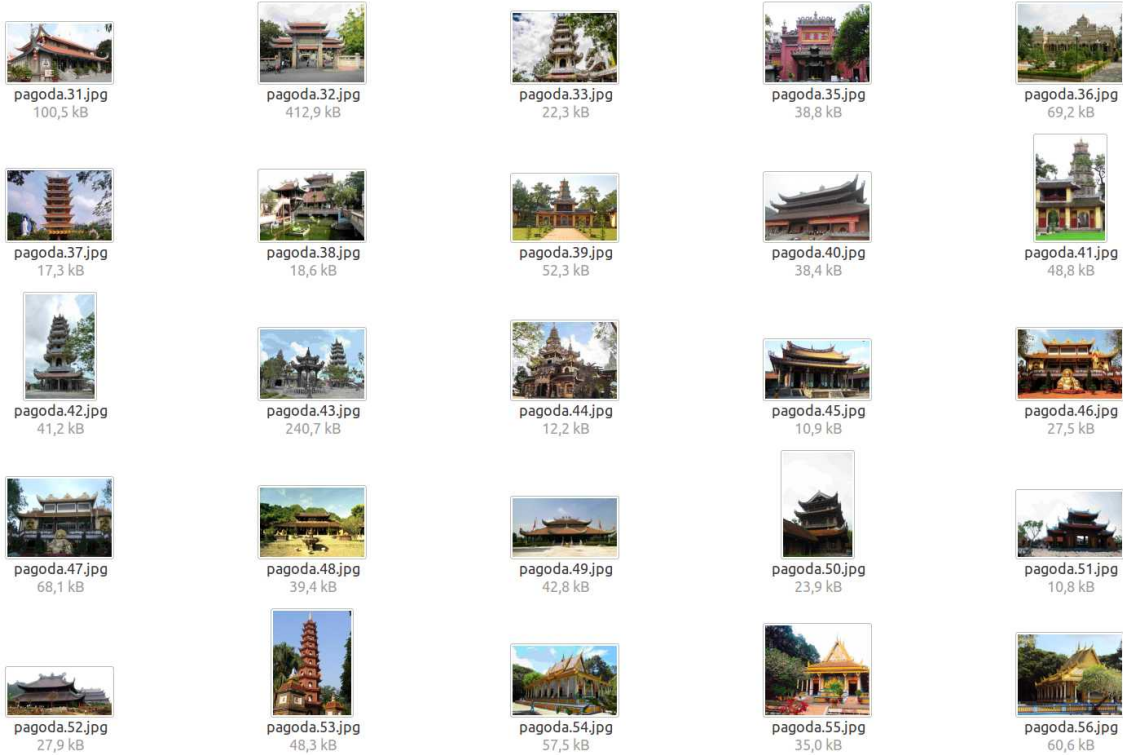
Figure 1: Sample pagoda images from our training dataset

Our training set contains 500 images of pagoda, while the test dataset contains 20 images. The average size for these images is around 350x500.

3   Our solution

3.1   Hardware

We hire Amazon Web Services, create G2 instance:

Model	GPUs	vCPU	Mem (GiB)	SSD Storage (GB)
g2.2xlarge	1	8	15	1 x 60

3.2   Method using

4   Result and Analysis