**Computer Vision HW2 Report**

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**Part 1. (10%)**

**• Plot confusion matrix of two settings. (i.e. Bag of sift and tiny image representation) (5%)**

**Ans:**

|  |  |
| --- | --- |
| **tiny image** | **Bag of sift** |
|  |  |

**• Compare the results/accuracy of both settings and explain the result. (5%)Ans:**

|  |  |  |
| --- | --- | --- |
|  | **tiny image** | **Bag of sift** |
| **accuracy** | **0.204** | **0.6026666666666667** |

tiny image幾乎沒有辦法看出對角線的樣子，只有Highway可以大部分辨識正確，看了圖片後，我想原因是Highway裡的每張照片都是路和天空單調許多，所以就算以整張圖抓feature都能非常相像。對照Kitchen完全無法辨認，因為Kitchen的照片是廚房的各個角落，沒有辦法找到相似的地方。

Bag of sift會以window掃過每張照片的不同位置，更細膩獲得照片的feature，因此對角線非常明顯，accuracy高出許多。

**Part 2. (35%)**

**• Compare the performance on residual networks and LeNet. Plot the learning curve (loss and accuracy) on both training and validation sets for both 2 schemes. 8 plots in total. (20%)**

**Ans:**

|  |  |
| --- | --- |
| **LeNet(myLeNet)** | **residual networks(myResnet)** |
|  |  |

**• Attach basic information of the model you use including model architecture and number of the parameters. (5%)**

**Besides, report the accuracy you performed on the publictest set.**

**Ans:**

|  |  |
| --- | --- |
| **myLeNet(accuracy = 0.4764)** | **myResnet(accuracy = 0.7244)** |
|  |  |

|  |
| --- |
| **resnet18 (accuracy = 0.7474)\_ pretrained model** |
|  |

**• Briefly describe what method do you apply? (e.g. data augmentation, model architecture, loss function, semi-supervised etc.) (10%)**

**Ans:**

data augmentation使用水平、垂直翻轉，與增加圖像顏色

transforms.RandomHorizontalFlip(p=0.5),

transforms.RandomVerticalFlip(p=0.5),

transforms.RandomInvert(p=0.5)

myResnet的model architecture和助教投影片中的一樣，先以stem\_conv初步抽取feature，再三層residual\_block和兩層CNNlayer交錯，classifier用兩層FC作結。

最後選用pytorch的pretraind model resnet18()，model architecture則如上圖所示。