ConveXt的都要跑訓練

**橘色**跟**藍色**的網底，

同網底的是同一個data，不用重複做。

這樣做的原因是因為以 前一個為基準去比較。

通常我每個資料集每個模型都會跑3次訓練，然後取最合適的。

**Table 1.** CNN training result after padding.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **AlexNet** | **VGG16** | **ConvneXt** |
| Original | Accuracy | 83.33% | 76.67% |  |
| Training time | 17sec | 1 min 4sec |  |
| After padding | Accuracy | 86.67% | 83.33% |  |
| Training time | 13sec | 1 min |  |

**Table 2.** CNN training result after data enhancement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **AlexNet** | **VGG16** | **ConvneXt** |
| Paddig | Accuracy | 86.67% | 83.33% |  |
| Training time | 13sec | 1 min |  |
| Padding + Enhancement | Accuracy | 89.07% | 86.67% |  |
| Training time | 1 min 9 sec | 5 min 11 sec |  |

**Table 3.** CNN training result after expanding the cropping range. 在擴展切割範圍後(有先資料擴增)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **AlexNet** | **VGG16** | **ConvneXt** |
| Original YOLOv8 cropping | Accuracy | 89.07% | 86.67% |  |
| Training time | 1 min 9 sec | 5 min 11 sec |  |
| Expand x=20px , y=0px | Accuracy | 88.75% | 90.00% |  |
| Training time | 1 min 10ec | 5 min 10 sec |  |
| Expand x=0px , y=40px | Accuracy | 88.75% | 87.92% |  |
| Training time | 1 min 8 sec | 5 min 9 sec |  |
| Expand x=20x , y=40px | Accuracy | 87.08 | 87.08% |  |
| Training time | 1 min 6sec | 5 min 9 sec |  |

**Table 4.** CNN training result after image processing. 在影像處理後(高斯高通濾波器/自適應直方圖均衡化)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **AlexNet** | **VGG16** | **ConvneXt** |
| Original(padding,enhancement) | Accuracy | 89.07% | 86.67% |  |
| Training time | 1 min 9 sec | 5 min 11 sec |  |
| Gaussian high-pass filter | Accuracy | 90.83% | 90.00% |  |
| Training time | 1 min 16 sec | 5 min 12 sec |  |
| Adaptive histogram equalization | Accuracy | 90.42% | 87.92% |  |
| Training time | 1 min 9 sec | 5 min 12 sec |  |
| Gaussian high-pass filter +  Adaptive histogram equalization | Accuracy | 92.92% | 90.42% |  |
| Training time | 1 min 7 sec | 5 min 12 sec |  |

**對應資料夾名稱**

**Table 1.**

|  |  |
| --- | --- |
|  | **資料集名稱** |
| Original | origin |
| After padding | origin\_padding |

**Table 2.**

|  |  |
| --- | --- |
|  | **資料集名稱** |
| Paddig | origin\_padding |
| Padding + Enhancement | origin\_padding\_enhanced.4 |

**Table 3.**

|  |  |
| --- | --- |
|  | **資料集名稱** |
| Original YOLOv8 cropping | origin\_padding\_enhanced.4 |
| Expand x=20px , y=0px | origin\_crop\_x20\_y0\_padding\_enhanced.4 |
| Expand x=0px , y=40px | origin\_crop\_x0\_y40\_padding\_enhanced.4 |
| Expand x=20x , y=40px | origin\_crop\_x20\_y40\_padding\_enhanced.4 |

**Table 4.**

|  |  |
| --- | --- |
|  | **資料集名稱** |
| Original(padding,enhancement) | origin\_padding\_enhanced.4 |
| Gaussian high-pass filter | origin\_padding\_enhanced.4\_GH\_d4 |
| Adaptive histogram equalization | origin\_padding\_enhanced.4\_AHE\_c4\_t4-4 |
| Gaussian high-pass filter +  Adaptive histogram equalization | origin\_padding\_enhanced.4\_GH\_d4\_AHE\_c4\_t4-4 |