Homework 1

OpenCV與AVX

Step 1. 任意影像做灰階

Step 2. 將灰階圖進行Threshold，小於128為0、大於等於128為255

Step 3. 進行Morphology 的 Open與Close，各做一百次，Kenrel由3\*3至9\*9記錄其執行速度。

比對以下項目的差別：

1.沒有使用AVX

2.使用AVX

3.查Multi Thread(Map & Reduce)加速

Morphology Open Operation Running 1000 time

|  |  |  |
| --- | --- | --- |
| Kernel | Using AVX (s) | Without AVX (s) |
| 3x3 | 0.1959 | 1.3343 |
| 4x4 | 0.2142 | 1.8740 |
| 5x5 | 0.2320 | 2.0366 |
| 6x6 | 0.2541 | 2.5080 |
| 7x7 | 0.2956 | 2.8968 |
| 8x8 | 0.3076 | 3.3848 |
| 9x9 | 0.3398 | 4.7608 |

Morphology Close Operation Running 1000 time

|  |  |  |
| --- | --- | --- |
| Kernel | Using AVX (s) | Without AVX (s) |
| 3x3 | 0.2243 | 1.3633 |
| 4x4 | 0.2789 | 1.8207 |
| 5x5 | 0.2670 | 2.1121 |
| 6x6 | 0.3027 | 2.5041 |
| 7x7 | 0.3201 | 2.9857 |
| 8x8 | 0.3386 | 3.4193 |
| 9x9 | 0.3610 | 4.0903 |