Matching 16 images using rough ROI without oneSearchMaskOnTheOther



The average image of chip1 ,chip2



The average image of chip3 ,chip4

The average of the difference is 11.2333.

Matching 16 images using oneSearchMaskOnTheOther previously

I expand 2 pixels on the top, bottom, left and right.



The average image of chip1 ,chip2

 

The average image of chip3 ,chip4

The average of the difference is 11.4536.

The text region’s location of every chip is different, so the alignment result of the word below the chip is disappointing. But without a previous accurate cut, the average of the difference is lower than cutting previously and the average image is cleaner. Which template should I choose?

Matching 16 images using oneSearchMaskOnTheOther previously

This time I cut away 4 pixels on the top, bottom, left and right and threw away 2 bad images.

 The average image of chip1 ,chip2

 

The average image of chip3 ,chip4

The average of the difference is 10.9877. It improves a little. I use these as template to align all the chips.

I use those templates to align images in set4 and get every chip’s norm map. Then I use set5’s image as an input instance. If I am going to find out if chip2 in set5 is chip1, I will use chip1’s template to align the input, then I calculate the norm map of the input and calculate the correlation of the input and chip1’ norm map in set4.

The results are shown in the tables below. (In the tables, the vertical group is input, and the horizontal group is reference.)

Correlation for Norm map X

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Set4 (Reference) | | | |
| Chip1 | Chip2 | Chip3 | Chip4 |
| Set5  (Input) | Chip1 | 0.7129 | 0.0019 | -0.0106 | 0.0494 |
| Chip2 | -0.0014 | 0.4499 | 0.0273 | -0.0243 |
| Chip3 | -0.0230 | 0.0105 | 0.3923 | 0.0303 |
| Chip4 | -0.0474 | 0.0114 | 0.0088 | 0.4568 |

Correlation for Norm map Y

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Chip1  (Reference) | Chip2 | Chip3 | Chip4 |
| Chip1  (input) | 0.6483 | 0.0752 | 0.0476 | 0.0675 |
| Chip2 | 0.1238 | 0.5617 | 0.0545 | 0.0948 |
| Chip3 | 0.0684 | 0.0942 | 0.7779 | 0.0665 |
| Chip4 | 0.0622 | 0.0518 | 0.0735 | 0.7778 |

Background without text regions of the norm map

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlation  Norm map X | Chip1  (Reference) | Chip2 | Chip3 | Chip4 |
| Chip1  (input) | 0.6904 | -0.0029 | -0.0107 | 0.0004 |
| Chip2 | 0.0091 | 0.4407 | 0.0177 | 0.0004 |
| Chip3 | -0.0021 | 0.0068 | 0.3149 | -0.0073 |
| Chip4 | -0.0461 | -0.0064 | 0.0041 | 0.4299 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlation  Norm map Y | Chip1  (Reference) | Chip2 | Chip3 | Chip4 |
| Chip1  (input) | 0.6363 | 0.0686 | 0.0598 | 0.0699 |
| Chip2 | 0.1364 | 0.5359 | 0.0847 | -0.0700 |
| Chip3 | 0.0712 | 0.0970 | 0.7653 | 0.0579 |
| Chip4 | 0.0515 | 0.0666 | 0.0632 | 0.7485 |

Text regions of the norm map

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlation  Norm map X | Chip1  (Reference) | Chip2 | Chip3 | Chip4 |
| Chip1  (input) | 0.7589 | 0.0079 | -0.0082 | 0.1228 |
| Chip2 | -0.0196 | 0.4631 | 0.0428 | 0.0614 |
| Chip3 | -0.0495 | 0.0177 | 0.5000 | 0.0984 |
| Chip4 | -0.0454 | 0.0387 | 0.0186 | 0.5028 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Correlation  Norm map Y | Chip1  (Reference) | Chip2 | Chip3 | Chip4 |
| Chip1  (input) | 0.6721 | 0.0872 | 0.0305 | 0.0627 |
| Chip2 | 0.0970 | 0.6126 | 0.0015 | 0.1288 |
| Chip3 | 0.0644 | 0.0894 | 0.8039 | 0.0829 |
| Chip4 | 0.0835 | 0.0309 | 0.0900 | 0.8244 |

The results show that the correlation of different chips is lower than the correlation of the same chip, no matter background or text regions.