Choice: Average_face_cropped.png

Justification

ground_truth_file='ground_truth.txt';

template=read_gray('average_face.png');

scales=make_scales_array(1, 5, 1.1);

iou_thr=0.5; %IoU thresholds

		Average_face.png	Average_face_cropped.png
Detection thresholds=0.4	True Positive rate	0.323	0.523
	False Positive	0.020	0.048
Detection thresholds=0.5	True Positive rate	0.446	0.431
	False Positive	0.921	0.658
Detection thresholds=0.6	True Positive rate	0.308	0.231
	False Positive	0.744	0.211
Detection thresholds=0.7	True Positive rate	0.769	0.615
	False Positive	0.286	0

Based the detection result, we can see that both template got similar true positive rate, however, the number of false positive is much larger when using template 'Average_face.png'. Therefore, I choose the template 'Average_face_cropped.png'.

Average_face.png with detection thresholds = 0.4, IoU thresholds= 0.5

detection_thr=0.4

The number of True Positive in the detection result: tp=21

The number of False Positive in the detection result: fp=1004

The number of False Negative in the ground truth location: fn=44

True positive ratio: 21/(21+44)=0.323

False Positive Rate: 21/(21+1004)=0.020

Average_face_cropped.png with detection thresholds = 0.4, IoU thresholds= 0.5

detection_thr=0.4

The number of True Positive in the detection result: tp=34

The number of False Positive in the detection result: fp=677

The number of False Negative in the ground truth location: fn=31

True positive ratio: 34/(34+31)=0.523

False Positive Rate: 34/(34+677)=0.048

Average_face.png with detection thresholds = 0.5, IoU thresholds= 0.5

The number of **True Positive** in the detection result: tp=**29**

The number of **False Positive** in the detection result: fp=**339**

The number of **False Negative** in the ground truth location: fn=**36**

To measure detection accuracy:

True positive ratio: 29/(36+29)=0.446

False Positive Rate: 339/(29+339)= 0.921

Average_face_cropped.png with detection thresholds = 0.5, IoU thresholds= 0.5

The number of True Positive in the detection result: tp=28

The number of False Positive in the detection result: fp=54

The number of False Negative in the ground truth location: fn=37

To measure detection accuracy:

True positive ratio: 28/(28+37)=0.431

False Positive Rate: 54/(54+28)=0.658

Average_face.png with detection thresholds = 0.6, IoU thresholds= 0.5

detection_thr=0.6

The number of True Positive in the detection result: tp=20

The number of False Positive in the detection result: fp=58

The number of False Negative in the ground truth location: fn=45

True positive ratio: 20/(20+45)=0.308

False Positive Rate: 58/(20+58)=0.744

Average_face_cropped.png with detection thresholds = 0.6, IoU thresholds= 0.5

detection_thr=0.6

The number of True Positive in the detection result: tp=15

The number of False Positive in the detection result: fp=4

The number of False Negative in the ground truth location: fn=50

True positive ratio: 15/(15+50)=0.231

False Positive Rate: 4/(15+4)=0.211

Average_face.png with detection thresholds = 0.7, IoU thresholds= 0.5

detection_thr=0.7

The number of True Positive in the detection result: tp=5

The number of False Positive in the detection result: fp=2

The number of False Negative in the ground truth location: fn=60

True positive ratio: 5/(5+60)=0.769

False Positive Rate: 2/(2+5)=0.286

Average_face_cropped.png with detection thresholds = 0.7, IoU thresholds= 0.5

detection_thr=0.7

The number of True Positive in the detection result: tp=4

The number of False Positive in the detection result: fp=0

The number of False Negative in the ground truth location: fn=61

True positive ratio: 4/(4+61)=0.615

False Positive Rate: 0