**Task 4.1P Answer sheet**

Fill in outputs and discussions required in the tables below

**Notes**:

* Missing any required outputs will result in a re-submission.

**1. Face detection**

**a. Face detection in ‘abba.png’ when varying scaleFactor (don’t change other parameters)**

|  |  |  |
| --- | --- | --- |
|  | **Detection results** | **Processing time (in sec)** |
| **scaleFactor=1.1, minNeighbors=5, minSize=(30,30)** | A group of people posing for a photo  AI-generated content may be incorrect. | 0.19197773933410645 seconds |
| **scaleFactor=1.5, minNeighbors=5, minSize=(30,30)** |  | 0.020003080368041992 seconds |
| **scaleFactor=2.0, minNeighbors=5, minSize=(30,30)** |  | 0.014725685119628906 seconds |

**Discussion of the results (in terms of detection accuracy and processing speed)**

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**b. Face detection in ‘abba.png’ when varying minNeighbors (don’t change other parameters)**

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| --- | --- | --- |
|  | **Detection results** | **Processing time (in sec)** |
| **scaleFactor=1.1, minNeighbors=0, minSize=(30,30)** |  | 0.17852091789245605 seconds |
| **scaleFactor=1.1, minNeighbors=5, minSize=(30,30)** |  | 0.07021212577819824 seconds |
| **scaleFactor=1.1, minNeighbors=50, minSize=(30,30)** |  | 0.07567524909973145 seconds |

**Discussion of the results (in terms of detection accuracy and processing speed)**

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**c. Face detection in ‘abba.png’ when varying minSize (don’t change other parameters)**

|  |  |  |
| --- | --- | --- |
|  | **Detection results** | **Processing time (in sec)** |
| **scaleFactor=1.1, minNeighbors=5, minSize=(10,10)** |  | 0.07681560516357422 seconds |
| **scaleFactor=1.1, minNeighbors=5, minSize=(30,30)** |  | 0.06595587730407715 seconds |
| **scaleFactor=1.1, minNeighbors=5, minSize=(100,100)** |  | 0.015561342239379883 seconds |

**Discussion of the results (in terms of detection accuracy and processing speed)**

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**d. Set scaleFactor=1.1, minNeighbors=5, minSize=(30,30), report face detection results and processing time for the images img\_1014.jpg and img\_1123.jgp**

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| --- | --- | --- |
|  | **Detection results** | **Processing time (in sec)** |
| **img\_1014.jpg** |  |  |
| **img\_1123.jpg** |  |  |

**Are all the faces detected? If not, what are the missing faces? What could be the reason?**

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**2. Pedestrian detection**

**a. Investigate the impact of nms to pedestrian detection in the images person\_029.png, person\_032.png, and person\_236.png (don’t change other parameters, i.e., winStride=(4,4), padding=(6,6), scale=1.05). For each test case, please report both the detection results and processing time (in sec).**

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| --- | --- | --- |
|  | **Detection results without using boxes = nms(boxes)** | **Detection results using boxes = nms(boxes)** |
| **person\_029.png** | Example:  A group of people posing for a photo  AI-generated content may be incorrect.  Processing time: 12345 |  |
| **person\_032.png** | Processing time: | Processing time: |
| **person\_236.png** | Processing time: | Processing time: |

**b. Investigate the impact of padding to pedestrian detection in the images person\_029.png and person\_032.png (don’t change other parameters, i.e., winStride=(4,4), scale=1.05, using nms).**

|  |  |  |
| --- | --- | --- |
|  | **padding=(0,0)** | **padding=(6,6)** |
| **person\_029.png** |  |  |
| **person\_032.png** |  |  |

**c. Investigate the impact of winStride to pedestrian detection in the images person\_222.png, person\_265.png, and person\_303.png (don’t change other parameters, i.e., padding=(6,6), scale=1.05, using boxes=nms(boxes)). For each test case, please report both the detection results and processing time (in sec).**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **winStride=(4,4)** | **winStride=(8,8)** | **winStride=(12,12)** |
| **person\_222.png** | Example:  A group of people posing for a photo  AI-generated content may be incorrect.  Processing time: 12345 | Processing time: | Processing time: |
| **person\_265.png** | Processing time: | Processing time: | Processing time: |
| **person\_303.png** | Processing time: | Processing time: | Processing time: |

**d. Investigate the impact of scale to pedestrian detection in the images crop001706.png, crop001718.png, and crop001521.png (don’t change other parameters, i.e., winStride=(4,4), padding=(6,6), using boxes=nms(boxes)). For each test case, please report both the detection results and processing time (in sec).**

|  |  |  |
| --- | --- | --- |
|  | **scale = 1.05** | **scale = 1.2** |
| **crop001706.png** | Example:  A group of people posing for a photo  AI-generated content may be incorrect.  Processing time: 12345 | Processing time: |
| **crop001718.png** | Processing time: | Processing time: |
| **crop001521.png** | Processing time: | Processing time: |