Computer Vision Assignment

- Target: Simple Instance Face Detection

- Description: Two images were given for your assignment. TestImage.jpg is the test image and FaceImage is the instance face image cropped from TestImage. Now detectFace.m was made by “Cross-Correlation” but it does not make a good result. How to solve this problem and why it does not work correctly?

- Due: 16/April 11:00 PM

- Submit your code (ID\_Name.zip) and report (ID\_Name.pdf) to Ajou BB

- Korean students write the report in Korean only, and foreign students write it in English only.

- Check the following report template and do not exceed 3 pages in your report.

- “detectFace.m” is the main function for this assignment.

(Remove the above description when submitting your report,

Report 제출시 상단 설명 제거)

**Simple Instance Face Detection**

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| --- | --- |
| **Name:** | **ID:** |
| **Output Image (정답 출력 화면 캡쳐)** | |
| (Attached your output image here) | |
| [1] Describe the main reason why the given framework (based on Cross-correlation) does not work correctly for detecting the instance face image. (주어진 코드가 동작하지 않는 이유 기술) | |
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| [2] Propose the proper method for fixing the given framework using Euclidean distance (ED). (ED를 이용한 개선 방향 설명) | |
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| [3] After modifying the code using ED, describe the performance changes according to the different threshold. (Threshold 변화에 따른 성능 변화 기술) | |
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| [4] Describe the procedure of NMS (non-maximum suppression) in this example. (얼굴 검출에서NMS 사용 이유 및 동작 원리 간단 설명) | |
|  | |
| [5] Describe the fundamental limitation of this method and propose how to modify the current framework for detecting another face.  \* Do not consider using deep learning and boosting theory. Do not consider adding more templates or face instances.  (딥러닝이나 부스팅 방법과 같은 얼굴 검출용 알고리즘을 사용하지 않고 현재 있는 코드에서 다른 얼굴을 검출할 수 있는 방법론을 제시하시오. 단, 등록 얼굴은 주어진 1개 faceimage.jpg로 가정하고 복수 얼굴을 등록하지 않고 검출 방법은 고민해 볼 것.) | |
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