Project Proposal
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Description

This project addresses the problem of images tampered using the copy-move attack, i.e., when an area of an image is copied and then pasted onto another zone to create duplication. Amerini used the SIFT (Scale-Invariant Feature Transform) to detect such modifications [2]. However, there are many other feature detectors, and considering that SIFT is not free, we will evaluate others feature detectors to detect such modifications and make a comparison between efficiency and performance of those.

Motivation

The problem of copy-move attack is important to solve because it is getting easier every day to make this type of forgery. The comparison among many feature detectors could lead to a better performance in the detection of this falsification. We want to make this comparison because new feature detectors are being created, and we want to find a good features detector that is not copyrighted, and is faster than the SIFT.

Novelty

None of those papers presented a comparison among feature detectors in the context of the copy-move attacks detection.

Methods

We are going to use Python, Numpy, OpenCV, maybe C++ or Matlab if some code are only available in this languages. We are going to evaluate the following feature detectors:

- SIFT (Scale-Invariant Feature Transform) [5]
- SURF (Speeded-Up Robust Features) [3]
- FAST (Features from Accelerated Segment Test) [6] [7]
- ORB (Oriented FAST and Rotated BRIEF) [8]
- FREAK (Fast retina keypoint) [1]

Potential Risks

Some of these feature detectors could not be already implemented in Python, and then we could not complete the process to port it to Python. Some of these feature detectors could not be suitable for the copy-move attack detection.

Potential Sucess

We could compare the time performance and the efficiency of these features detectors and produce a valuable research.

References

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