

1. Project description

With the advent of mainstream computing, Internet and digital photography, many digital videos circulate around the world. The falsification of these videos has become an unavoidable reality, especially in the area of cybercrime. These changes may be relatively innocuous (to change the appearance of a person in order to move skin imperfections or to eliminate the defects of an object for sale online) or have serious social consequences (to build the improbable meeting of political figures). The third case, the most serious in terms of the establishment of digital forgery, is the origin of this project.

Specifically, this project is in the field of digital forensics. This is to certify that a video is tampering. This certification must be as reliable as possible because digital proof of falsification can only be proven if the detection method used provides very few false results. A video is naturally composed of several images, which are themselves composed of different distinct areas corresponding to portions (objects, landscapes, etc.) of the filmed scene. The research of this inconsistency, which is often not very significant if the forgery is done with talent, is the main difficulty of digital forensics.

A reliable way to define consistency between areas of an image involves typically relying on "physical fingerprints" generated by the acquisition process photography. This project proposes to detect the fingerprints using a statistical hypothesis test that checks the consistency of these parameters in the video.

2. References

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