SCC0251 - Image Processing
Prof. Moacir Ponti

Final Project Proposal - Group 2
Detection of digital alterations in real images

Ariella Yamada Brambila - 8937034
Rodrigo de Andrade Santos Weigert - 8937503
Universidade de São Paulo
São Carlos

19/05/2017

1 Abstract

Given a seemingly real image, our goal is to detect whether it has been substantially altered by image editing softwares (e.g. Adobe Photoshop, GIMP) and, when possible, locate the regions in which such alterations ocurred. Types of alterations we want to focus on detecting include addition/removal of objects and alterations of shapes, borders, sizes.

2 Description

The more the internet grows, greater is the number of digitally altered ("photoshopped") images circulating in it. The (relatively) old internet saying "pics or didn't happen" already lost a lot of its original value due to the popularization of image editing softwares like Photoshop and GIMP. Those are some of our motivations for this final project idea.

Our objective is to detect whether a digital and real-looking image has been "photoshoped", i.e., whether it had its content modified by the aforementioned softwares. Since there's a rather wide range of ways an image could be altered, we want to focus on a small subset of them: addition (figure 1) and removal (figure 2) of objects and alterations of shapes, borders and sizes (figure 3).

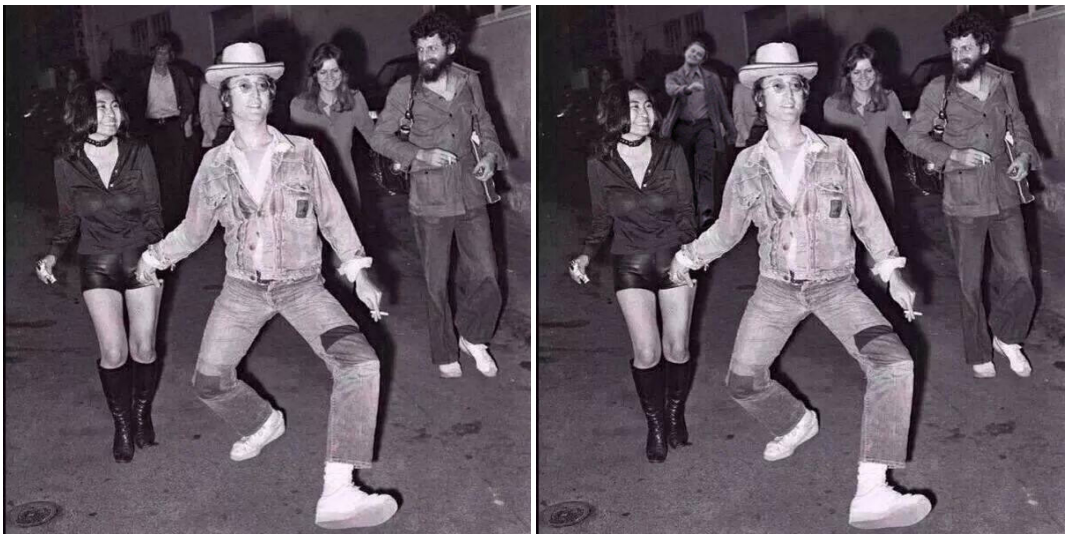

Figure 1: Object addition instance. A stray Leonardo DiCaprio was inserted.

We also would like to locate the possible alterations in the image, potentially generating a new image where the detected alterations are highlighted.

Since we have no previous experience in the field of image processing, we don't know how viable our idea is considering our knowledge and time constraint. It could have to suffer changes and adaptations as we develop the project. One related idea that could be considered is to try to decide whether a real-looking image is real or computer generated.

Figure 2: Object removal instance.

Figure 3: Tiny hands. Size alteration instance.