



HAL
open science

Should I trust this image ?

Cédric Maigrot, Ewa Kijak, Vincent Claveau

► **To cite this version:**

Cédric Maigrot, Ewa Kijak, Vincent Claveau. Should I trust this image?. WIFS 2017 - 9th IEEE International Workshop on Information Forensics and Security, Dec 2017, Rennes, France. pp.1. hal-01844080

HAL Id: hal-01844080

<https://inria.hal.science/hal-01844080>

Submitted on 19 Jul 2018

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

SHOULD I TRUST THIS IMAGE ?

Cédric Maigrot Ewa Kijak Vincent Claveau
 {firstname}.{lastname}@irisa.fr



Computer !
Help me !

Is this image forged ?



Can I find similar images?



Query



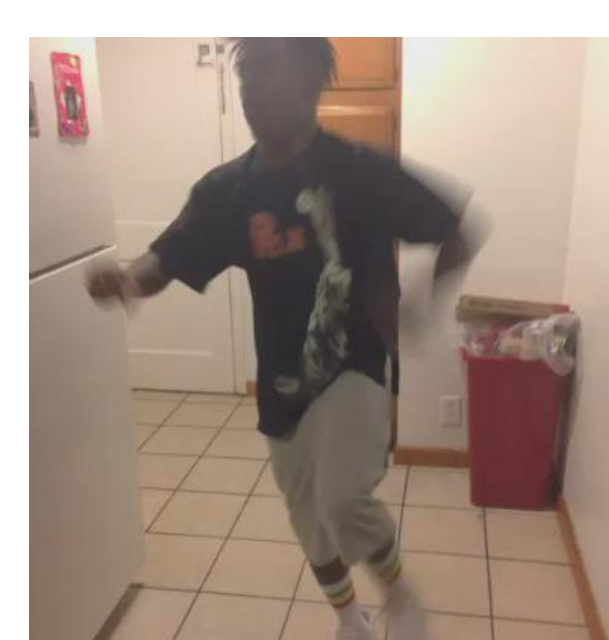
Candidate 1



Candidate 2



Candidate 3



Candidate 4



Candidate 5

How these images differ?

Detecting the outliers



Query



Selected candidate

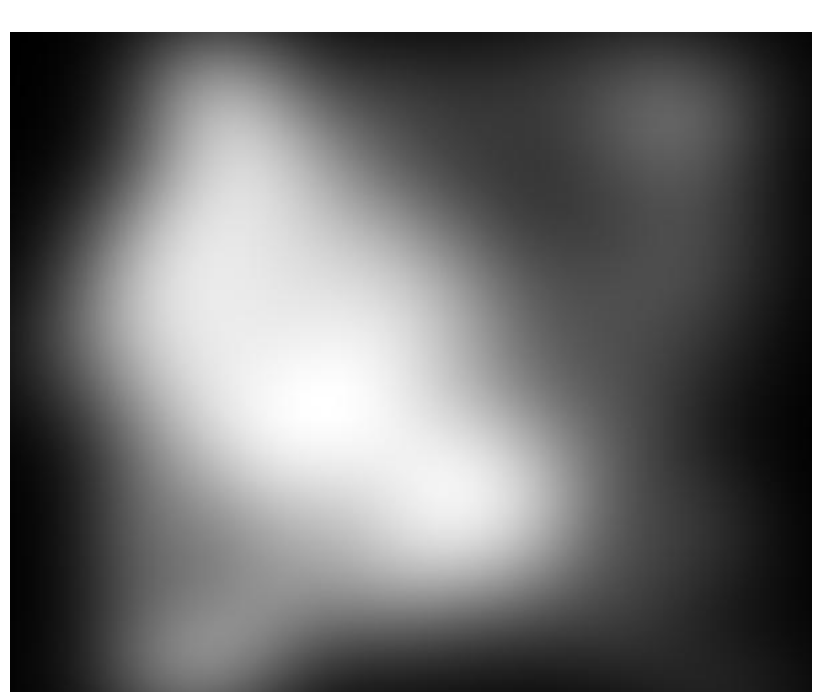


Estimated homography

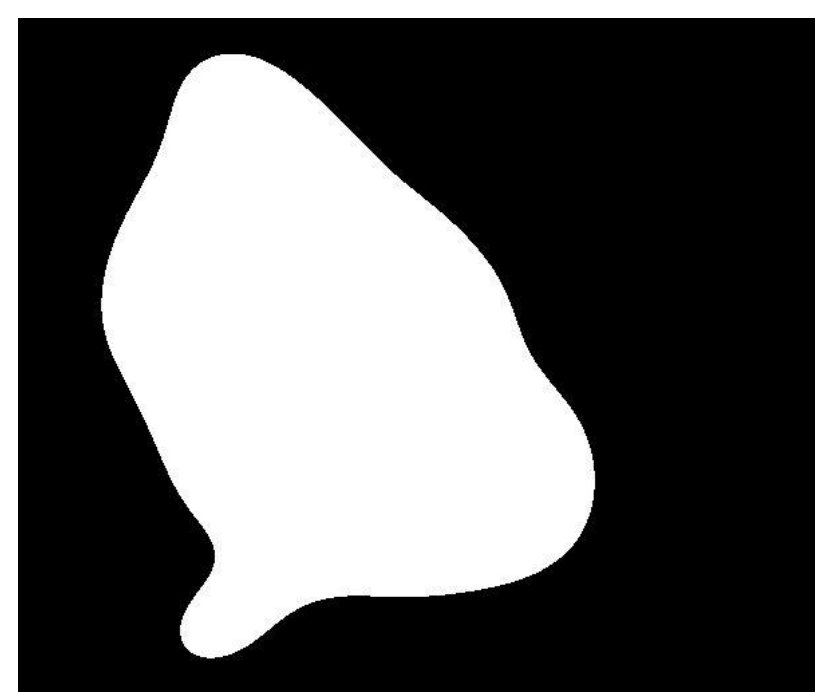


Outliers

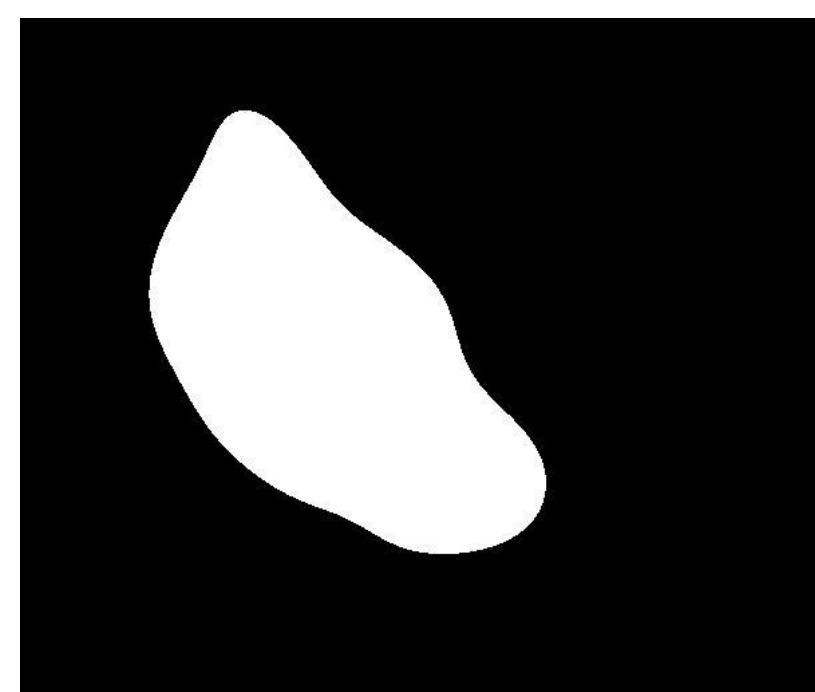
Transforming the outliers into a binary map



Outliers density map (DM), gaussian kernel



Binarized DM ($\theta = 0.50 \times \max$)



Binarized DM ($\theta = 0.75 \times \max$)



Binarized DM, uniform kernel



Ground truth

Ok, and then, what can be said?

Modifications characterization



Detected area extraction ($\theta = 0.50$)

Type of modification:

- Text
- Shape
- Person
- Other

Which one is the original image?

Is there any visual information relevant to identify the original image?

