

# **Automatic Lens Smear Detection**

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# General Approach

- SimpleCV (Python)
- Effecting the brightness and the color of the photo in order to bring out the smear and more easily apply a mask
- Note: This approach only works for light-colored smears (most likely not dirt)

# Step 1

How to detect the smear?

By blurring the rest of the image, the smear itself becomes more visible.



## Step 2

Brightening the image of the previous step in order to more easily capture the smear.



# Future Steps

SimpleCV provides functionality to capture 'blobs' or clusters of pixels.

The next step consists of finding smaller blobs (this helps avoid the sky or large objects that are not likely to be smears) and applying a mask afterward.

# Challenges

1. At first glance, SimpleCV seems to have the needed functionality, but unfortunately much of their documentation was not up to date
2. The approach developed does not address darker smears/flecks of dirt
3. Due to time, and difficulties with creating the blobs, it was not possible to finish this approach.