An implementation for person detection* : A quick review of how computer vision algorithm can perform withouth AI

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5. Apply a thresholding algorithm to binarize the image.

6. Apply a dilation operation into the binarized images to expand the whites.

7. Use a contour algorithm to extract the diferent regions containing persons.

3 Method 2

1. Import images in color.

2. Generate an image from the averaging from all the images we have.

3. Substract the background to the images using the average image.

4. Apply a thresholding algorithm to binarize the image.

5. Apply a dilation operation into the binarized images to expand the whites.

6. Use a contour algorithm to extract the diferent regions containing persons.

4 Preprocessing

5 Background Removal

Background removal is a process that allows the programmer to remove the background from the image, this way, the result image with this process allows a better binarization of the image.

5.0.1 Image Averaging

5.0.2 Image Substraction

6 Gabor Filter

A band pass filter generated by a function of various parameters.

$$filter(x, y; \sigma, \theta, \lambda, \gamma, \phi) = exp[-\frac{x^2 - \gamma^2 \cdot y^2}{2\sigma^2}] \cdot exp[i(2\pi\frac{x}{\lambda} + \phi)] \quad (1)$$

The parameters of ksize allows to select the size of our kernel filter, in case we are using a really big shape we will overlook details if the shapes are small. The same reasoning can be applyed with a small filter, may overlook shapes too big for it. Therefore, must be tested with different sizes to reach

an idoneal spot, if your features are tiny or bigger, you have to take that in count.

If we are looking for **horizontal-like** features, applying an horizontal filter will allow us to maintain those characteristics and block the vertical ones and viceversa in the other cases.

7 What form do the People have?

In general the shapes that a person can describe may suffer alot of distorsion depending of the angle where the frame was took, the person posture, etc. Not always will be a perfet pose to the researchers to easily identify if an object is a person or not. There is no key shape that we could use, but we can try use common sense. The images gathered, are related to people moving standing up, swiming or just taking sunbathing.