OpenCV Tutorial

Part 3

Image Correlation
Tasks

After learning to work with images it is important to learn some of the accessory functions OpenCV has to offer. This tutorial will discuss a simple image correlation example.

Steps Performed

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<td>Load an Image (Explanation Skipped)</td>
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<td>Convert to Gray</td>
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<td>Extract Template Region</td>
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<td>Apply Match Functions</td>
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At this point loading an image and converting it to grayscale should be a simple task and can be copied from past tutorials.
Specify Region

Determine the starting point and the size of the region and create the *CvRect*.

Use *cvGetSubRect* to copy the template from the region.

Here the template region is specified and extracted.
Use Template Match

Create Result Images

The image targets for the result of the match function have to be of size \( W-w+1 \times H-h+1 \) and of type 32-bit single channel floating point.

Apply each of the match techniques for the example.

This slide documents the creation of the target images and the usage of the \textit{cvMatchTemplate} function.
The original, grayscale image with template. Notice the region from which the template was extracted is labeled in the image.
These particular methods did not demonstrate good results.
Good Results

Notice the high values on the circular letters on the sign

CCOEFF_NORMED
Good Results

CCORR_NORMED
Notice the high values on the circular letters on the sign
Good Results

Notice the low values on the circular letters on the sign

SQDIFF_NORMED
Final

This tutorial illustrated a simple example of image correlation. It showed that the normalized techniques exhibited better results.