

MINES-VIS Assignment 11 Feature based Panoramic Image Stitching.

Feature detection and matching are powerful techniques used in many computer vision applications such as image registration, tracking, and object detection. In this assignment, feature based techniques should be used to automatically stitch together a set of images. The procedure for image stitching is an extension of feature based image registration.

Instead of registering a single pair of images, multiple image pairs are successively registered relative to each other to form a panorama.

To create the panorama, first start with registering successive image pairs by using the following procedure:

1. *Detect and match features between $I(n)$ and $I(n - 1)$*
2. *Estimate the geometric transformation $T(n)$, that maps $I(n)$ to $I(n - 1)$*
3. *Compute the transformation that maps $I(n)$ into the panorama image as $T(1) * T(2) \dots * T(n - 1) * T(n)$*

Also create an initial empty image ("panorama") into which all images are mapped.

Depicted: the images to be stitched. See also "buildings.rar" on SharePoint.



OpenCV has high level class such as [Stitcher](#) you might use his methods as long you can show the steps as described above in the procedure. It's recommend to study this class to become more familiar with the theory. See also [Stitcher pipeline](#).

The following image is an example of the result you might get:



This assignment must be handed in before December 9th 2016