**Image Stitching**

Computer Vision (CS6350)

**TPA - \***

1. **Problem Statement**

Image Stitching is a process of composing multiple images with narrow but overlapping fields of view to create a larger image with a wider field of view. Image stitching has several applications like panorama creation, robot target recognition etc.

1. **Input**

Multiple partially overlapped images

1. **Output**

One bigger stitched image

1. **Examples**

**Example 1**

**Input Image:**

** **

**Output Image:**

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**Example 2**

**Input Image:**

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**Output Image:**

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**Example 3**

**Input Image:**

**  **

**Output Image:**

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1. **Dataset**

* The **HPatches** is a recent dataset for local patch descriptor evaluation that consists of 116 sequences of 6 images with known homography. The dataset is split into two parts: viewpoint - 59 sequences with significant viewpoint change and illumination - 57 sequences with significant illumination change, both natural and artificial.
* **UDIS-D** is a large image dataset for image stitching or image registration. It contains different overlap rates, varying degrees of parallax, and variable scenes such as indoor, outdoor, night, dark, snow, and zooming.
* **CROSS** is a novel omnidirectional image dataset containing stitched images as well as dual-fisheye images captured from standard quarters of 0◦, 90◦ , 180◦ and 270◦. In this manner, when evaluating the quality of an image stitched from a pair of fisheye images (e.g., 0◦ and 180◦), the other pair of fisheye images (e.g., 90◦ and 270◦) can be used as the cross-reference to provide ground-truth observations of the stitching regions.
* **PhotoSynth** (PS) dataset for patch matching consists of a total of 30 scenes with 25 scenes for training and 5 scenes for validation. The different image pairs are captured in different illumination conditions, at different scales and with different viewpoints.

**References**

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