# Computational Photography Portfolio

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Portfolio

- The first assignment I found to be most interesting is the Camera Obscura. I've never imagined that I can build a pin hole camera in a CS course and it is amazing that we can actually achieve such a high quality result. From this assignment, I learned how pin hole size and the distance to screen affect results and how it is related to the modern camera such as aperture size. If doing it again, I would find a room that has smaller windows, which is easier for controlling light source since it can influence the result dramatically.
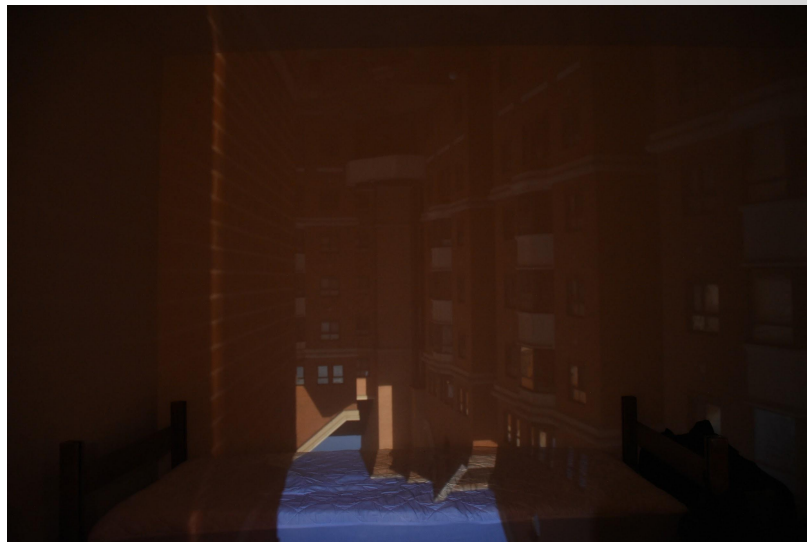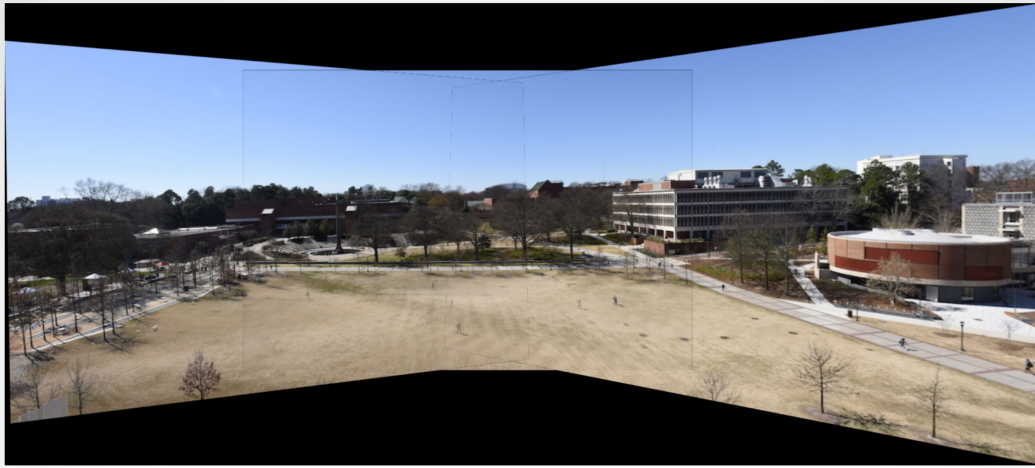
- The second assignment that I feel interesting is Panorama. Panorama is an amazing technique that allows us to create images with spectacular scene. Yet, I always think it is hard since there step involved. However, this assignment that us practice step by step to create our own panorama. I learned how to align images using homography and doing fading and blending to make the stitching smoother. If I can do it again, I want to practice a more completed pipeline that include feature matching, warping ...etc. That's why I choose to do this in my final project. I would also like to try cuts instead of blending for stitching images to remove ghostly effect.

- The last one a feel very interesting is Refocusing. My undergraduate research is about VR and one of the major issues of VR is that you doesn't really focus on anything while seeing the virtual scene. Integrating techniques such as light field can help VR to present images refocus on different 3D objects to create a more realistic 3D environment. In this assignment, I learned a basic approach that takes multiple images from slightly different viewpoints, aligns the corresponding 3D point and does blending to create refocusing result. However, if I can do it again, I would like to use an actual light field image data and practice how to do a more realistic refocusing based on this data.