

CS231A Proposal

## **Segmentation of RGB-Z Images Using Scene Information from Kinect Data**

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### *Abstract:*

Object segmentation in cluttered scenes is known to be a hard problem. From the perspective of automated visual perception, separating out objects from a potentially cluttered scene is the first step towards other tasks such as object recognition. Currently, this is done using information provided by the pixels in the image of the scene. Occlusion and illumination noise thus pose severe challenges to robust segmentation. Some of these problems could be overcome with the additional use of depth information. In this project, we will use the Kinect to acquire depth information and devise a method to incorporate depth information into segmentation algorithm. We believe our work has great potential to be useful in a wide variety of applications like object recognition and general decoding of 3D scenes. Potential ideas include developing an improved affinity measure between pixels using depth cues, and machine learned image segmentation.

### *Potential Deliverables:*

- Replicate previous results obtained by Jiahui
- Program that incorporates an improved affinity measure for the graph based segmentation and other ideas related to color and depth segmentation.
- Program that uses machine learning in segmentation of the image