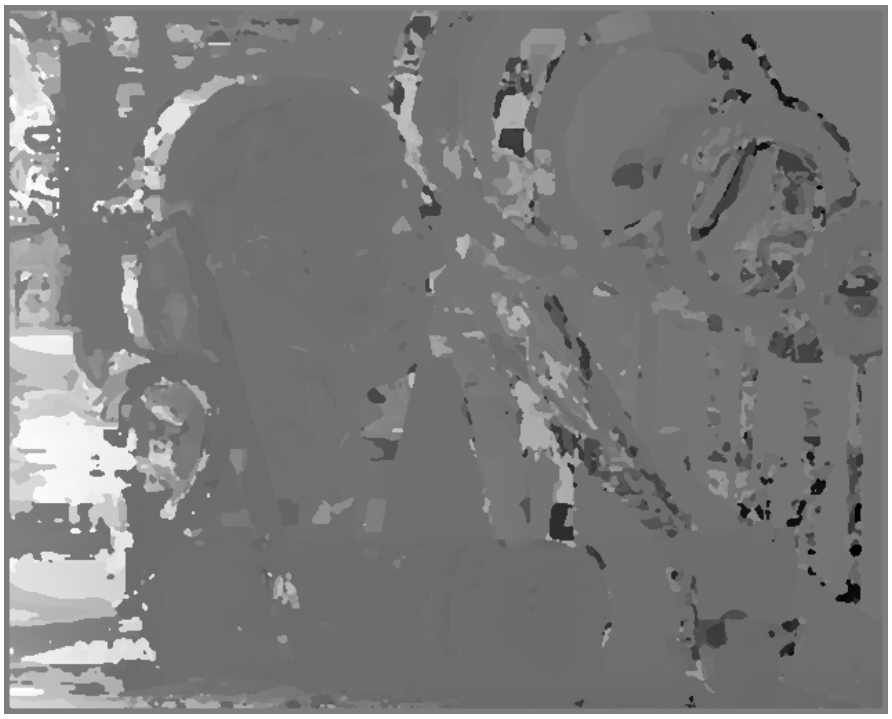
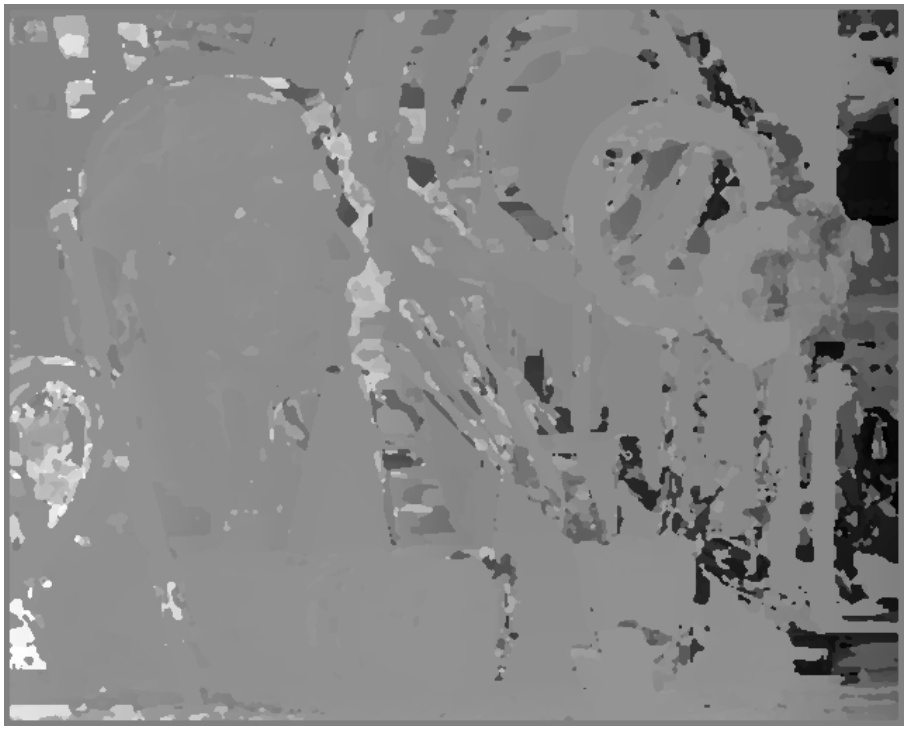
Jacob Kerstetter
4406239

PS3 Report

ps3-1-a-1.png ps3-1-a-2.png

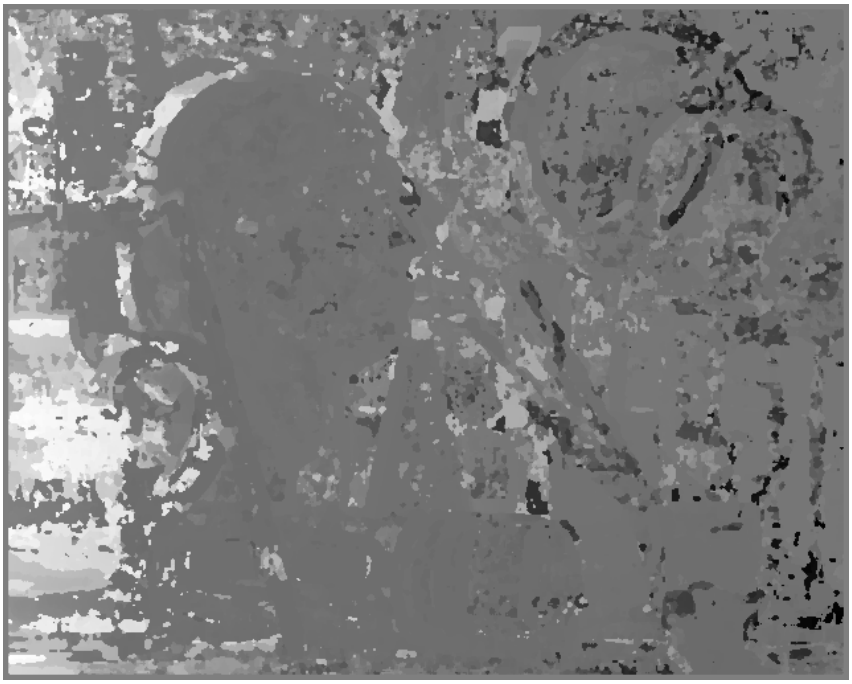


ps3-2-a-1.png



ps3-2-a-2.png

2b. In comparison to the ground truth, my algorithm did not do a great job of mapping the disparity. My D_L was able to correctly map the kettle on the left of the screen fairly accurately, and both were able to map the background to a dark value fairly accurately as well. However, the main items towards the front, especially any smaller items, were not picked up well. The disparity values for many of the items in the image, regardless of depth, were mapped to a similar gray color, which is not representative of their respective depths.



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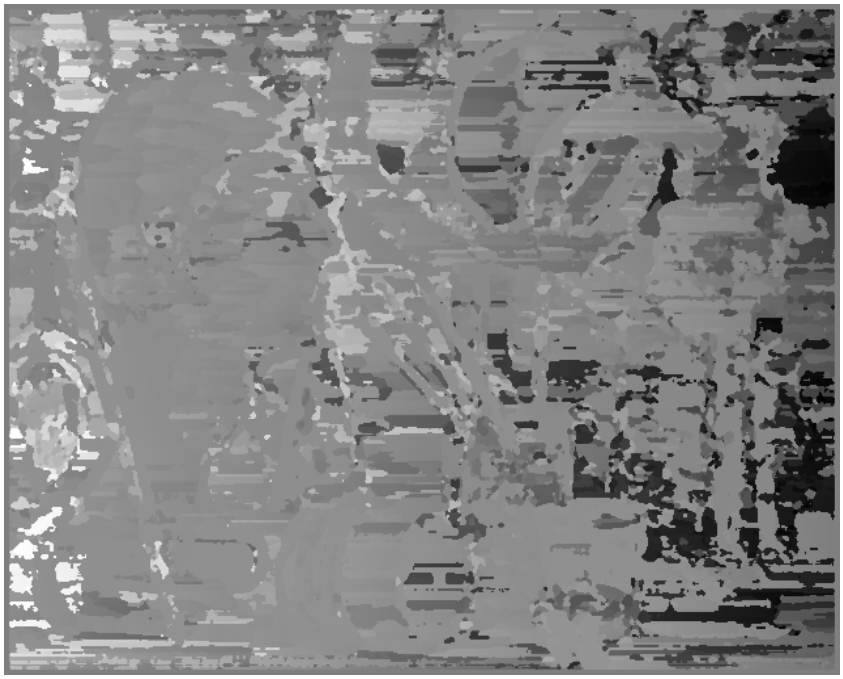
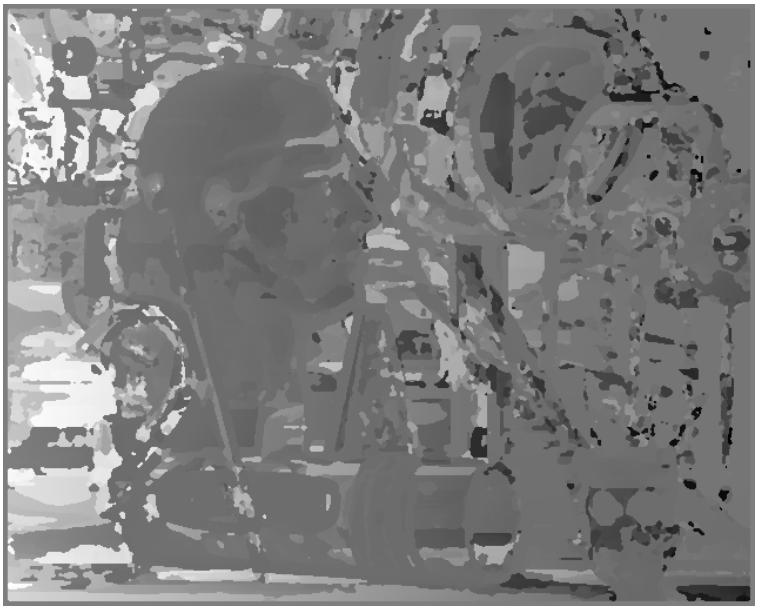
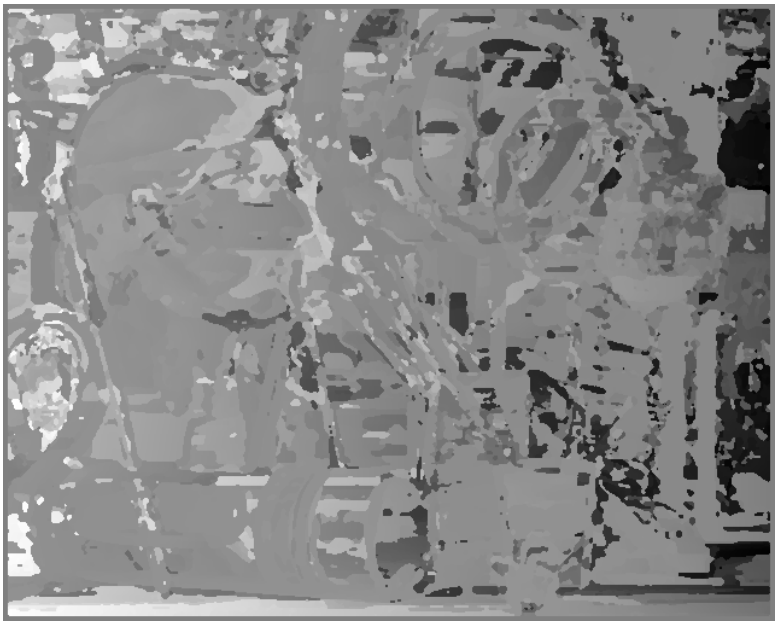


ps3-3-a-2.png

3a. Compared to the previous result, the noise disturbed the ability of the SSD algorithm to correctly assign disparity, resulting in a lot of noise in the resulting image. Less of the items are able to be picked out in these results than in question 2.

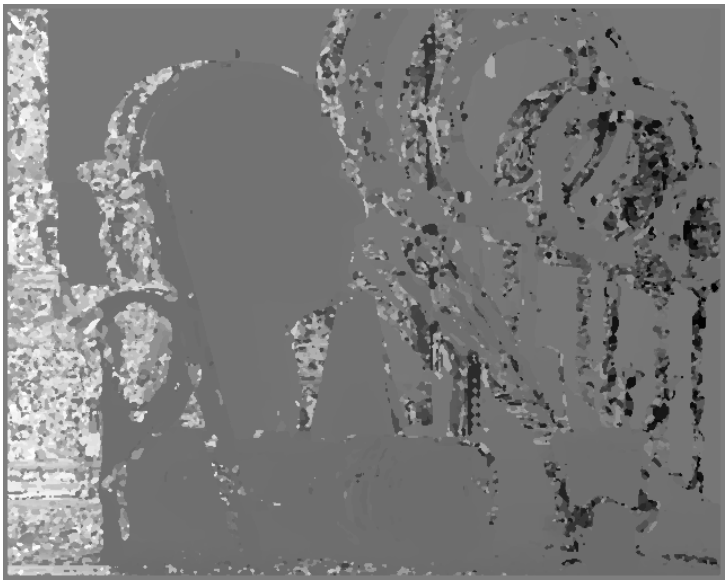


ps3-3-b-1.png

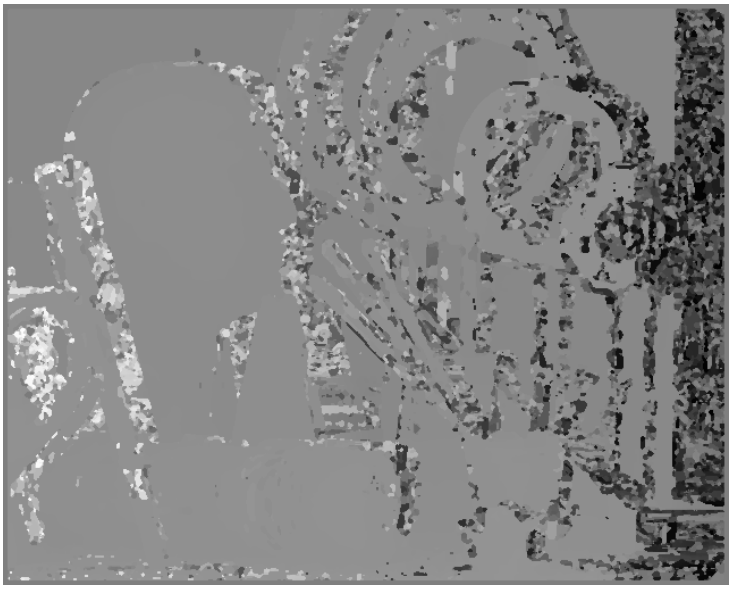


ps3-3-b-2.png

3b. After increasing the contrast of the left image, more of the items are able to be picked out and also have closer disparities to the ground truth than in question 2. This proves that increasing the contrast of an image helps when computing the disparity map due to giving the pixel intensities a wider range, making them easier to match.

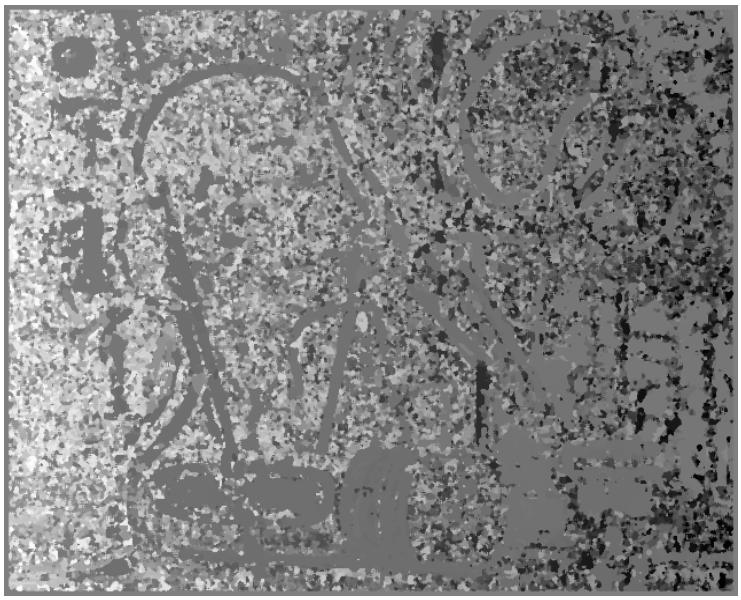


ps3-4-a-1.png

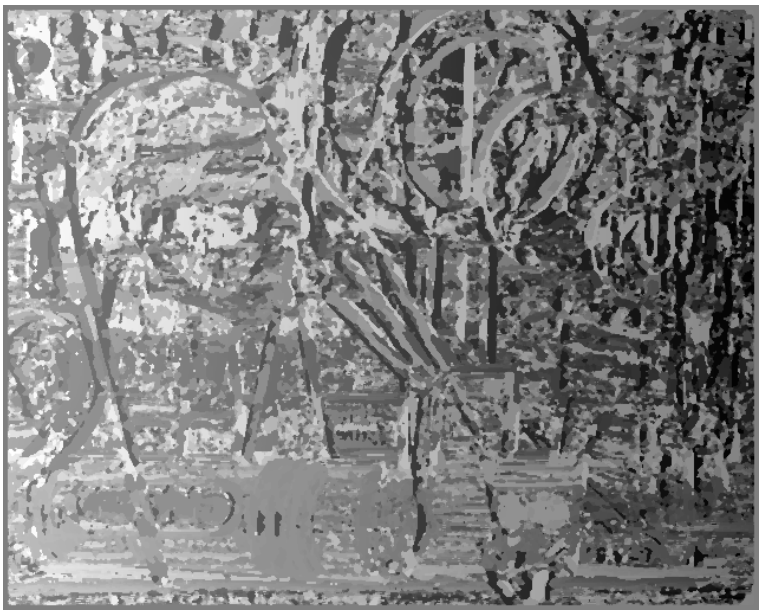


ps3-4-a-2.png

4a. These images are slightly better than that of question 2. In question 2, many objects received the same intensity with no barrier between. In the 2 outputs from this part, more objects are identifiable, but still do not have a high difference in intensity as the ground truth has. This makes it harder to estimate depth.



ps3-4-b-1.png



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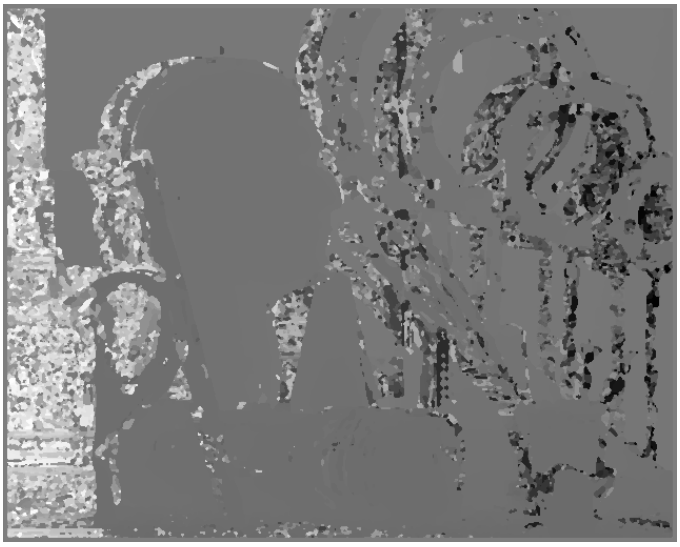
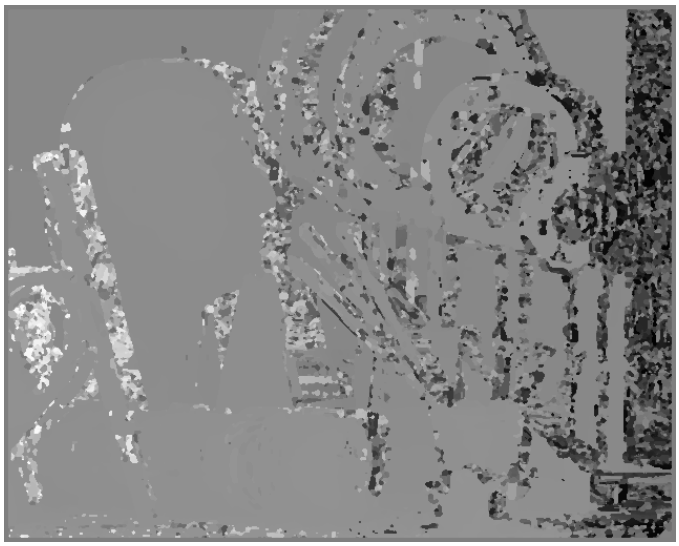


ps3-4-b-3.png



ps3-4-b-4.png

4b. Compared to the original, the noisy image is significantly worse. There is much less smoothness in the output image, and most of the objects are impossible to detect. The sharpened image sees a fairly large improvement over the original images. Because of the increased contrast, the pixels are more identifiable and therefore more accurately matched during correlation. This ends up with two smoother images where more objects are identified.