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CSE 167

PA3 Write Up

1. I estimated my focal length to be about 5 inches. I did this by using the method described in the camera lecture slides, specifically slide 32, and measured the distance of a photo hung on the wall. I changed the resolution to be 640x480 and made sure the entire picture was framed by my camera, and measured that distance using a tape measure. The tape measure distance read to about 5 inches which converted to pixels is 480.

2. Intersection with left image edge (pxS = 0) is at pyS = -C/B
   Intersection with right image edge (pxS = IC - 1) is at pyS = -((IC - 1) A + C)/B
   Intersection with top image edge (pyS = 0) is at pxS = -C/A
   Intersection with bottom image edge (pyS = IR - 1) is at pxS = -((IR - 1)B + C)/A
   The principal point was found to be 720/2 and 1280/2 since this represents the midpoint if we are using the resolution of 1280x720

3. There is a behavioral difference between using the device motion mode, and the accelerometer mode. The device motion mode seemed to be consistently stable, and did not move much. The accelerometer mode seemed to jitter a bit, and this is likely because we are using the phones accelerometers to find the data which is more jittery because it's also reading the slight jitters made by my hands.

4. I do believe my horizon line is correct because I not only followed the calculations closely, but it also looks correct. The horizon line updates correctly with the change in rotation of the device and matches the images in the assignments description.

5. I believe I accomplished all of the requirements of the assignment.