Image Processing Sensitivity Analysis

Jack Cole

1 Introduction

What questions are we trying to answer

The purpose of this analysis was to determine the sensitivity of the image processing software. Specifically, the Find6DOF block was tested in Simulink. This system is given inputs of the pixel locations of each white dot on the body of the BAT and outputs the corresponding roll, pitch, and yaw Euler angles, as well as the center of mass position of the BAT. For the purpose of this analysis, solely the Euler angles were processed. In order to perform an accurate study, each pixel was modified separately and the corresponding change in Euler angle was observed.

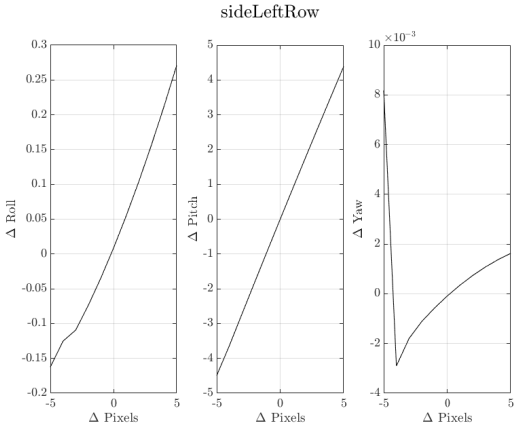

Figure 1: Side Camera Left Dot, Row

2 Methods

How did we try to answer them

In the real system, each camera (side, bottom, and slant) captured four pixels location corresponding

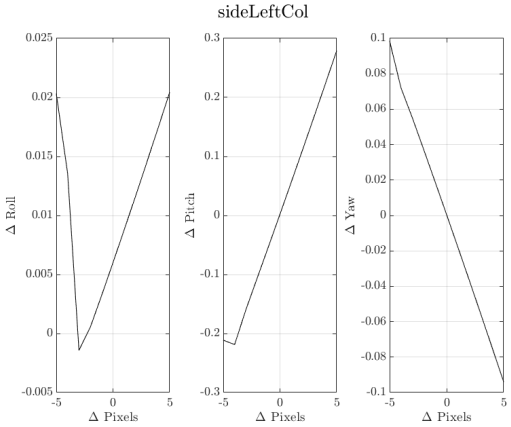

Figure 2: Side Camera Left Dot, Column

3 Results

Present the results For example figure **??** shows some stuff.

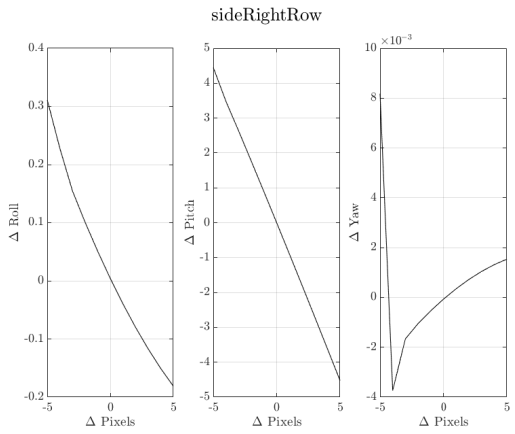

Figure 3: Side Camera Right Dot, Row

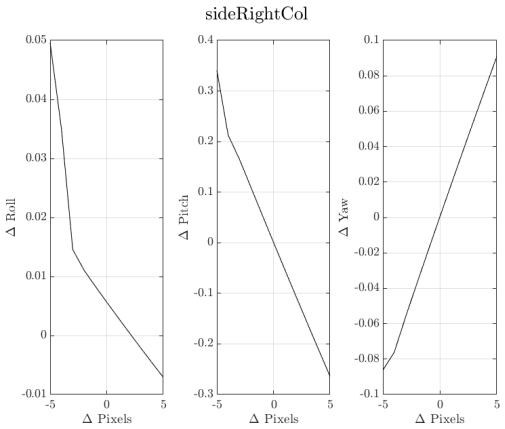

Figure 4: Side Camera Right Dot, Column

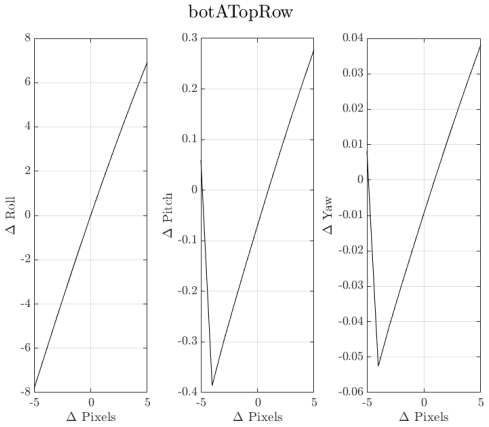

Figure 5: Bottom A Camera Top Dot, Row

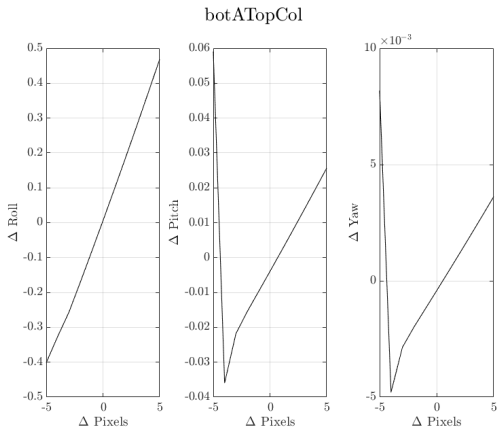

Figure 6: Bottom A Camera Top Dot, Column

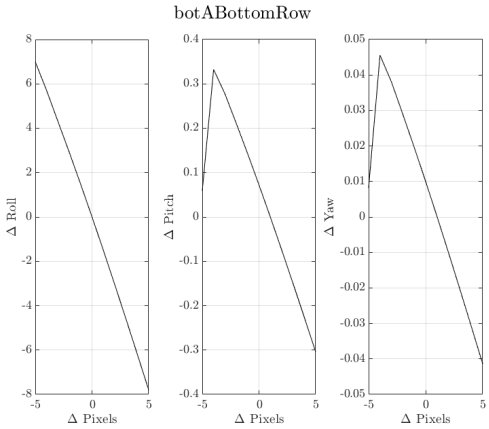

Figure 7: Bottom A Camera Bottom Dot, Row

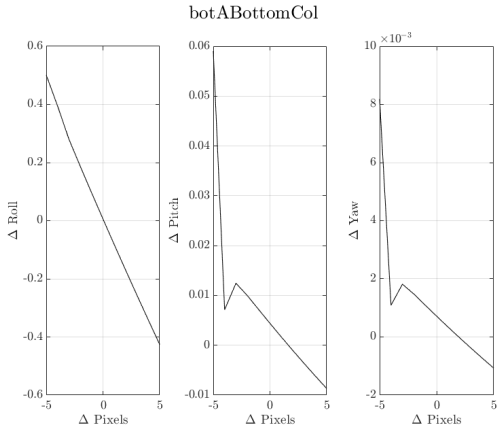

Figure 8: Bottom A Camera Bottom Dot, Column

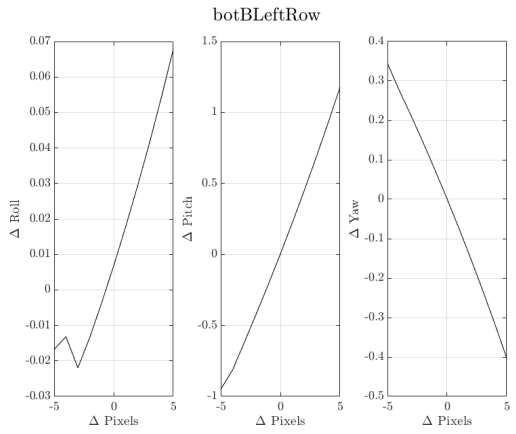

Figure 9: Bottom B Camera Left Dot, Row

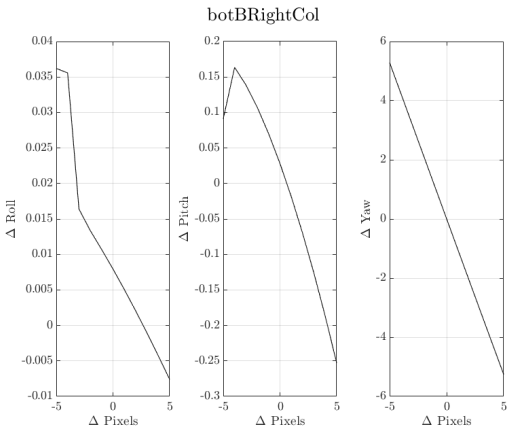

Figure 12: Bottom B Camera Right Dot, Column

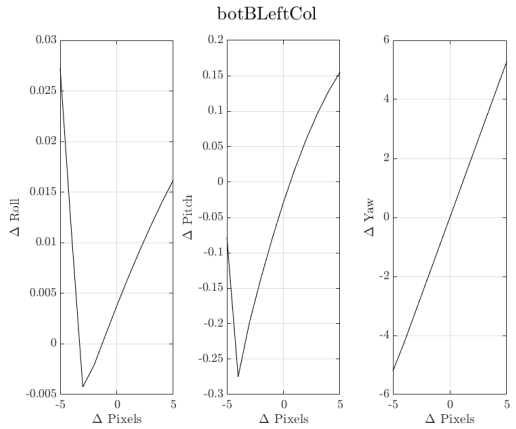

Figure 10: Bottom B Camera Left Dot, Column

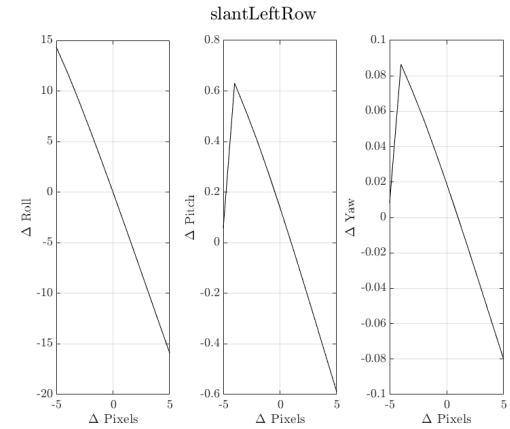

Figure 13: Slant Camera Left Dot, Row

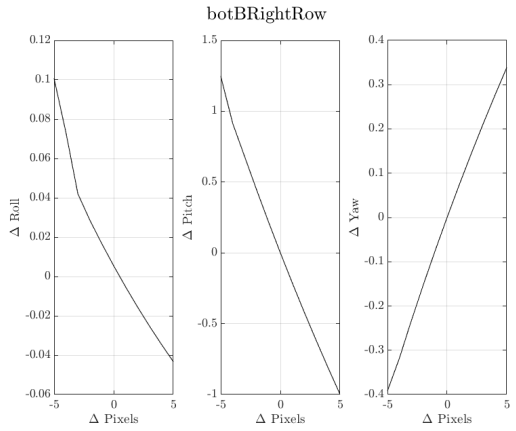

Figure 11: Bottom B Camera Right Dot, Row

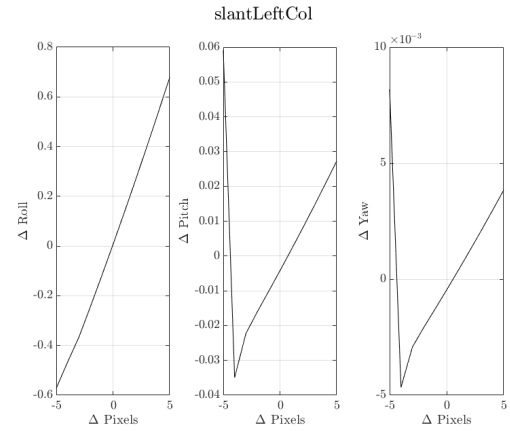

Figure 14: Slant Camera Left Dot, Column

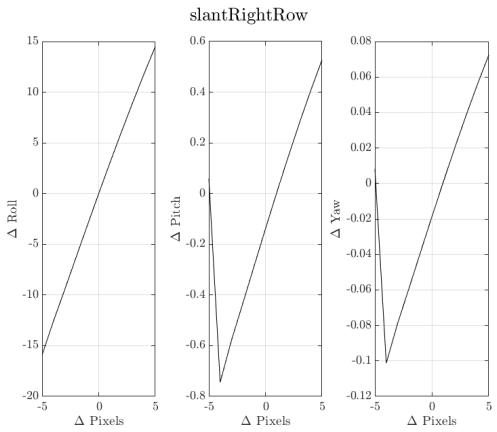

Figure 15: Slant Camera Right Dot, Row

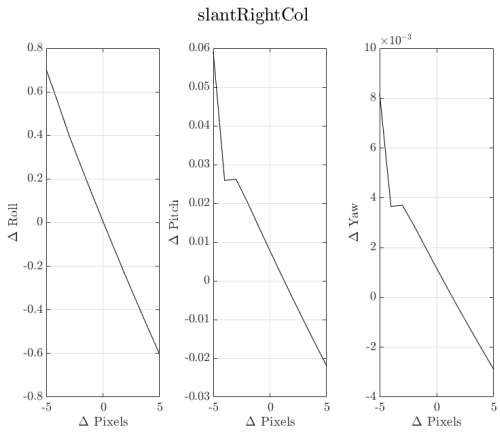

Figure 16: Slant Camera Right Dot, Column

4 Discussion

What conclusions can we draw, specifically: what was as expected, what was not as expected?