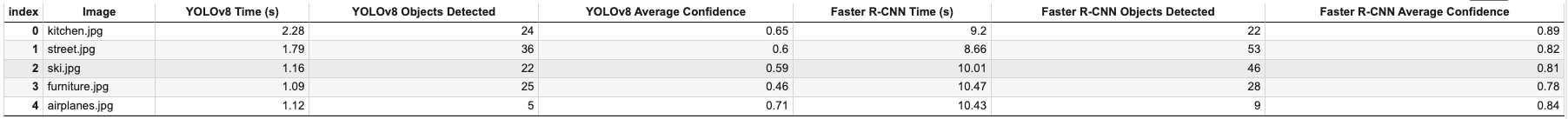
Elaina Manalac

9 December 2024

Dr. Majumdar

Analytics Programming 2

Take Home Assignment Summary



**Part A (i)**

Overall, I found YOLOv8 is much faster than Faster R-CNN, taking 1.06 to 1.64 seconds compared to 8.33 to 9.71 seconds for Faster R-CNN. YOLOv8 detects fewer objects (5 to 36) with lower confidence (0.46 to 0.71), while Faster R-CNN detects more objects (22 to 53) with higher confidence (0.78 to 0.89). In summary, YOLOv8 is faster, but Faster R-CNN is more accurate and detects more objects.

**Part A (ii)**

The outcome of edge detection was the clear identification of object boundaries, making it easier to visualize structures in the image, which is useful for tasks like robot navigation and medical imaging. The color histogram analysis showed the distribution of colors in the image, revealing dominant colors and helping to classify objects by color. Image segmentation effectively isolated distinct objects from the background, which can be crucial in autonomous vehicles for identifying road lanes and obstacles, while contour detection helped recognize shapes and boundaries, aiding in quality control for detecting defects in industrial products.

Link to Github: <https://github.com/emanalac20/AP-Take-Home-Assignment/tree/main>