Object Detection

1. Explain the reasoning behind the negative gain and $\pi/2$ bias on the raw lidar data.

2. Why is it important to adjust the measured data for the forward displacement of the lidar? Use your implementation from the **correct_lidar** method.

3. What is the motivation behind scaling the size of the safety window based on the forward speed of the robot?

4. What is the motivation behind changing the direction of the safety window based on the turn speed of the robot?