Finally, for all tasks, we implemented a `SIGINT` handler that allows us to gracefully exit a program using `Command-C` by setting all torques to zero before quitting.

4 Results/Conclusions

Below is the plot for the Fast Fourier Transform magnitudes for Alpha waves, which were the most reliable way of controlling the robot. The full demonstration can be found at the following link:

`https://m.youtube.com/watch?v=01yOD-EtjYw`

For the demonstration, alpha waves are used to change the robot's direction going from right to left, and clockwise to counter clockwise. As described in Task 2, Alpha waves and the OpenBCI's accelerometer are used to move the robot across four different quadrants.

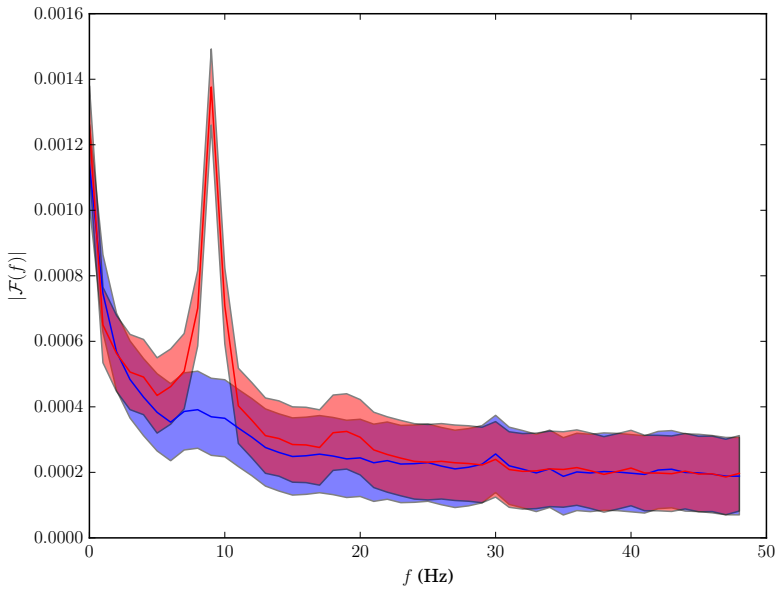

Figure 5: Plot of average FFT readings as a function of frequency for eyes closed (red) and eyes open (blue), with corresponding standard deviations. The peak around frequency bin 10 is clearly visible.

The confusion plots for the right vs. left classifiers are below. A linear SVM was used, with a penalty parameter of 0.1 and a hard limit of training iterations of 5000.

As mentioned in the challenges sections, this particular classifier was not particularly generalizable for general right, left classification purposes because more data and trials were necessary to effectively apply results to a real time task.