

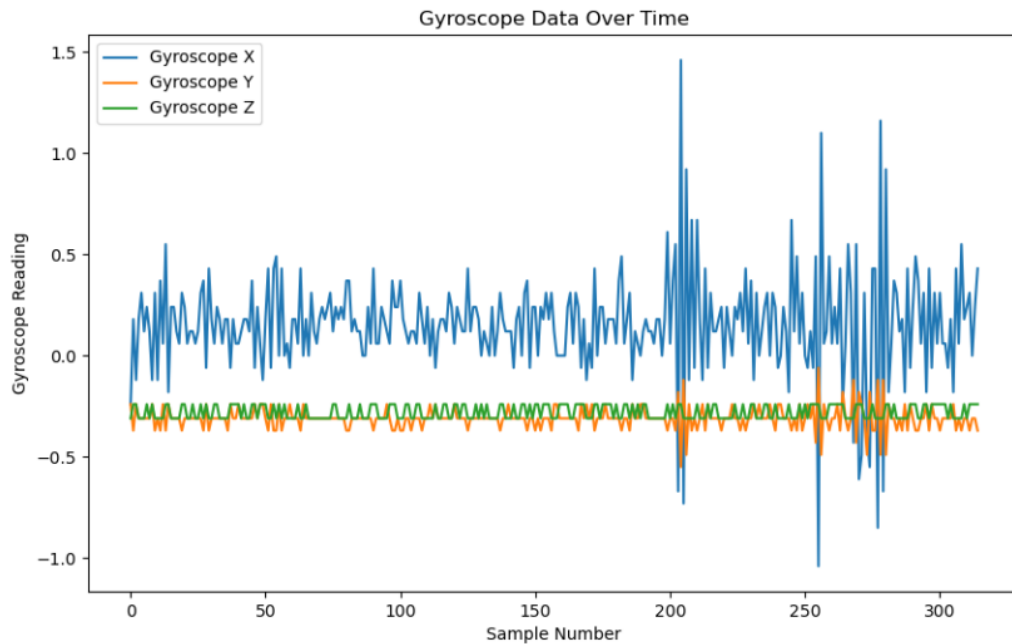
# Homework 3 Part-2 Report

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1

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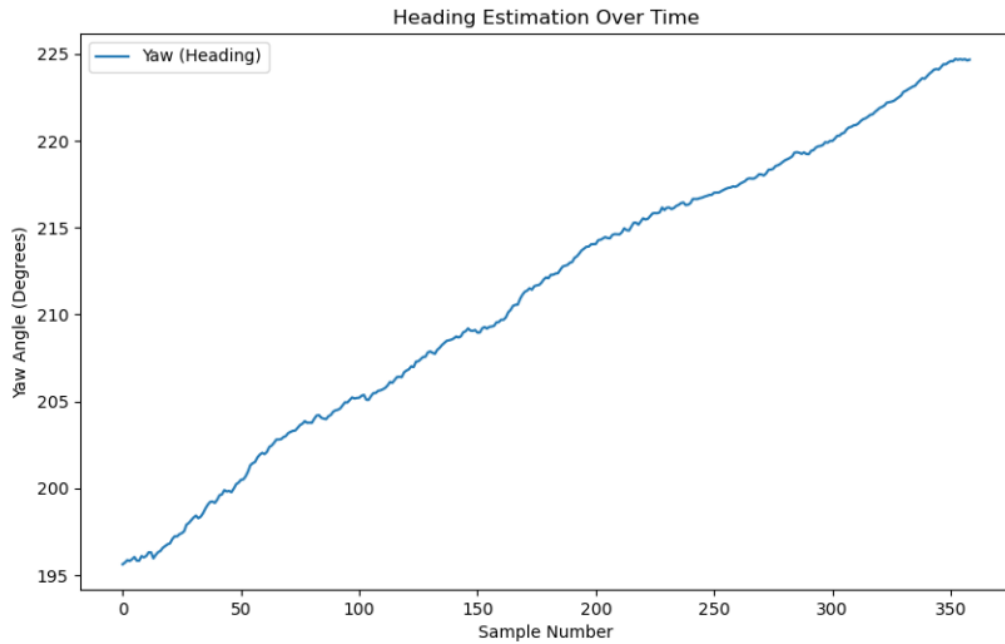


raw data provided by the gyroscope over time

- This graph shows the data from a three-axis gyroscope. The X-axis (blue) shows larger fluctuations. The readings on the Y-axis (orange) and Z-axis (green) are relatively stable with smaller fluctuations. This could be due to sensor noise or electromagnetic interference from surrounding electronic devices.

2

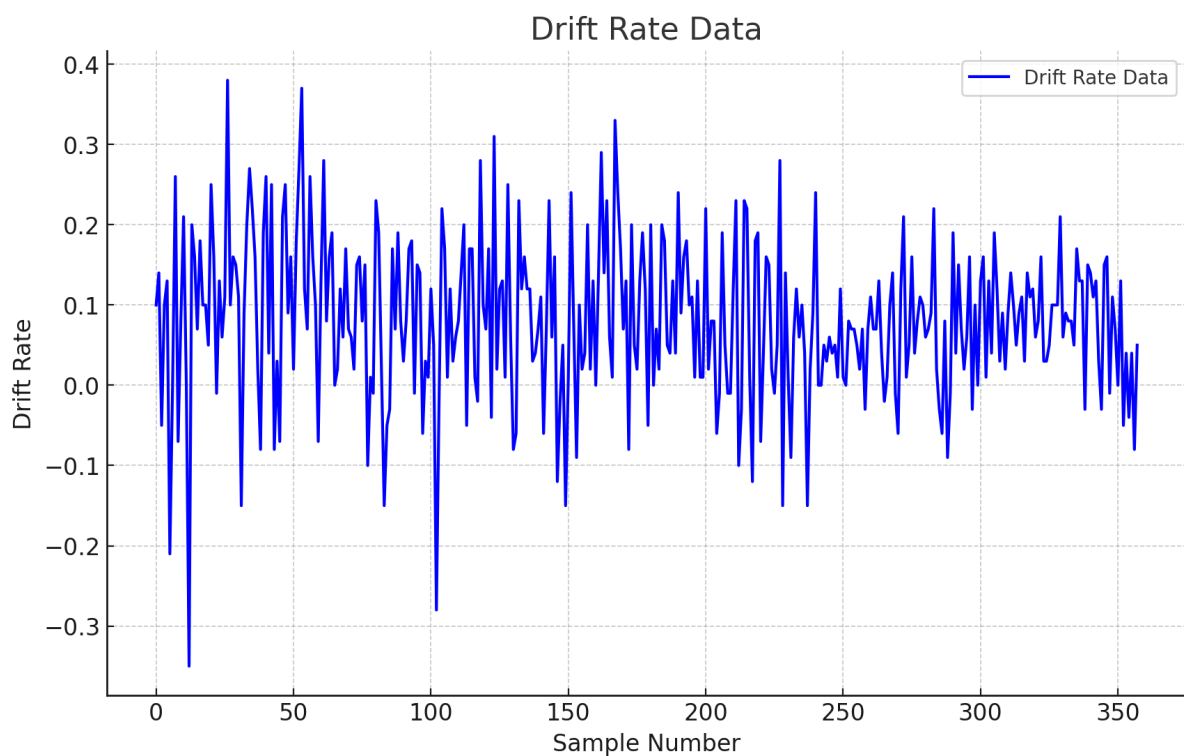
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heading estimation during a test scenario over time

- The plot is relatively smooth, suggesting that the changes in heading are gradual and there are no sudden shifts or erratic behavior. Which correspond to the test we made(smoothly move the IMU to induce variations in heading)

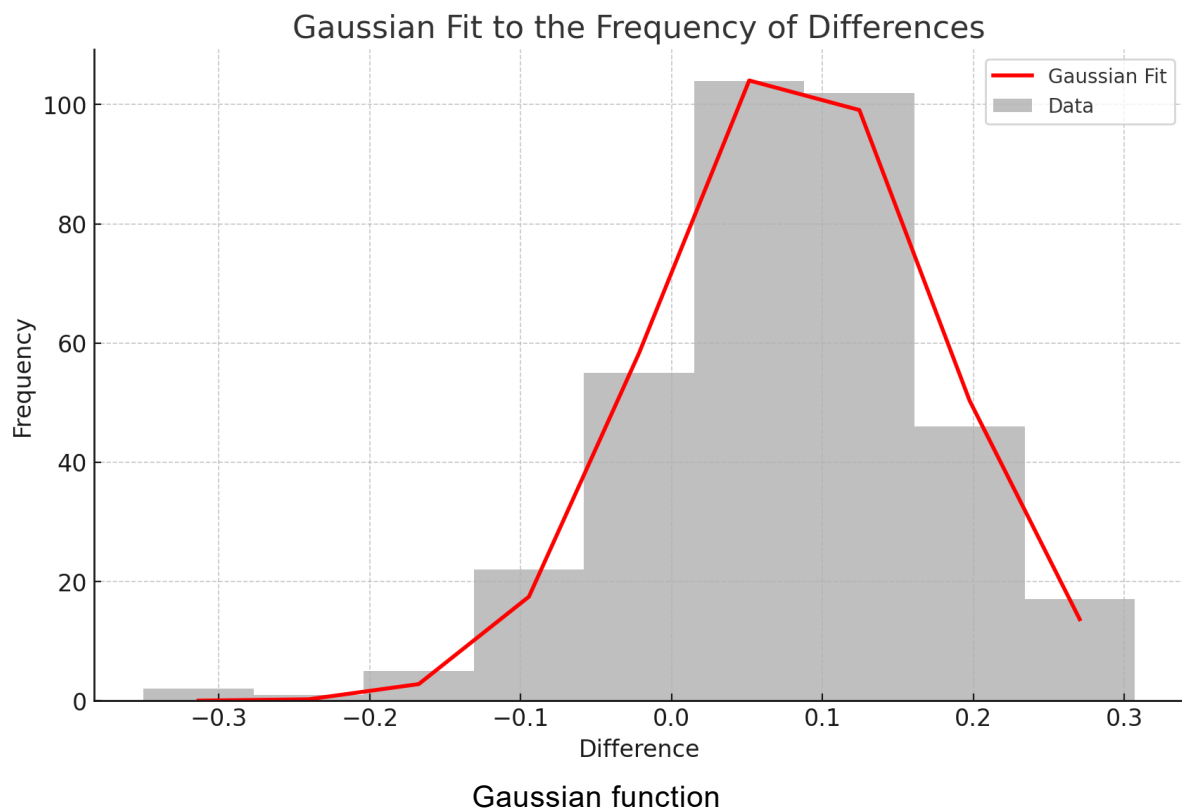
### 3



drift rate overtime

- The plot of IMU drift rate data shows fluctuations around zero, indicating variable drift without a clear directional trend. Most changes are within -0.1 to 0.1, suggesting small magnitude drifts. There are

occasional spikes which could be due to rapid movements or anomalies during test. (The hand holding is not steady)



- The approximate Gaussian function parameters for the drift rate are: Mean: 0.0823, Standard Deviation: – 0.0921