

## Calibration results

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### Normalized Residuals

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Reprojection error (cam0): mean 0.30762736200608953, median 0.25499911230068784, std: 0.22086720323833087  
Gyroscope error (imu0): mean 6.1645743470634405e-12, median 1.2436422268209e-12, std:  
8.389160384173144e-11  
Accelerometer error (imu0): mean 2.190889151154039e-10, median 9.590367620565957e-12, std:  
3.3256778170624557e-09

### Residuals

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Reprojection error (cam0) [px]: mean 0.30762736200608953, median 0.25499911230068784, std:  
0.22086720323833087  
Gyroscope error (imu0) [rad/s]: mean 3.1830430715378446e-13, median 6.421476224495299e-14, std:  
4.331695480253614e-12  
Accelerometer error (imu0) [m/s^2]: mean 5.462503555248087e-11, median 2.3911486893749454e-12, std:  
8.291851228413012e-10

### Transformation (cam0):

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T\_ci: (imu0 to cam0):  
[[ 0.02467928 -0.9960776 0.0132383 0.00017398]  
[-0.99899682 -0.02515485 -0.03704833 -0.0000841 ]  
[ 0.0373668 -0.0123107 -0.99922578 0.00003391]  
[ 0. 0. 0. 1. ]]

### T\_ic: (cam0 to imu0):

[[ 0.02467928 -0.99899682 0.0373668 -0.00008958]  
[-0.99960776 -0.02515485 -0.0123107 0.00017221]  
[ 0.0132383 -0.03704833 -0.99922578 0.00002847]  
[ 0. 0. 0. 1. ]]

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)  
-0.3999952488883213

Gravity vector in target coords: [m/s^2]  
[-0.42493295 -9.79731761 0.02055711]

## Calibration configuration

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cam0

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Camera model: omni

Focal length: [699.7773859909569, 935.6248429202965]

Principal point: [318.17025669569273, 243.27247061104967]

Omni xi: 0.9221236371241188

Distortion model: radtan

Distortion coefficients: [-0.7367874448259303, 0.4295200625308617, 0.00010559030176983526,  
-0.0011730306750702385]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.055 [m]

Spacing 0.0165 [m]

## IMU configuration

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IMU0:

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Model: calibrated

Update rate: 200.0

Accelerometer:

    Noise density: 0.01763016309673612

    Noise density (discrete): 0.24932815758253865

    Random walk: 0.0009121684278958112

Gyroscope:

    Noise density: 0.00365110584117691

    Noise density (discrete): 0.051634433982520135

Random walk: 6.888677868055541e-05

T\_ib (imu0 to imu0)

[[1, 0, 0, 0]

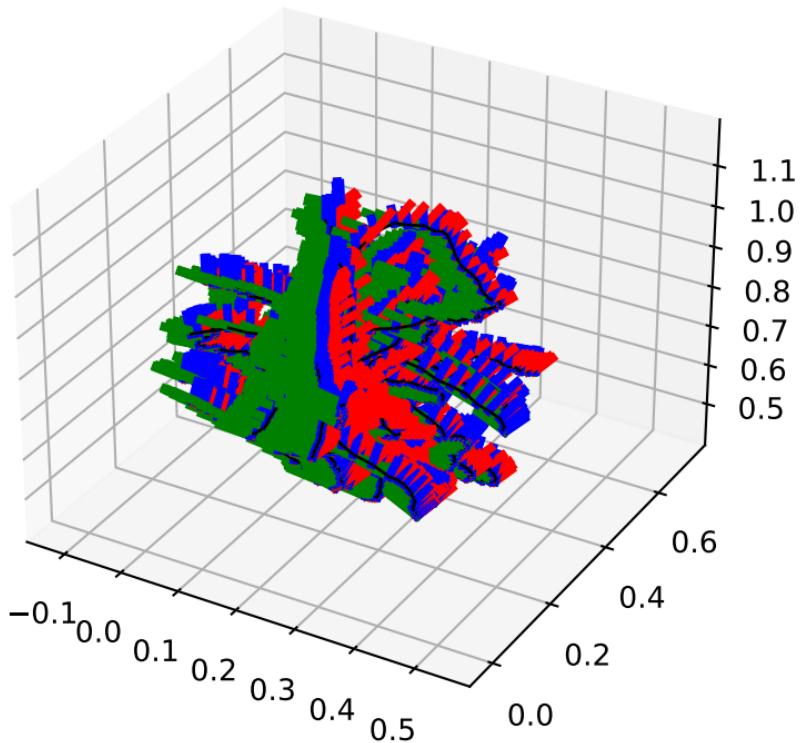
[0, 1, 0, 0]

[0, 0, 1, 0]

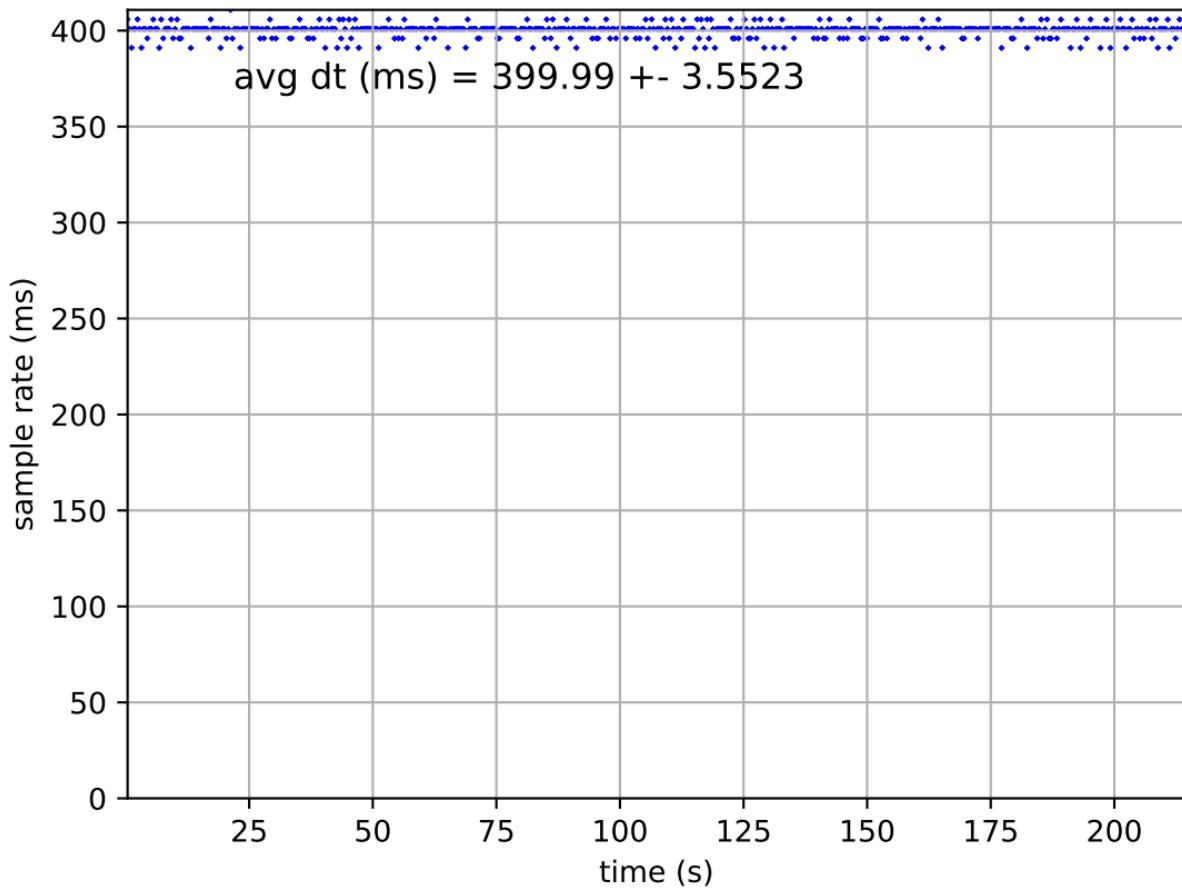
[0, 0, 0, 1]]

time offset with respect to IMU0: 0.0 [s]

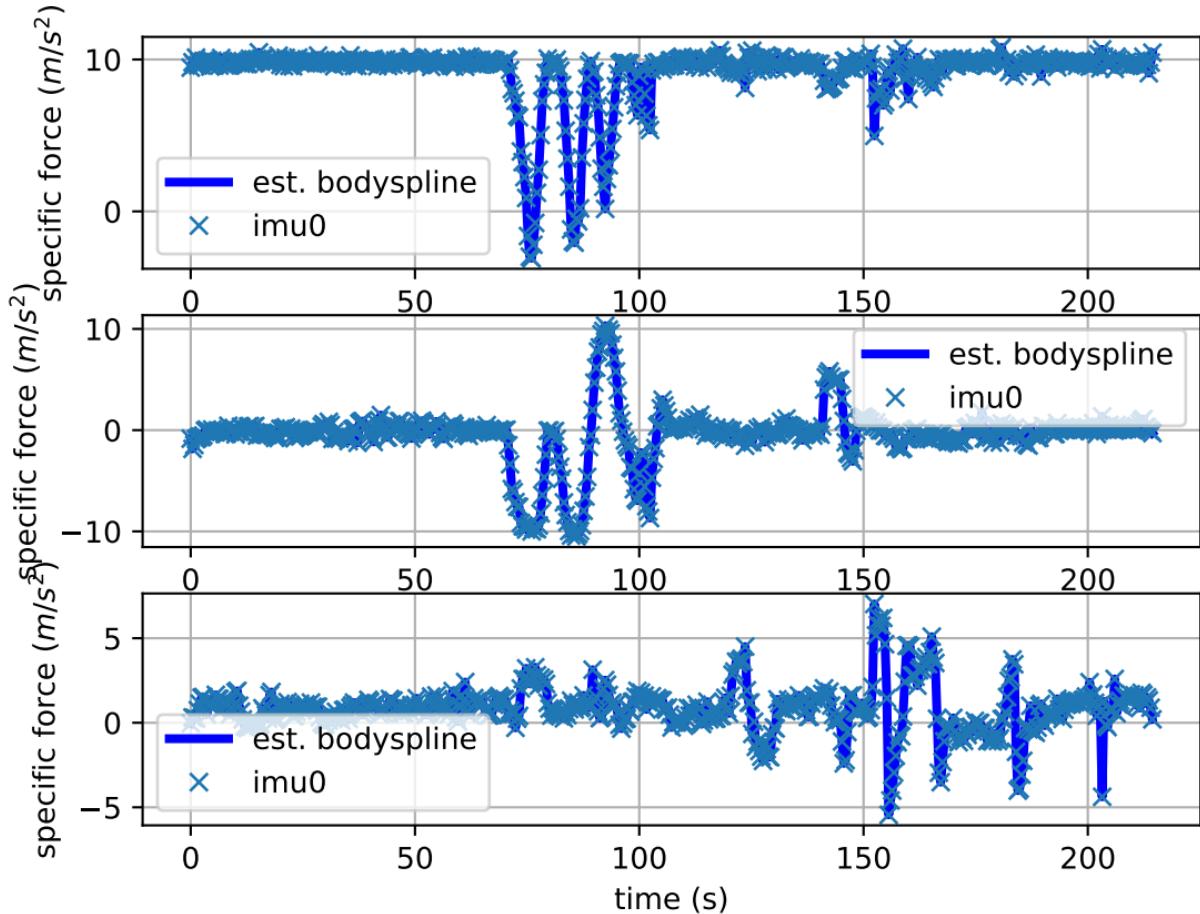
imu0: estimated poses



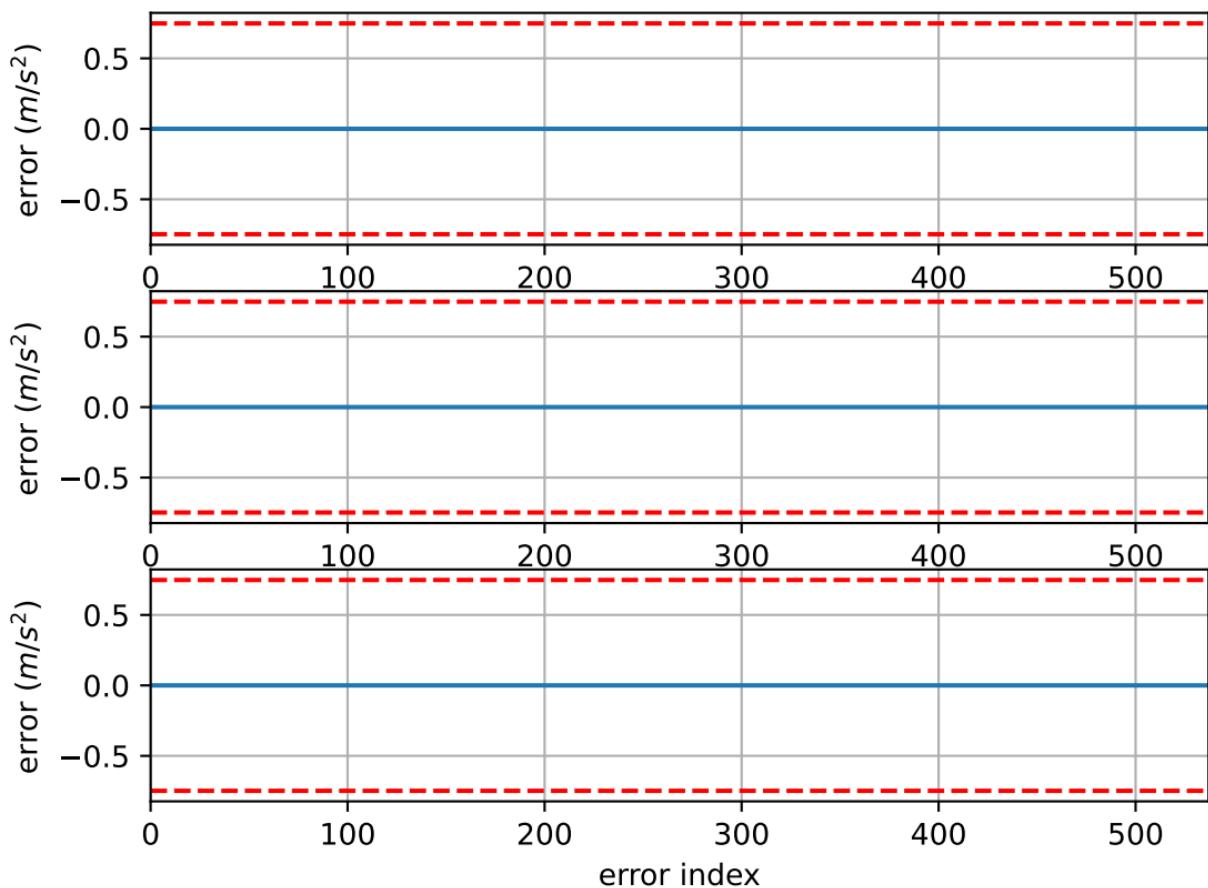
# imu0: sample inertial rate



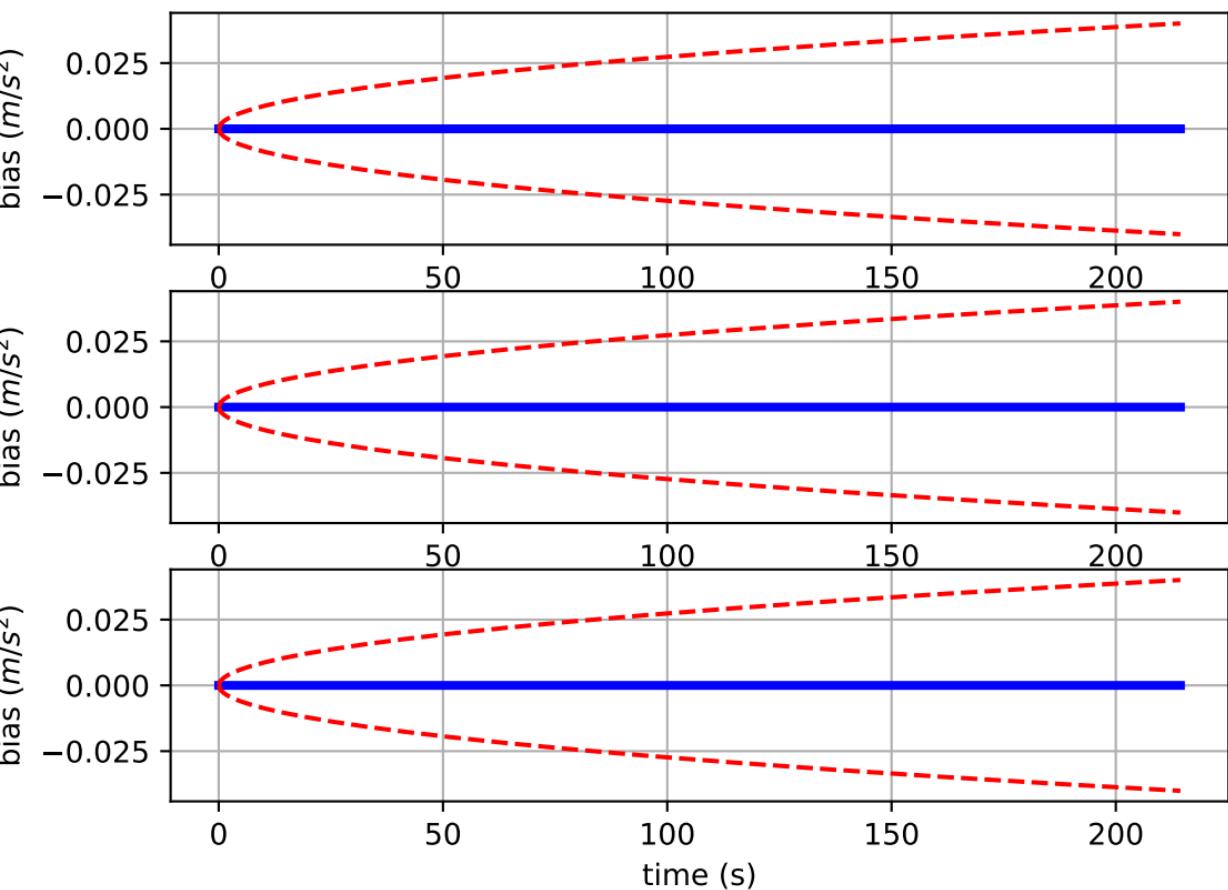
# Comparison of predicted and measured specific force (imu0 frame)



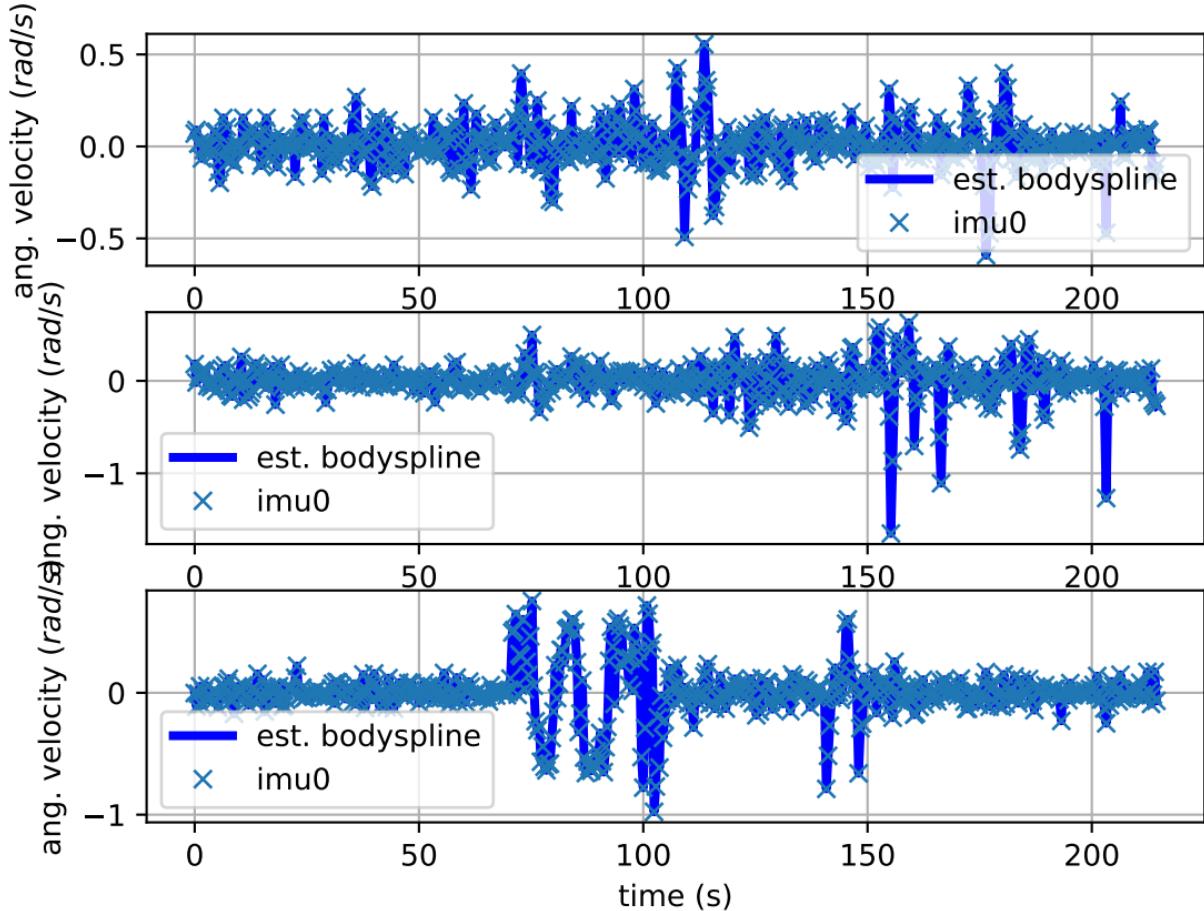
# imu0: acceleration error



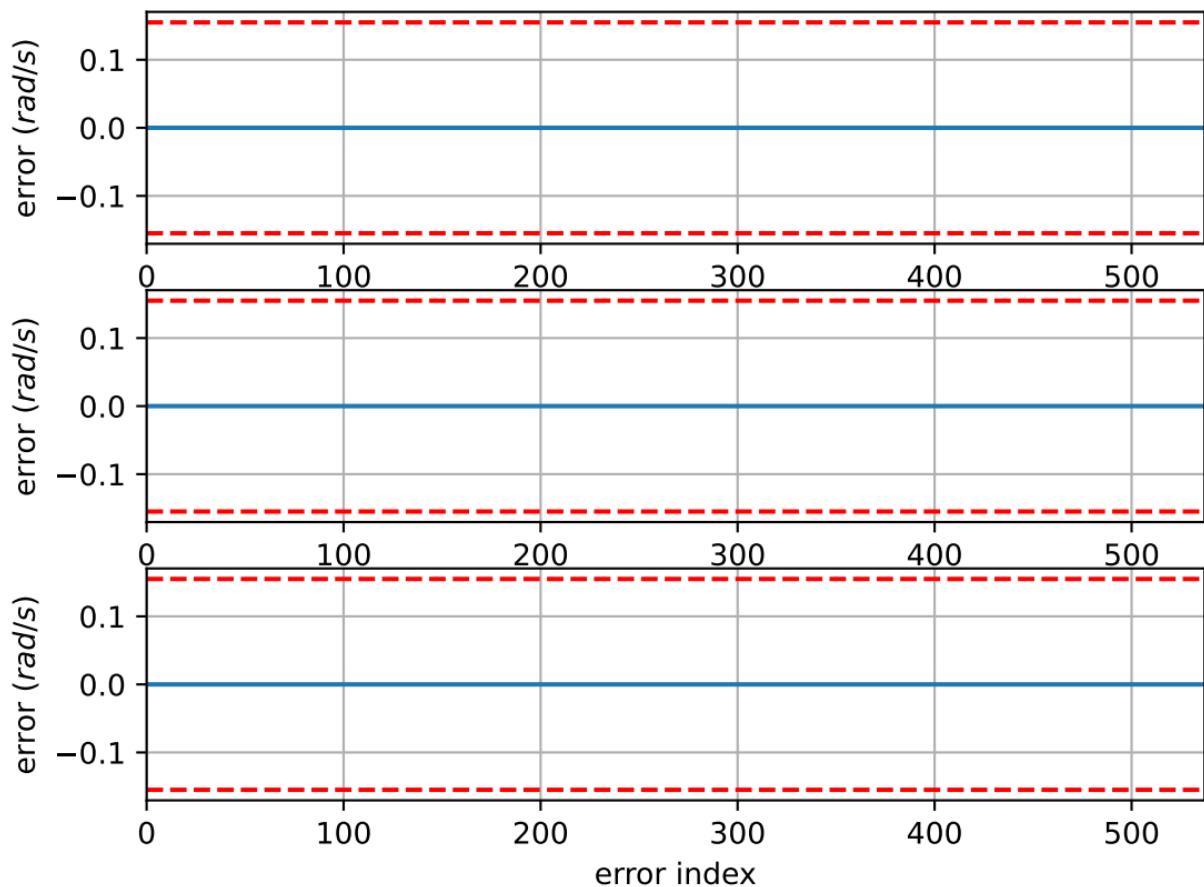
# imu0: estimated accelerometer bias (imu frame)



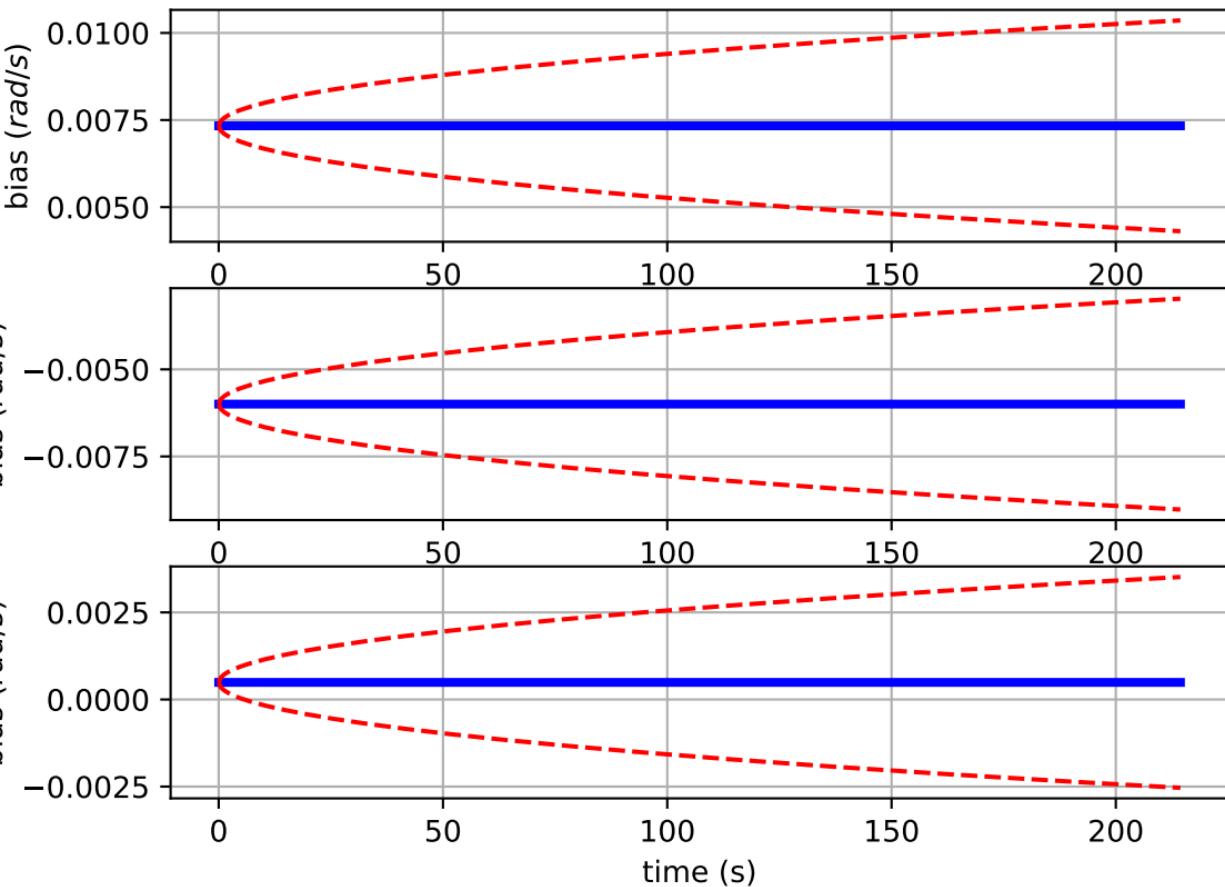
# Comparison of predicted and measured angular velocities (body frame)



# imu0: angular velocities error



# imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

