

Calibration results

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Normalized Residuals

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Reprojection error (cam0): mean 0.3001551909201624, median 0.27028269846765457, std: 0.19589745429729952

Gyroscope error (imu0): mean 1.7634637346634907, median 1.6893617465483786, std: 0.7646660904501869

Accelerometer error (imu0): mean 2.781751724563064, median 2.6188390787199234, std: 2.021581577513881

Residuals

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Reprojection error (cam0) [px]: mean 0.3001551909201624, median 0.27028269846765457, std: 0.19589745429729952

Gyroscope error (imu0) [rad/s]: mean 0.01528591616349863, median 0.01464359120063665, std: 0.006628217820380794

Accelerometer error (imu0) [m/s^2]: mean 0.18552672944417825, median 0.17466139947907394, std: 0.13482778318027785

Transformation (cam0):

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T\_ci: (imu0 to cam0):

[[-0.9998246 -0.0063927 0.01760399 0.02012079]  
[ 0.01758799 0.0025505 0.99984207 -0.04544902]  
[-0.00643659 0.99997631 -0.00243762 -0.11803933]  
[ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):

[[-0.9998246 0.01758799 -0.00643659 0.02015684]  
[-0.0063927 0.0025505 0.99997631 0.11828108]  
[ 0.01760399 0.99984207 -0.00243762 0.0447999 ]  
[ 0. 0. 0. 1. ]]

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

-0.0035077998119232476

Gravity vector in target coords: [m/s^2]

[ 0.11270981 -9.77530024 -0.77409604]

## Calibration configuration

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cam0

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Camera model: pinhole

Focal length: [632.9093123287365, 633.2116864152113]

Principal point: [640.4839594188662, 366.32882051604616]

Distortion model: radtan

Distortion coefficients: [-0.04872818566949451, 0.042772732562127394, 8.312043175509823e-05, 0.0005958215093906564]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.044 [m]

Spacing 0.01319999999999998 [m]

## IMU configuration

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IMU0:

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Model: calibrated

Update rate: 1600

Accelerometer:

Noise density: 0.0016673552118792998

Noise density (discrete): 0.06669420847517199

Random walk: 3.829685875596812e-05

Gyroscope:

Noise density: 0.0002167030126992594

Noise density (discrete): 0.008668120507970375

Random walk: 1.493115972409979e-06

T\_ib (imu0 to imu0)

[[-1. 0. 0. 0.]

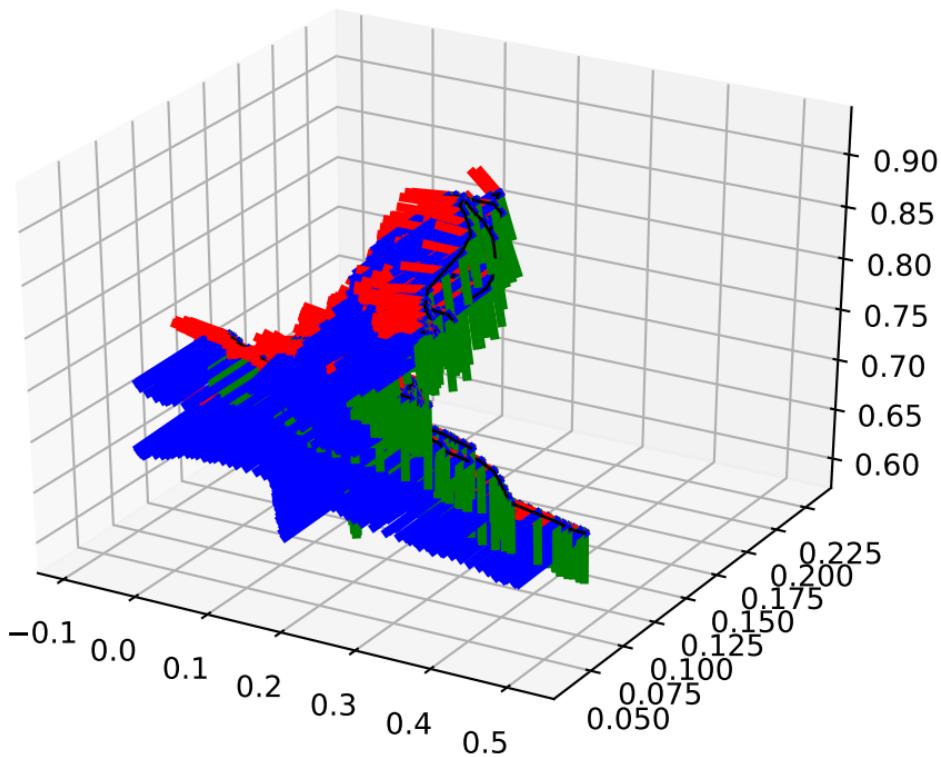
[0. 1. 0. 0.]

[0. 0. 1. 0.]

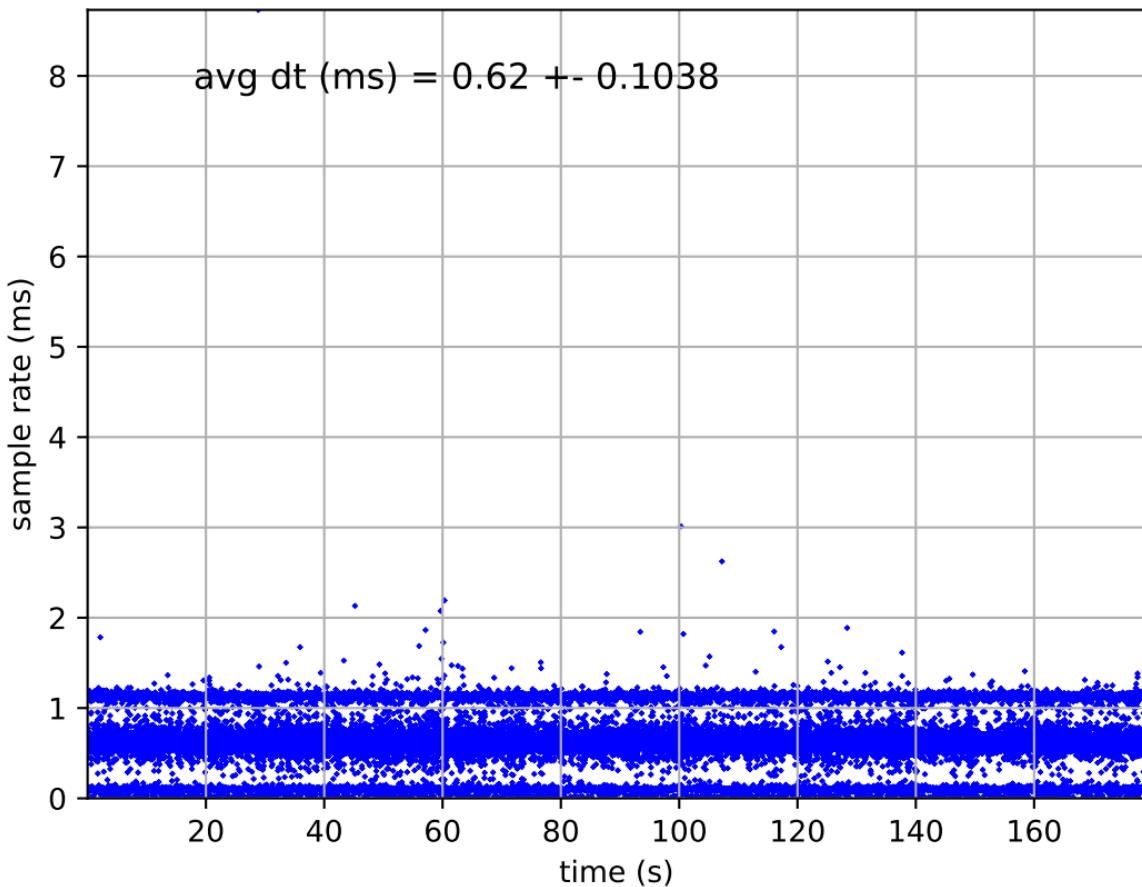
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

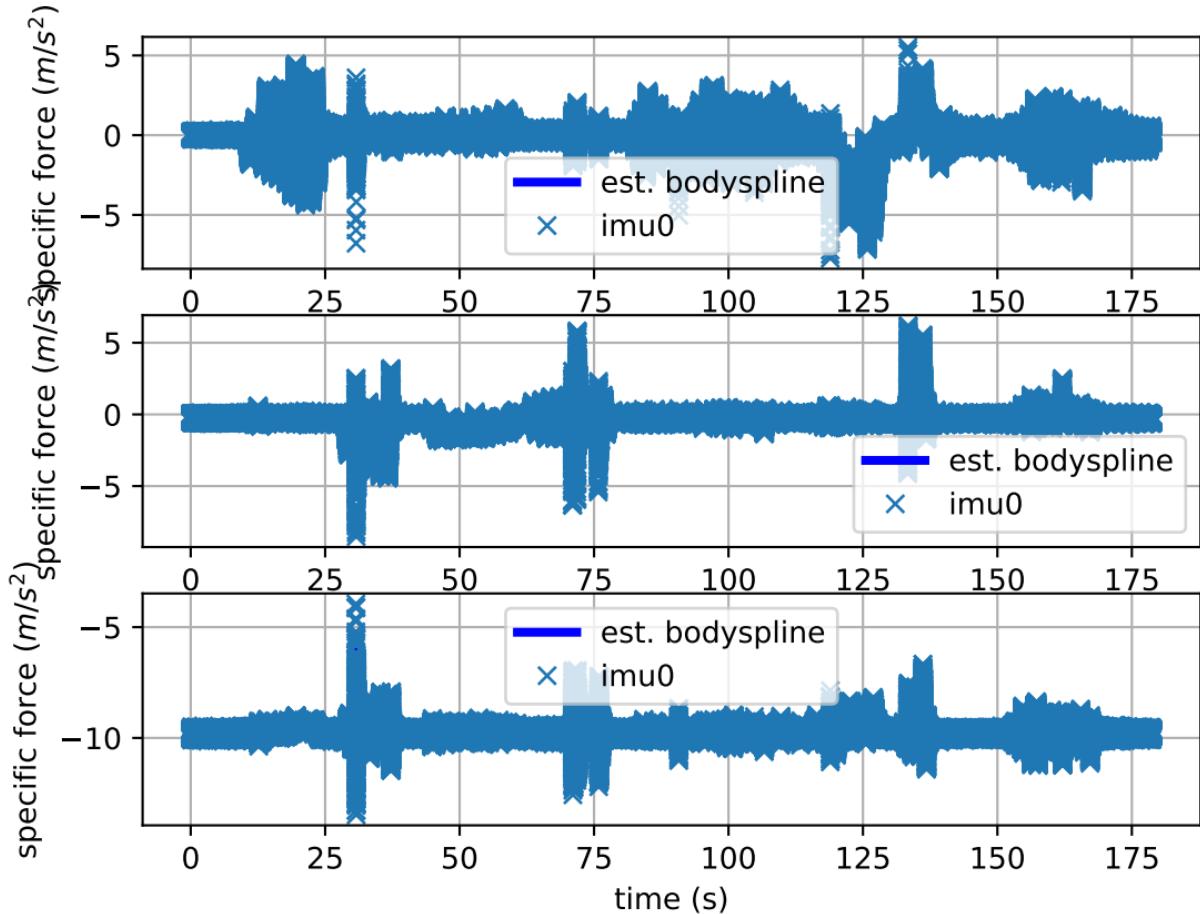
imu0: estimated poses



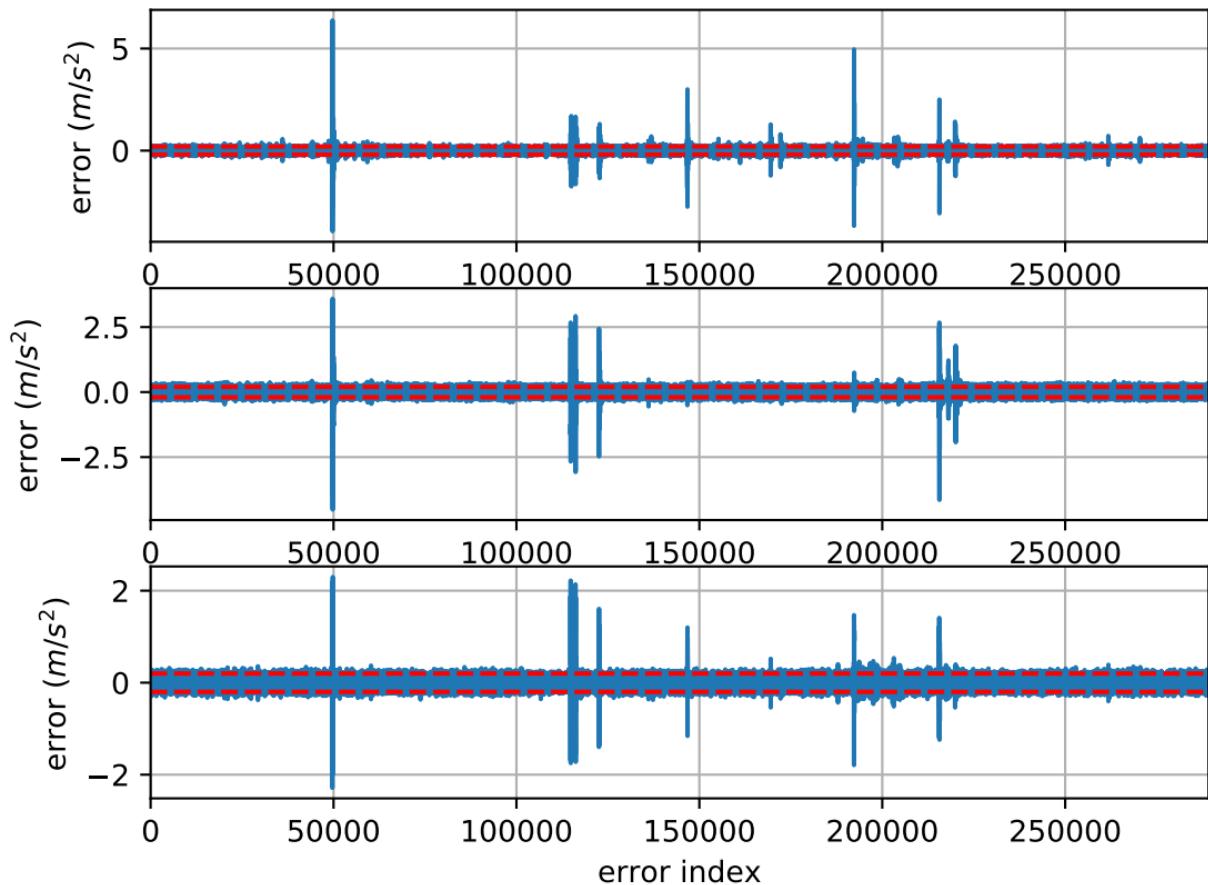
# imu0: sample inertial rate



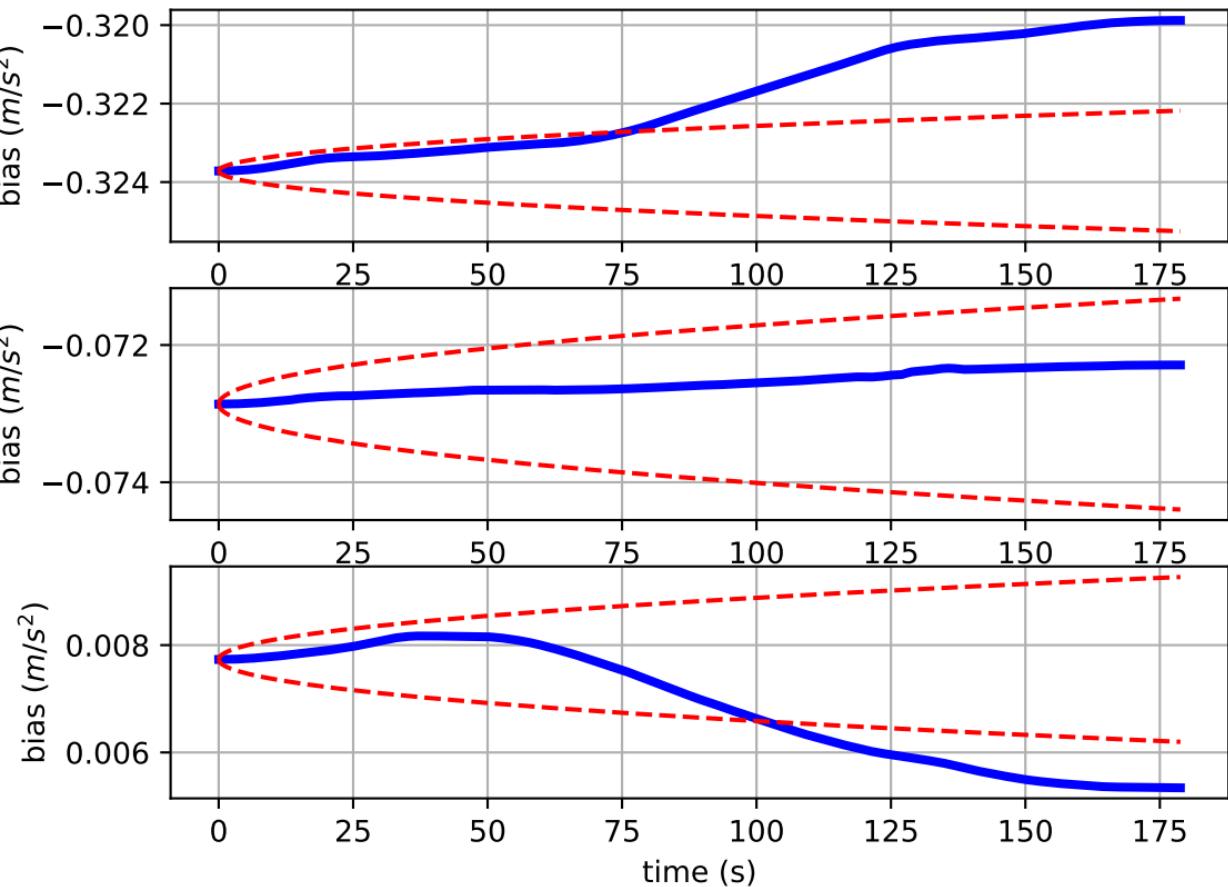
# Comparison of predicted and measured specific force (imu0 frame)



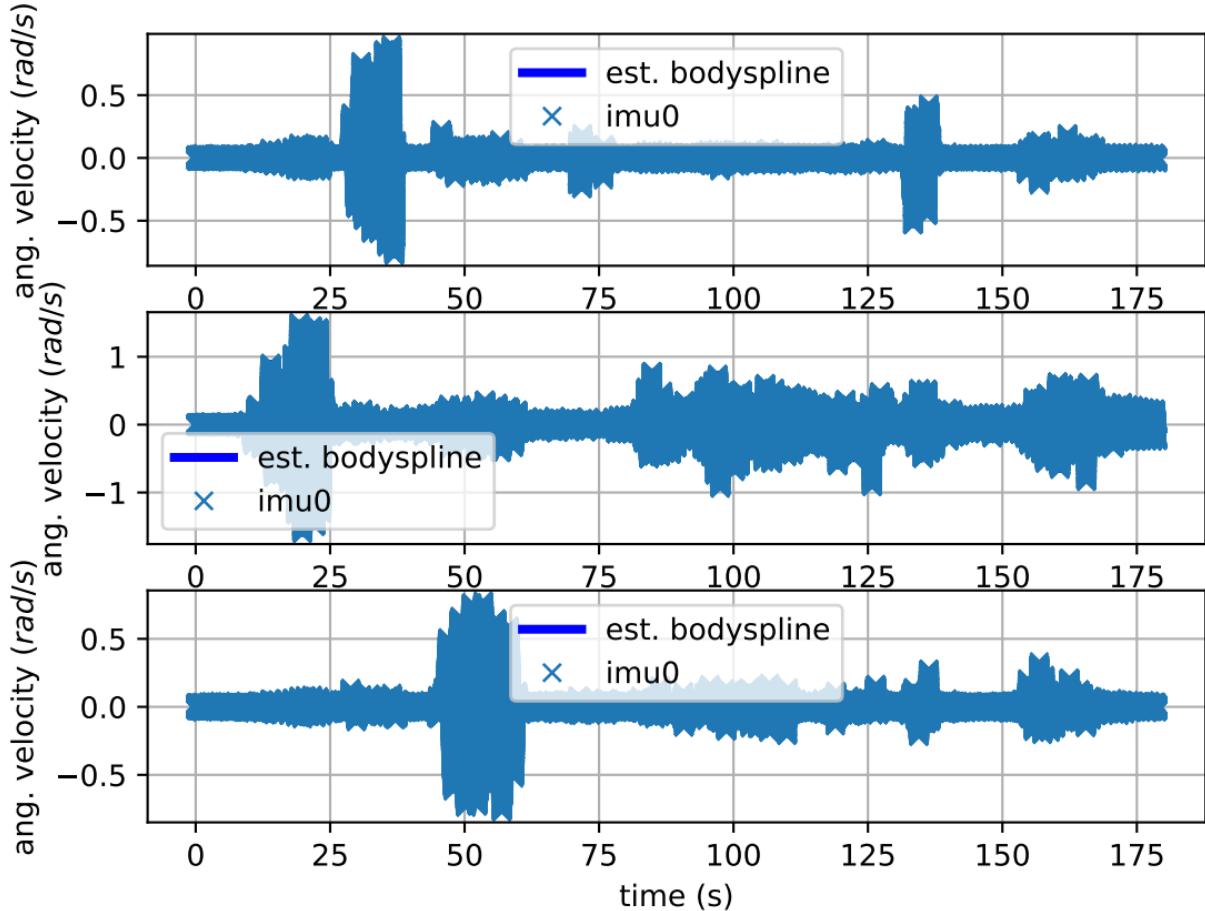
# imu0: acceleration error



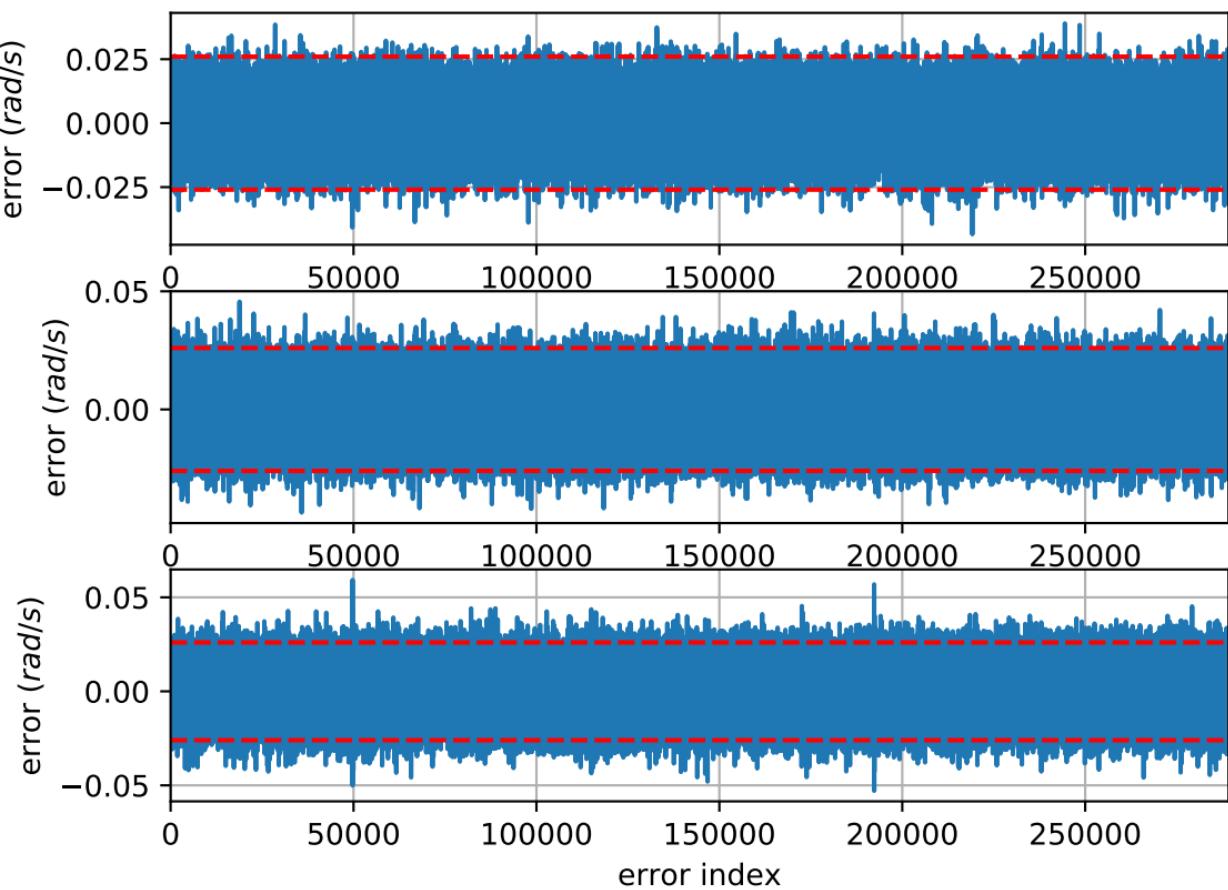
# imu0: estimated accelerometer bias (imu frame)



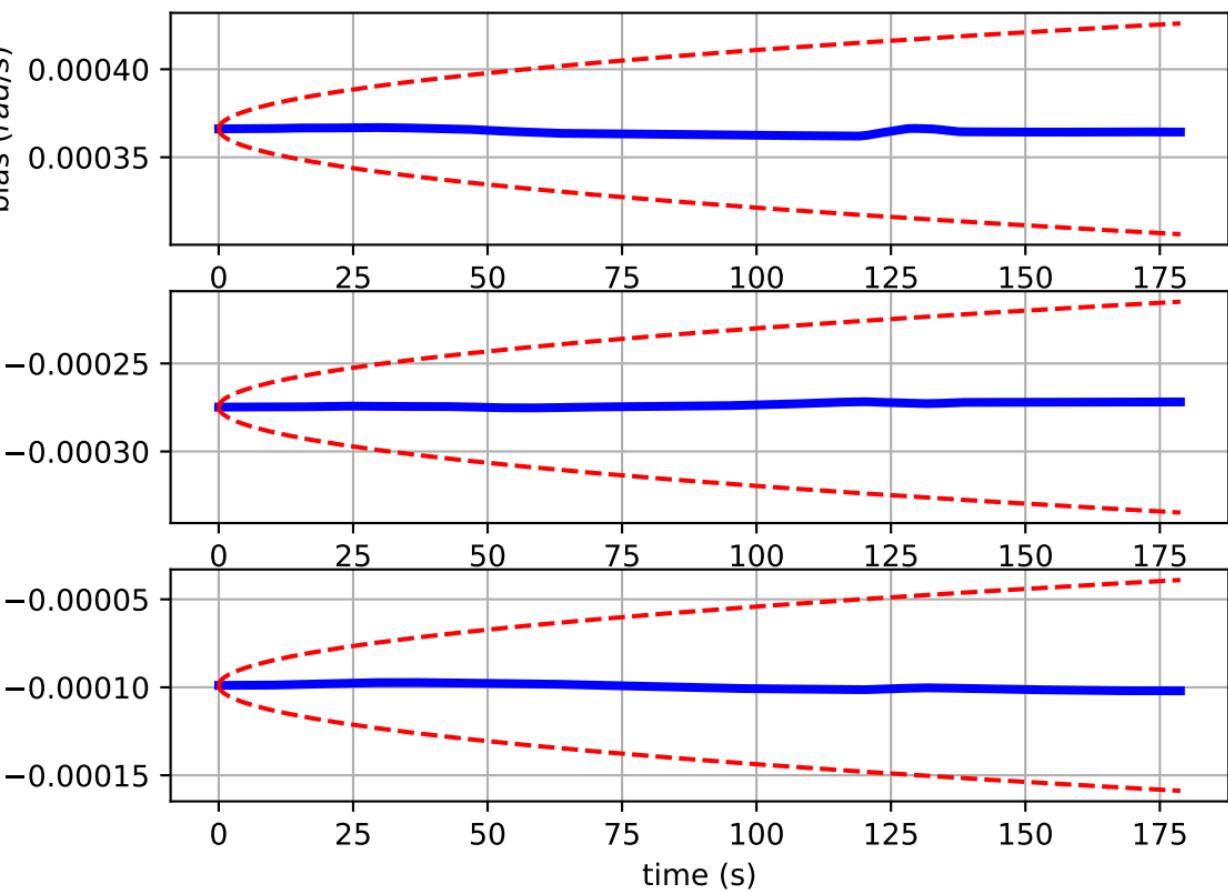
# Comparison of predicted and measured angular velocities (body frame)



# imu0: angular velocities error



# imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

