

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.2734743846875732, median 0.26224080246364995, std: 0.13484645926276878

Gyroscope error (imu0): mean 3.1992609317699103, median 3.0469453843241507, std: 1.4208434093624958

Accelerometer error (imu0): mean 5.2848989376853694, median 3.1884382189936273, std: 5.50681079848408

Residuals

Reprojection error (cam0) [px]: mean 0.2734743846875732, median 0.26224080246364995, std:
0.13484645926276878

Gyroscope error (imu0) [rad/s]: mean 0.015502424105656339, median 0.01476435982620319, std:
0.006884876722911901

Accelerometer error (imu0) [m/s^2]: mean 0.19703792274369497, median 0.1188751669378682, std:
0.20531150613659072

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.01972358 -0.99979656 -0.00422184 -0.01256394]
[0.00885826 0.00404775 -0.99995257 0.1663237]
[0.99976623 -0.01976004 0.00877663 -0.29412779]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.01972358 0.00885826 0.99976623 0.29233788]
[-0.99979656 0.00404775 -0.01976004 -0.0190466]
[-0.00422184 -0.99995257 0.00877663 0.16884422]
[0. 0. 0. 1.]]

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)

0.0034550804404969294

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

[-0.09749091 -9.7814255 -0.69471835]

Calibration configuration

cam0

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

IMU0:

Model: calibrated

Update rate: 500

Accelerometer:

Noise density: 0.0016673552118792998

Noise density (discrete): 0.037283195964006796

Random walk: 3.829685875596812e-05

Gyroscope:

Noise density: 0.0002167030126992594

Noise density (discrete): 0.004845626673245442

Random walk: 1.493115972409979e-06

T_ib (imu0 to imu0)

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

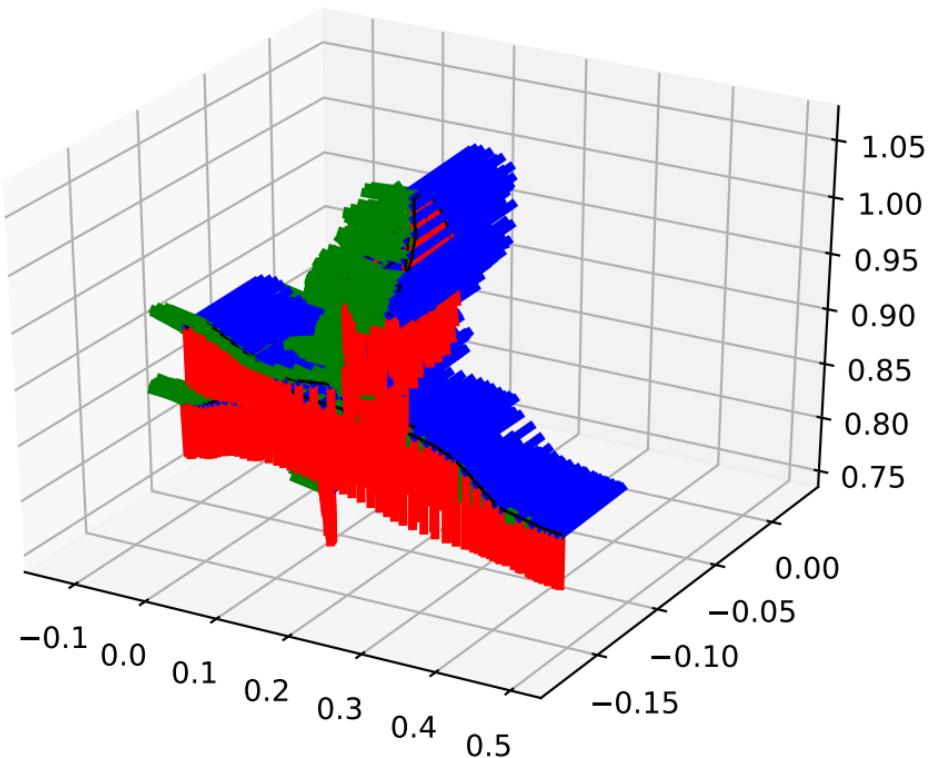
[0. 1. 0. 0.]

[0. 0. 1. 0.]

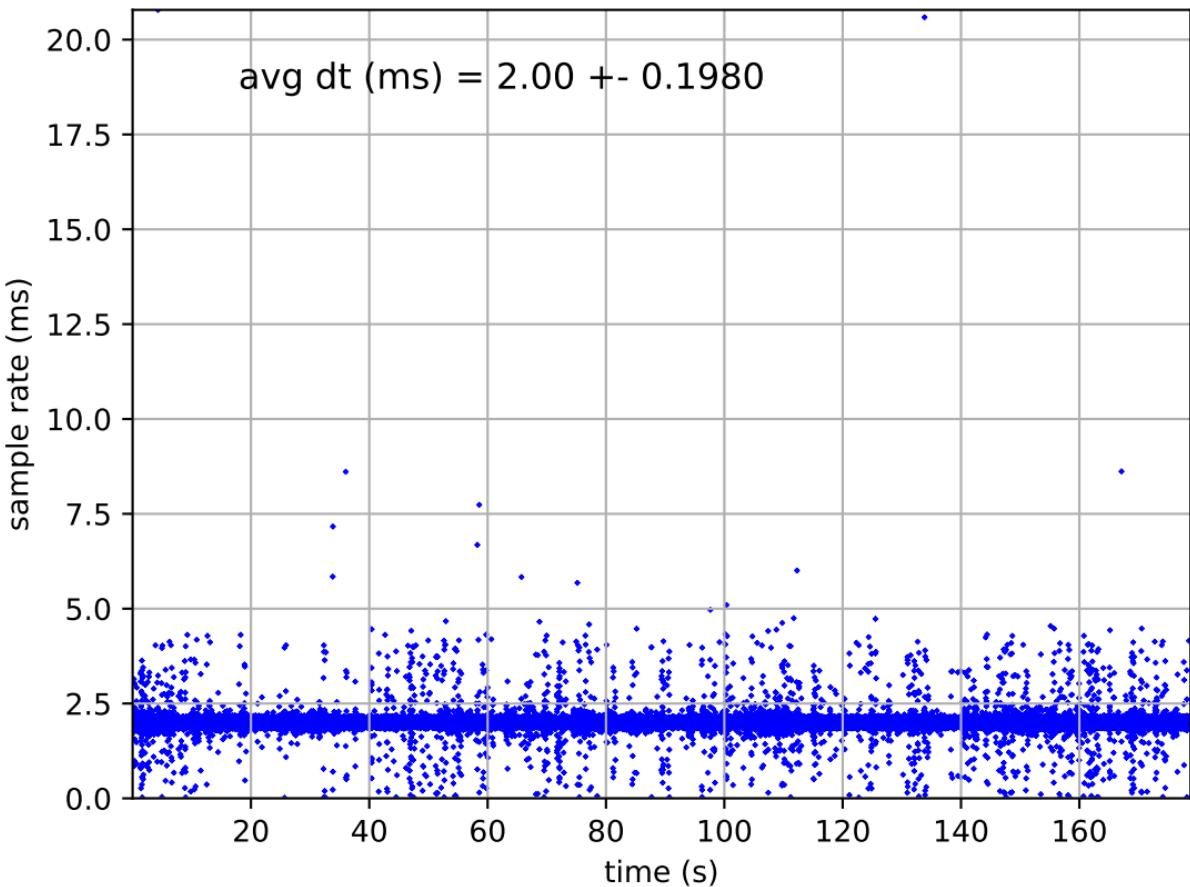
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

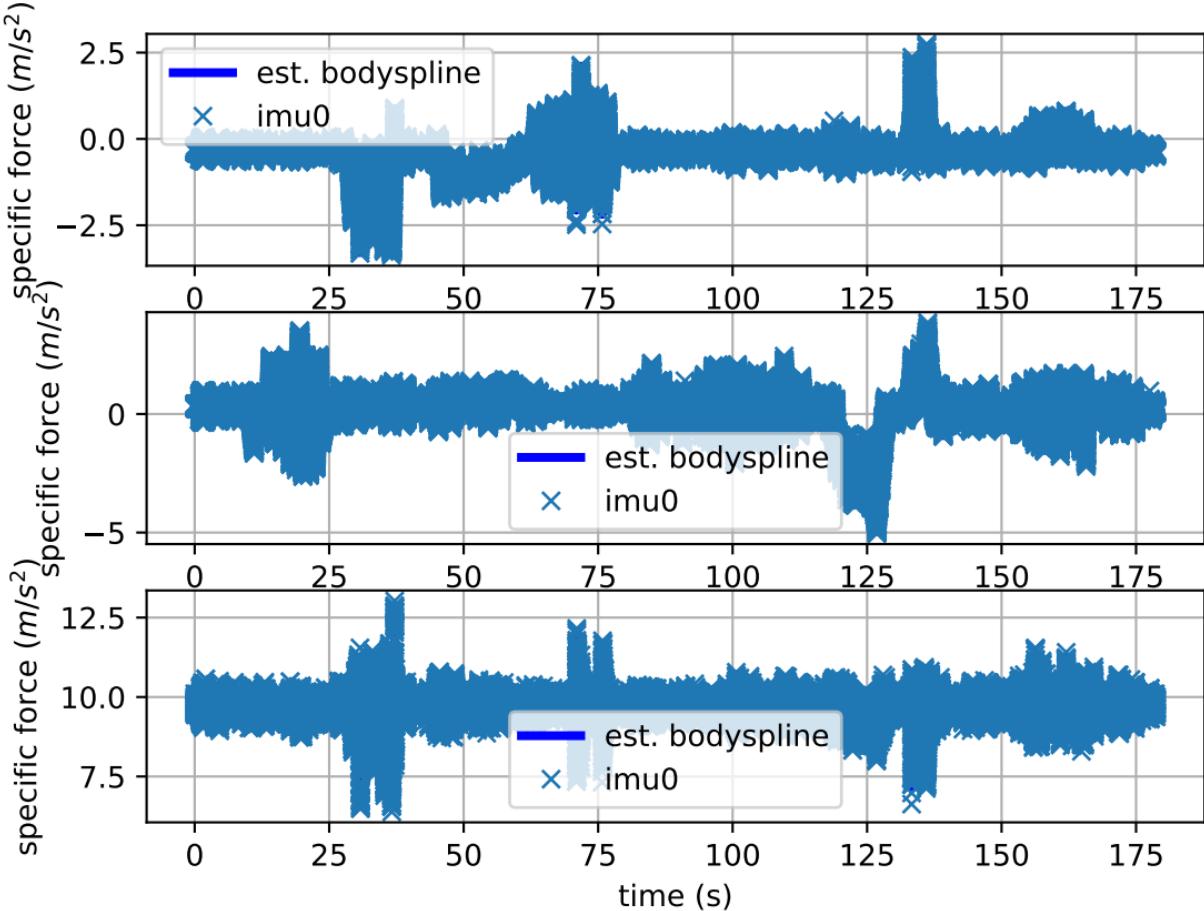
imu0: estimated poses



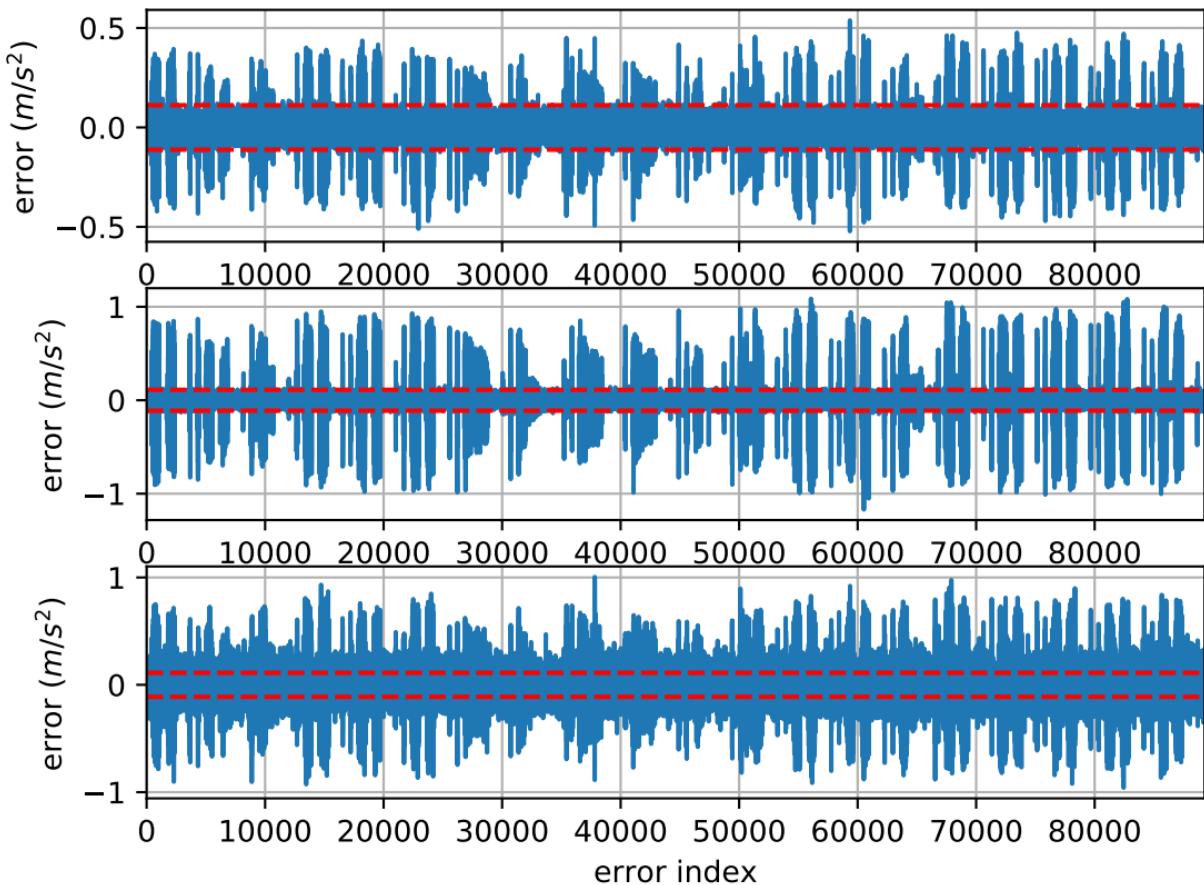
imu0: sample inertial rate



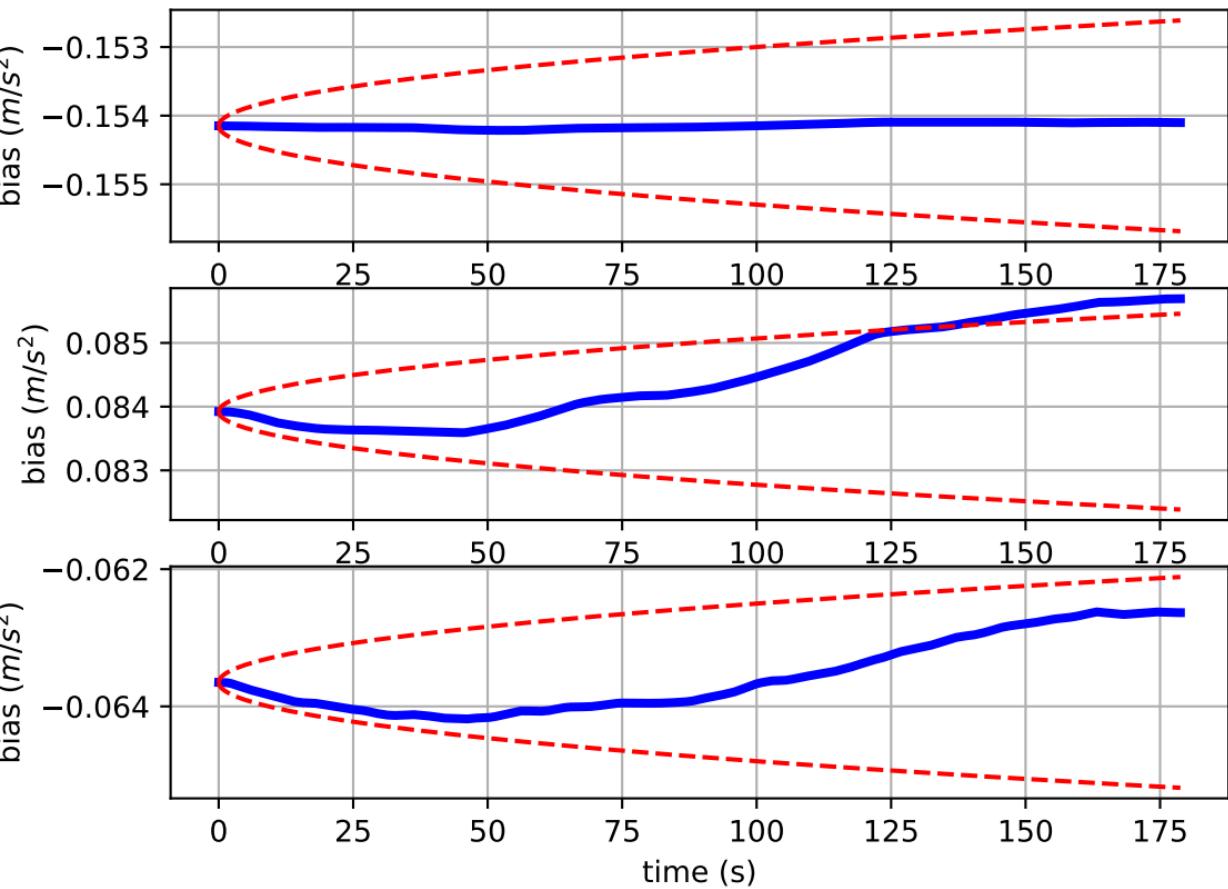
Comparison of predicted and measured specific force (imu0 frame)



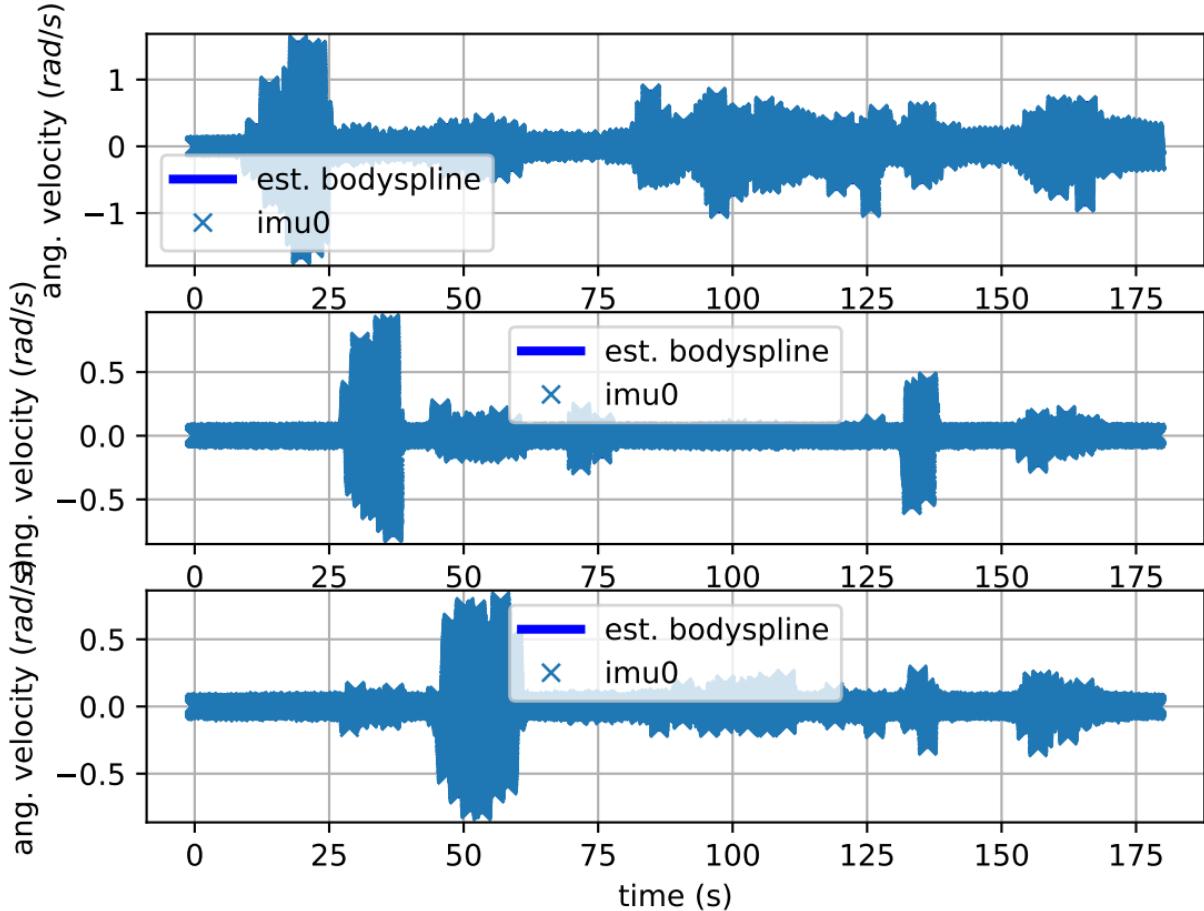
imu0: acceleration error



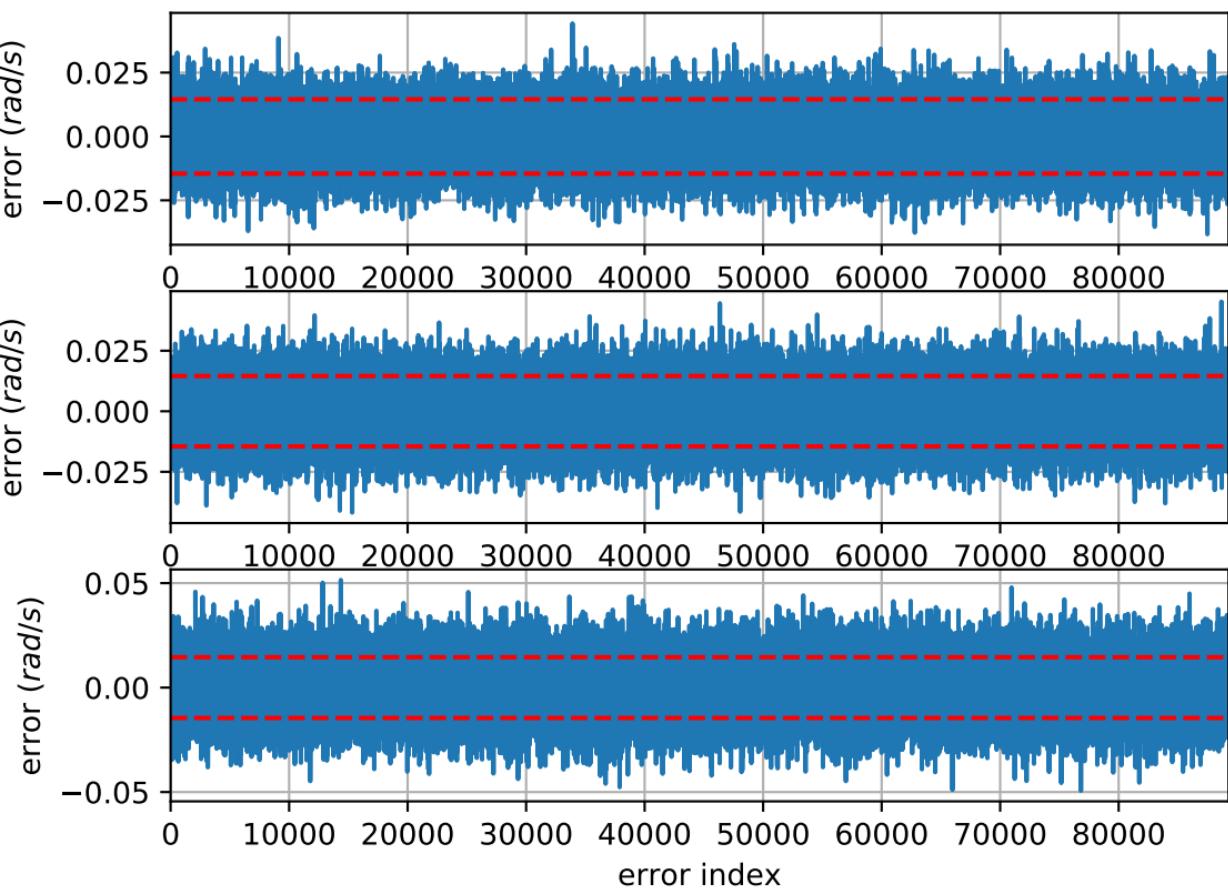
imu0: estimated accelerometer bias (imu frame)



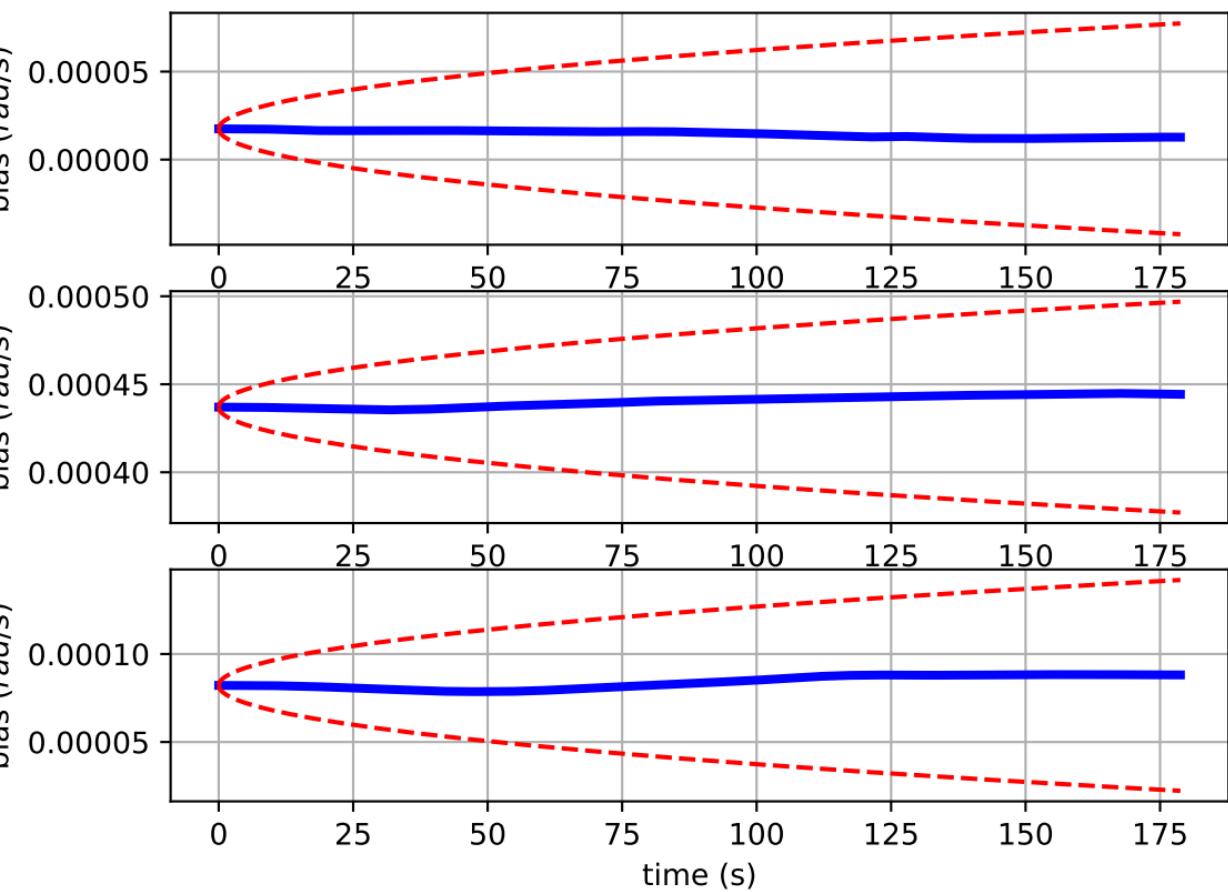
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

