

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.5756339903638292, median 0.5040850461969275, std: 0.350346875

Gyroscope error (imu0): mean 31.07630075580845, median 29.36921808918376, std: 14.51214167090

Accelerometer error (imu0): mean 0.5322902782172299, median 0.34297752856282204, std: 0.80015140

Residuals

Reprojection error (cam0) [px]: mean 0.5756339903638292, median 0.5040850461969275, std: 0.350346

Gyroscope error (imu0) [rad/s]: mean 0.0006382817204980002, median 0.0006032196431276149, std: 0

Accelerometer error (imu0) [m/s^2]: mean 0.009581225007910138, median 0.0061735955141307974, std:

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.00553725 0.99830489 0.05793686 0.04323875]

[0.99979833 -0.00440848 -0.01959246 -0.13672538]

[-0.01930383 0.05803366 -0.99812798 -0.13344563]

[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.00553725 0.99979833 -0.01930383 0.13388237]

[0.99830489 -0.00440848 0.05803366 -0.03602387]

[0.05793686 -0.01959246 -0.99812798 -0.13837972]

[0. 0. 0. 1.]]

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

0.03103310280098795

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

[9.79793261 -0.35600428 -0.20542722]

Calibration configuration

Camera model: pinhole
Focal length: [764.6113, 764.4725]
Principal point: [656.8556, 519.2676]
Distortion model: radtan
Distortion coefficients: [-0.3326, 0.1242, 0.00028155, 8.7935e-05]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.055 [m]
 Spacing 0.0165 [m]

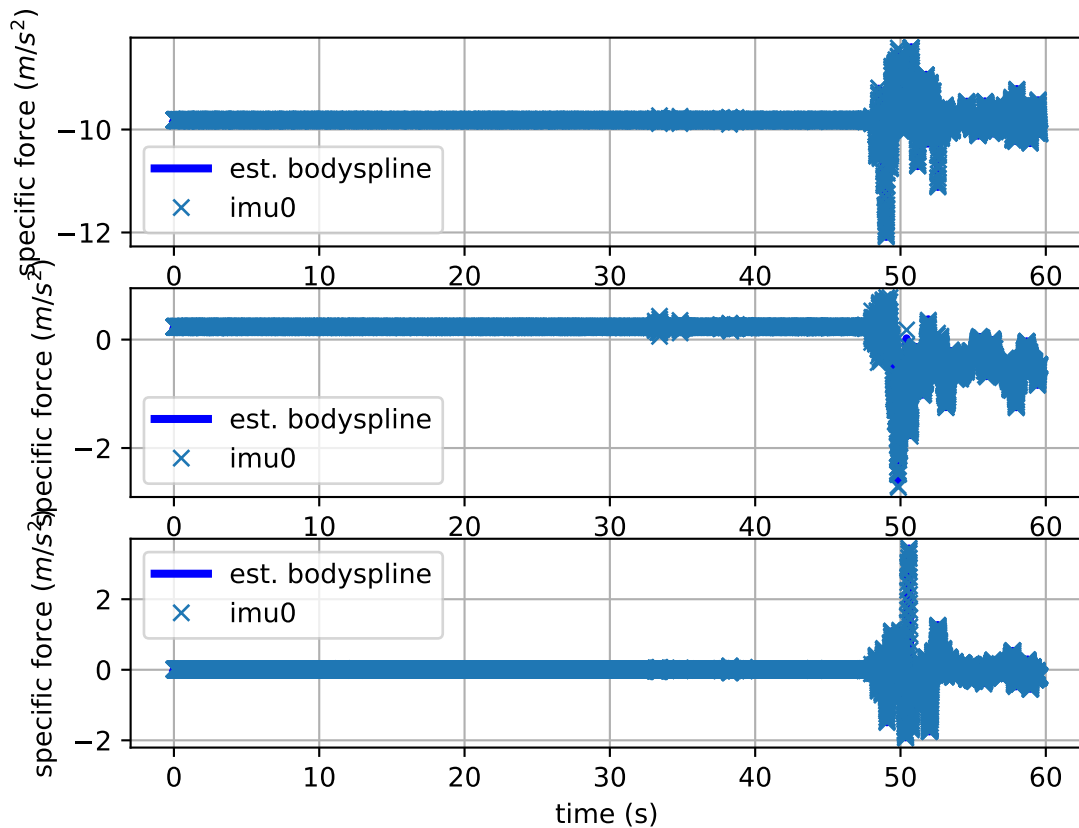
IMU configuration

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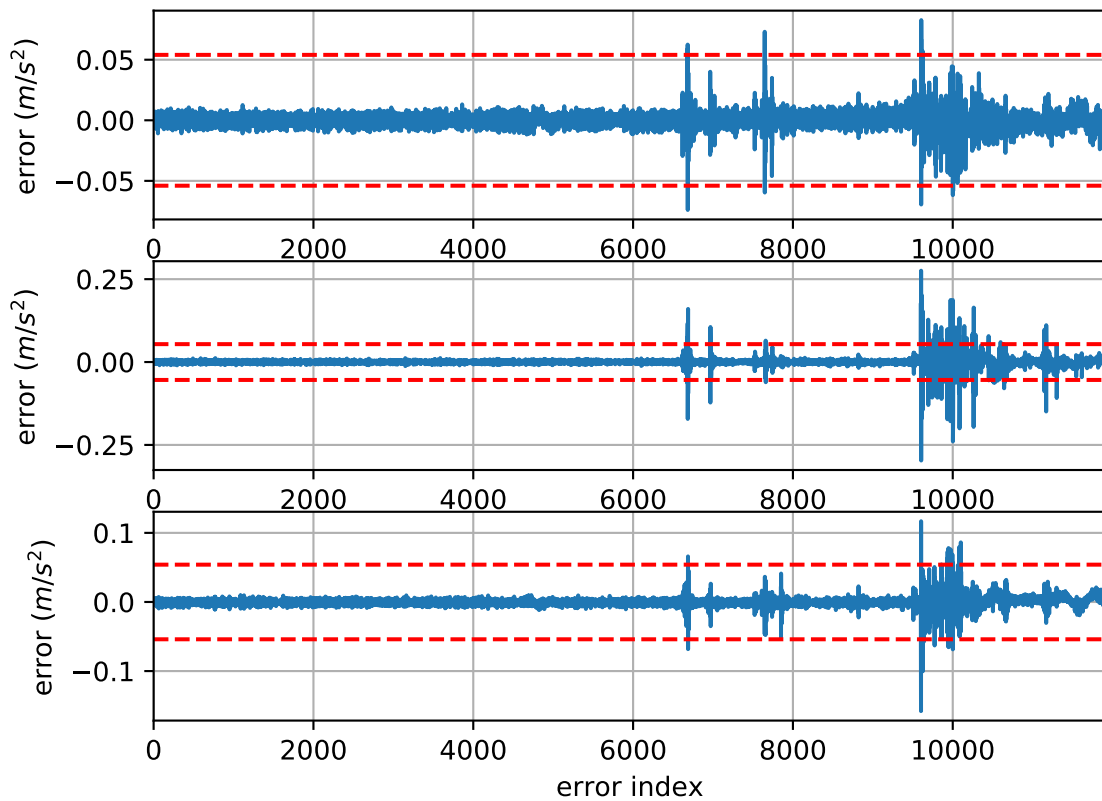
IMU0:

Model: calibrated
Update rate: 200.0
Accelerometer:
 Noise density: 0.0012727922061357858
 Noise density (discrete): 0.018000000000000002
 Random walk: 0.00024682682989768704
Gyroscope:
 Noise density: 1.4523393128996995e-06
 Noise density (discrete): 2.0539179534703772e-05
 Random walk: 0.000650445807572307
T_i_b
 [[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]

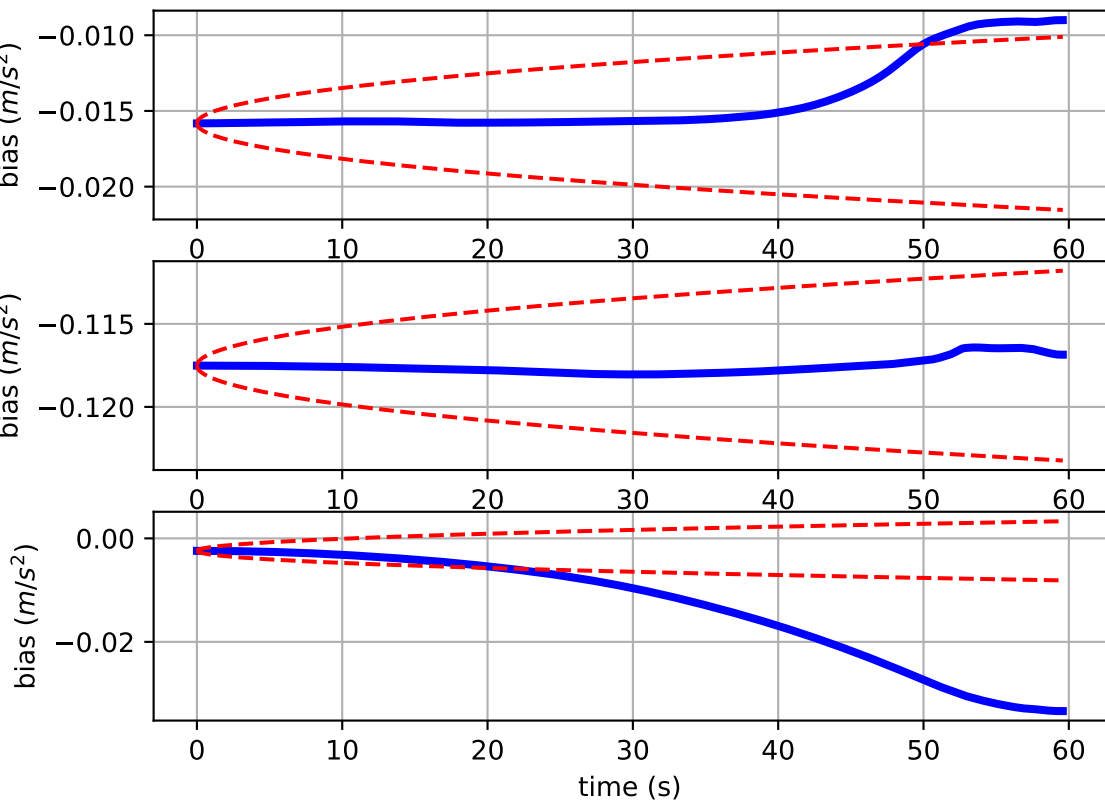
Comparison of predicted and measured specific force (imu0 frame)



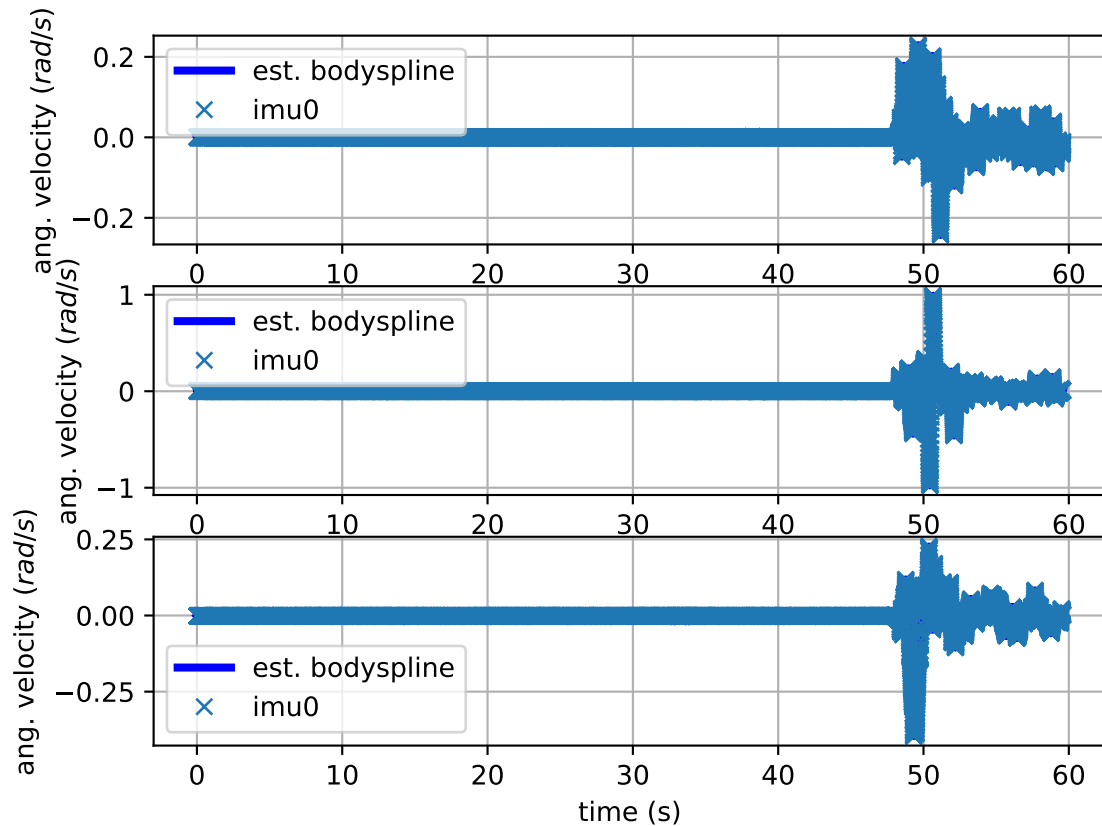
imu0: acceleration error



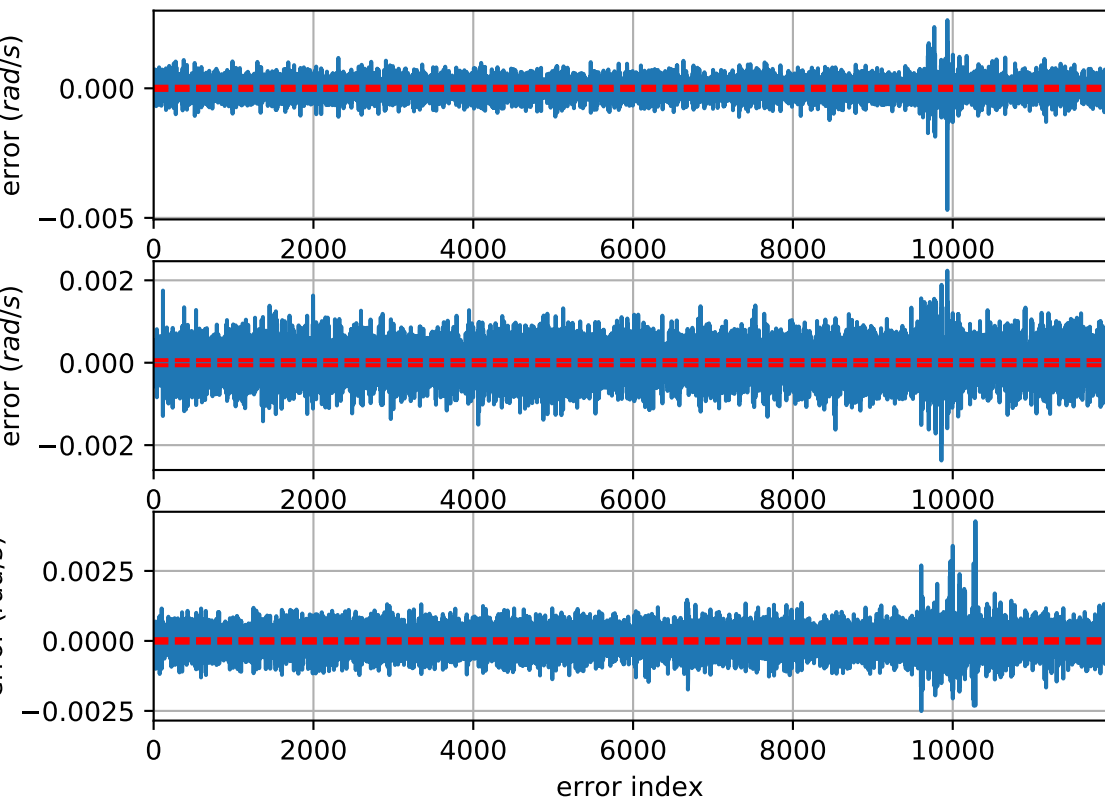
imu0: estimated accelerometer bias (imu frame)



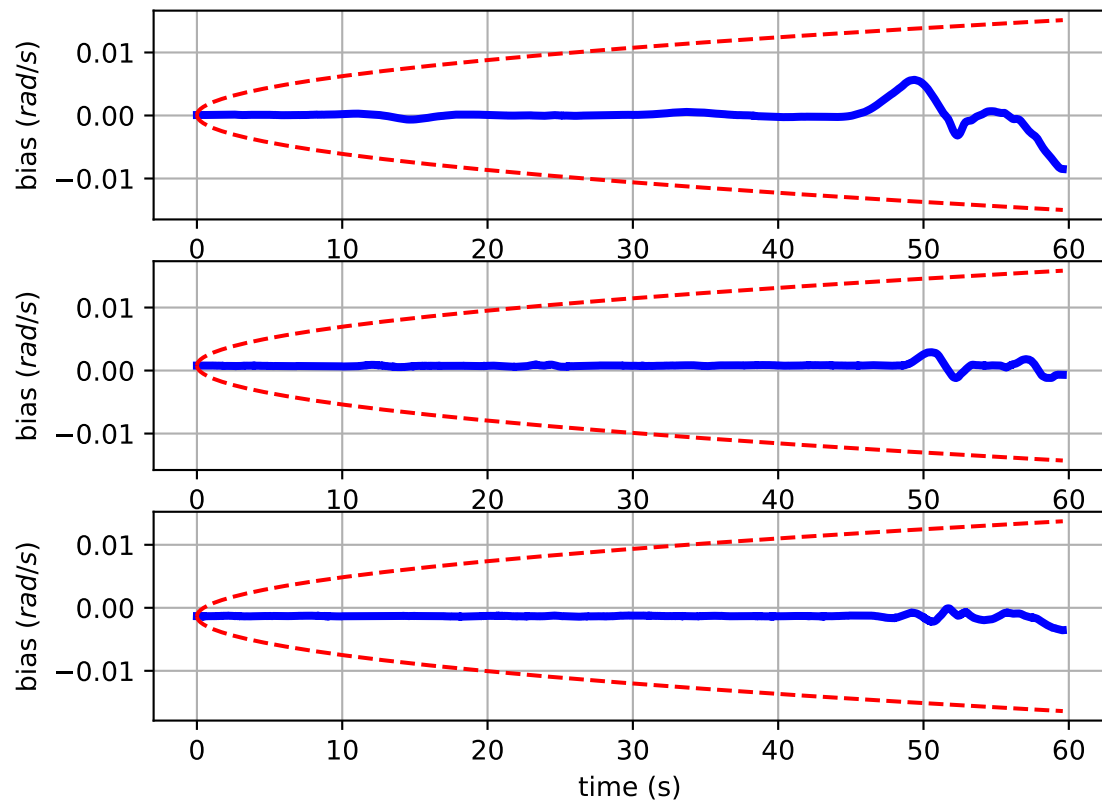
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

