

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.152713434122, median 0.131108725209, std: 0.108070534403

Gyroscope error (imu0): mean 0.00832787659241, median 0.00685409601109, std: 0.00664622958502

Accelerometer error (imu0): mean 0.017194061388, median 0.0128537601031, std: 0.026434204942

Residuals

Reprojection error (cam0) [px]: mean 0.152713434122, median 0.131108725209, std: 0.108070534403

Gyroscope error (imu0) [rad/s]: mean 0.0131675290524, median 0.0108372773483, std: 0.010508611670

Accelerometer error (imu0) [m/s^2]: mean 0.0543723962149, median 0.0406471584231, std: 0.083592295

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ 0.99997115  0.0013817 -0.00746962  0.0001805 ]
 [-0.00140853  0.99999257 -0.00358775 -0.00431635]
 [ 0.0074646  0.00359816  0.99996567 -0.02754739]
 [ 0.         0.         0.         1.         ]]
```

T_ic: (cam0 to imu0):

```
[[ 0.99997115 -0.00140853  0.0074646  0.00001905]
 [ 0.0013817  0.99999257  0.00359816  0.00441519]
 [-0.00746962 -0.00358775  0.99996567  0.0275323 ]
 [ 0.         0.         0.         1.         ]]
```

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

0.00553280564011

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

[0.05630158 -9.30066998 -3.10850302]

Calibration configuration

Camera model: pinhole

Focal length: [172.98992850734132, 172.98303181090185]

Principal point: [163.33639726024606, 134.99537889030861]

Distortion model: equidistant

Distortion coefficients: [-0.027576733308582076, -0.006593578674675004, 0.0008566938165177085, -0.00012345678901234567]

Type: aprilgrid

Tags:

Rows: 4

Cols: 5

Size: 0.075 [m]

Spacing 0.015 [m]

IMU configuration

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IMU0:

Model: calibrated

Update rate: 1000.0

Accelerometer:

Noise density: 0.1

Noise density (discrete): 3.16227766017

Random walk: 0.002

Gyroscope:

Noise density: 0.05

Noise density (discrete): 1.58113883008

Random walk: 4e-05

T_i_b

[[1. 0. 0. 0.]

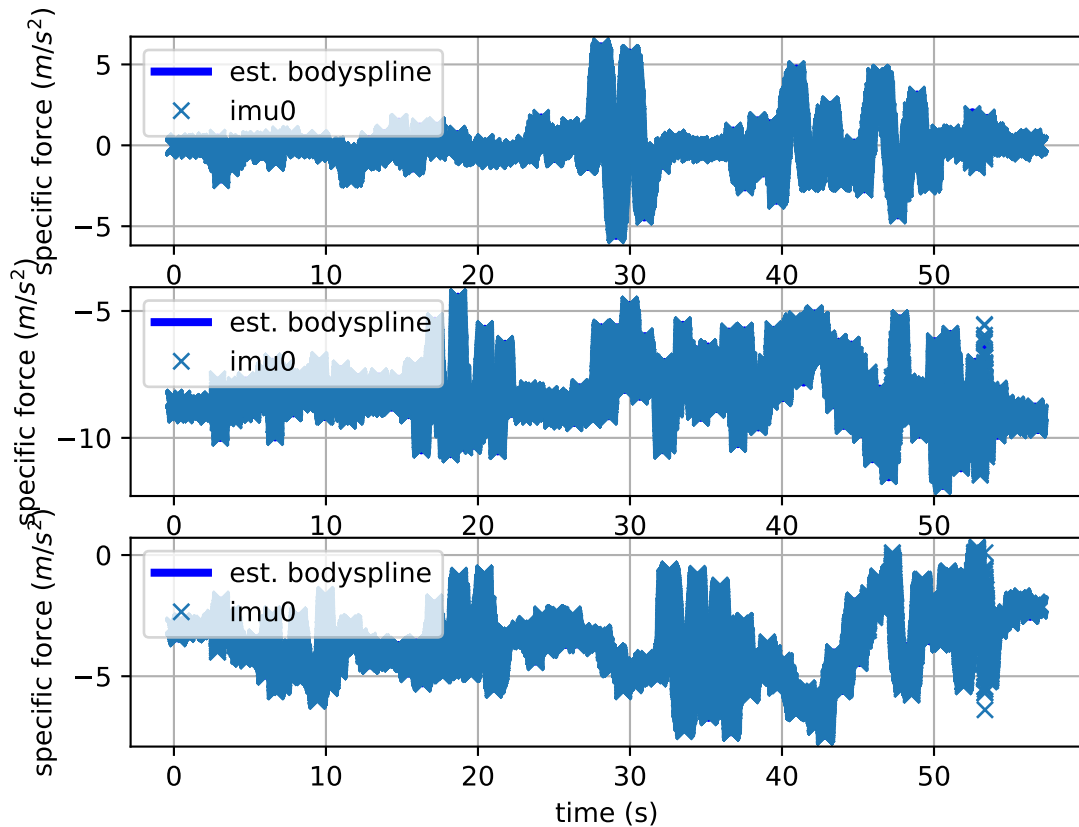
[0. 1. 0. 0.]

[0. 0. 1. 0.]

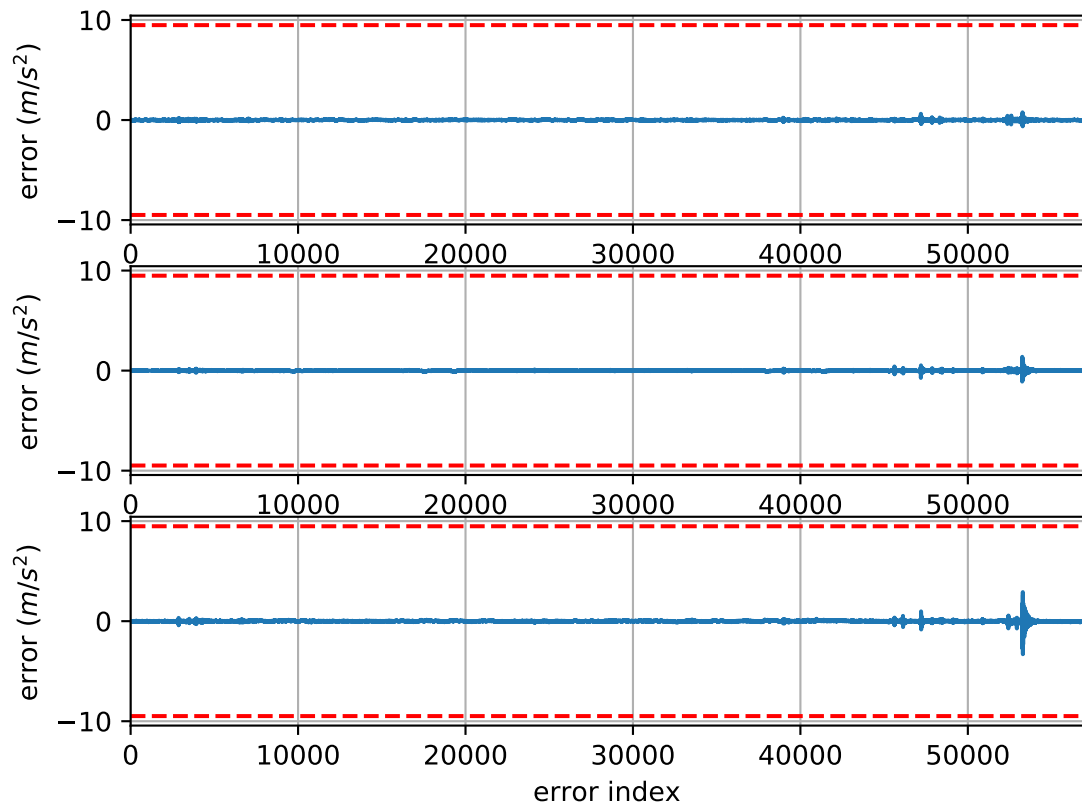
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

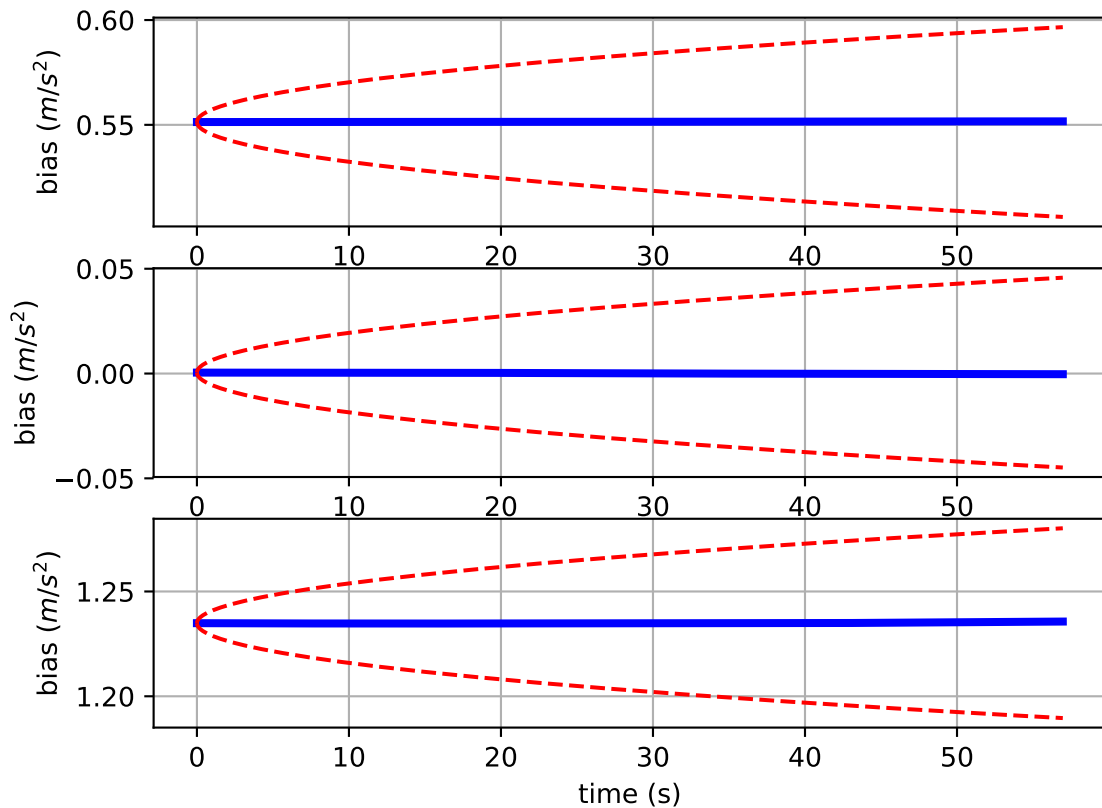
Comparison of predicted and measured specific force (imu0 frame)



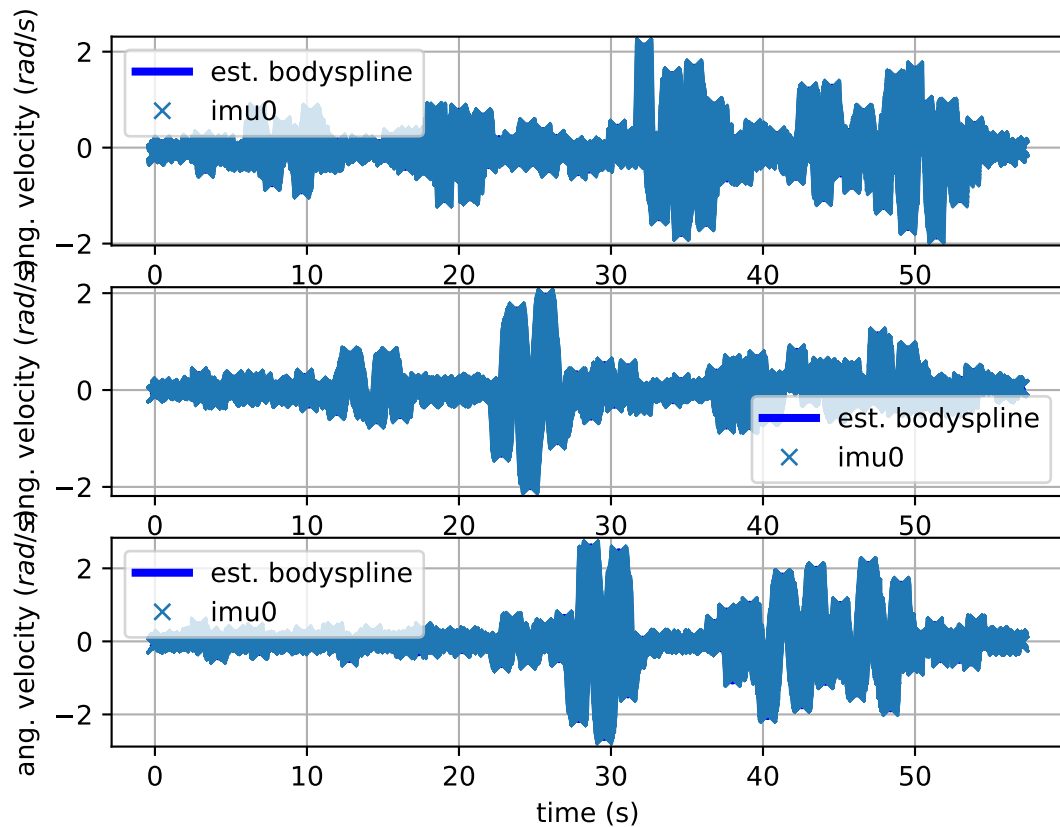
imu0: acceleration error



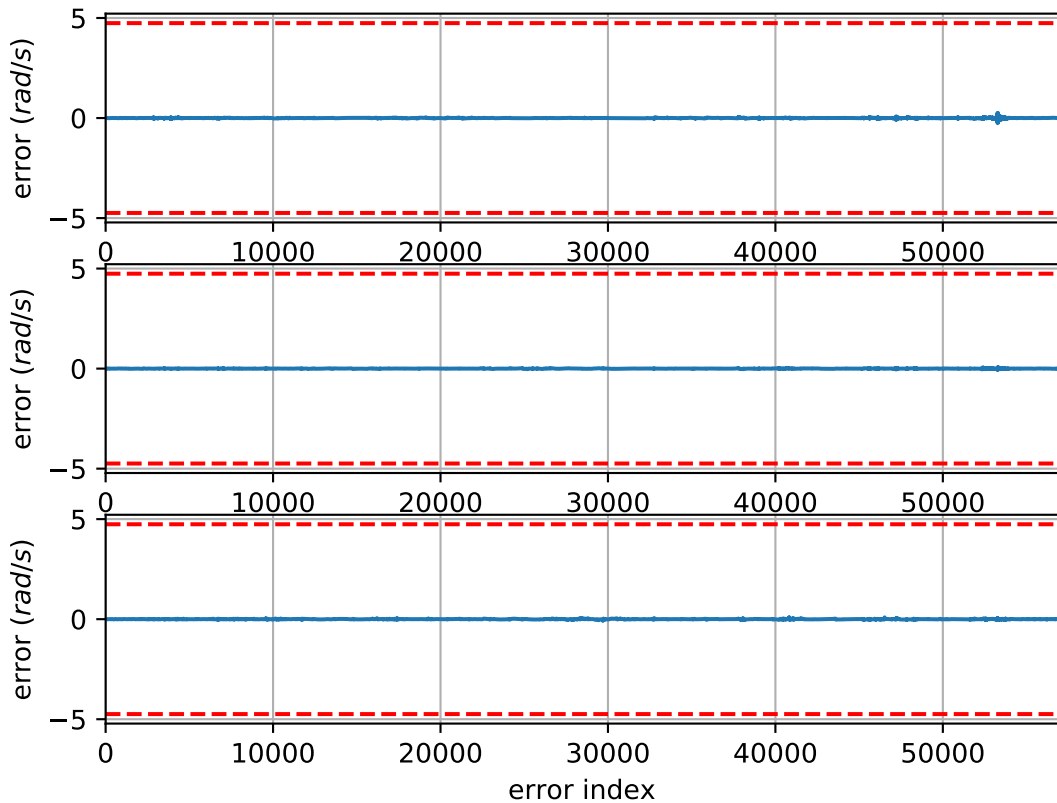
imu0: estimated accelerometer bias (imu frame)



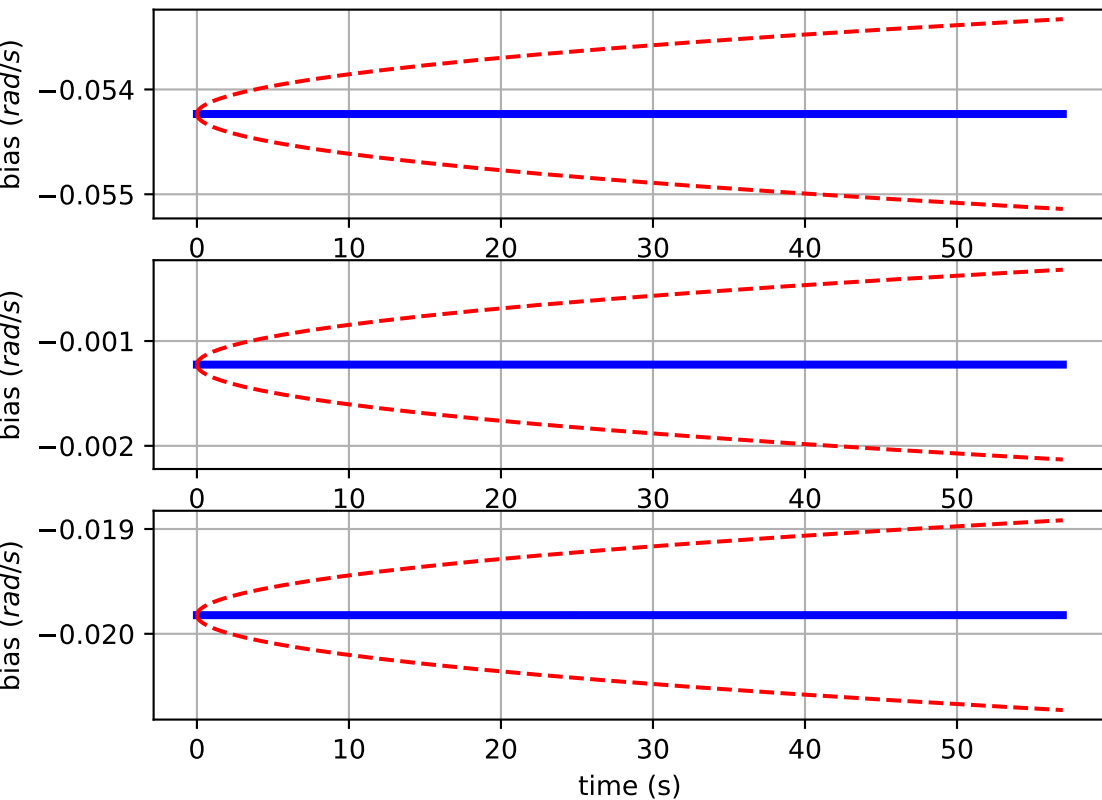
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

