

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.38355203083063105, median 0.3091177959361564, std: 0.2927396768242066

Reprojection error (cam1): mean 0.3758144099556683, median 0.303997754800075, std: 0.2844314598963594

Gyroscope error (imu0): mean 2.2325285741261127, median 1.8338462952076842, std: 1.8286179662658162

Accelerometer error (imu0): mean 0.8836900983115358, median 0.7886572512459511, std: 0.5139006683865386

Residuals

Reprojection error (cam0) [px]: mean 0.38355203083063105, median 0.3091177959361564, std: 0.2927396768242066

Reprojection error (cam1) [px]: mean 0.3758144099556683, median 0.303997754800075, std: 0.2844314598963594

Gyroscope error (imu0) [rad/s]: mean 0.00271525408160657, median 0.002230367259711711, std:

0.002224008442331313

Accelerometer error (imu0) [m/s^2]: mean 0.017496171307537823, median 0.015614616930862735, std:

0.010174714129227777

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ 0.01266749 -0.99991959 -0.00059781  0.02104339]
 [-0.00244429  0.00056689 -0.99999685 -0.00561501]
 [ 0.99991678  0.01266891 -0.00243691 -0.02642617]
 [ 0.          0.          0.          1.        ]]
```

T_ic: (cam0 to imu0):

```
[[ 0.01266749 -0.00244429  0.99991678  0.02614368]
 [-0.99991959  0.00056689  0.01266891  0.02137967]
 [-0.00059781 -0.99999685 -0.00243691 -0.00566681]
 [ 0.          0.          0.          1.        ]]
```

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

0.02413528344876826

Transformation (cam1):

T_ci: (imu0 to cam1):
[[0.00799162 -0.99996795 -0.00047422 -0.0986208]
[-0.00395383 0.00044263 -0.99999209 -0.00571842]
[0.99996025 0.00799343 -0.00395017 -0.02660818]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[0.00799162 -0.00395383 0.99996025 0.02737265]
[-0.99996795 0.00044263 0.00799343 -0.09840241]
[-0.00047422 -0.99999209 -0.00395017 -0.00587025]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
0.02577191082018823

Baselines:

Baseline (cam0 to cam1):
[[0.99998906 -0.00011219 -0.0046764 -0.11978817]
[0.00010512 0.99999885 -0.001511 -0.00014556]
[0.00467656 0.00151049 0.99998792 -0.00027226]
[0. 0. 0. 1.]]
baseline norm: 0.11978856632066871 [m]

Gravity vector in target coords: [m/s^2]
[-0.27774774 -9.76940461 -0.80623362]

Calibration configuration

=====

cam0

Camera model: pinhole
Focal length: [260.4708254827622, 261.839672846784]
Principal point: [311.4989497955604, 183.83828311365187]
Distortion model: radtan
Distortion coefficients: [-0.04047286101733648, 0.03290399844880891, -3.639089000347129e-05, -7.543482846769623e-05]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.022 [m]
Spacing 0.006489999999999999 [m]

cam1

====

Camera model: pinhole
Focal length: [259.8971704001385, 261.2575486475671]
Principal point: [312.24425384714283, 184.1229328586056]
Distortion model: radtan
Distortion coefficients: [-0.02949275721766671, 0.02160932560841085, 0.0016769349691857051, -0.0011984007286533849]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.022 [m]
Spacing 0.006489999999999999 [m]

IMU configuration

=====

IMU0:

Model: calibrated
Update rate: 200.0

Accelerometer:

Noise density: 0.0014

Noise density (discrete): 0.01979898987322333

Random walk: 8e-05

Gyroscope:

Noise density: 8.6e-05

Noise density (discrete): 0.0012162236636408619

Random walk: 2.2e-06

T_ib (imu0 to imu0)

[[1. 0. 0. 0.]

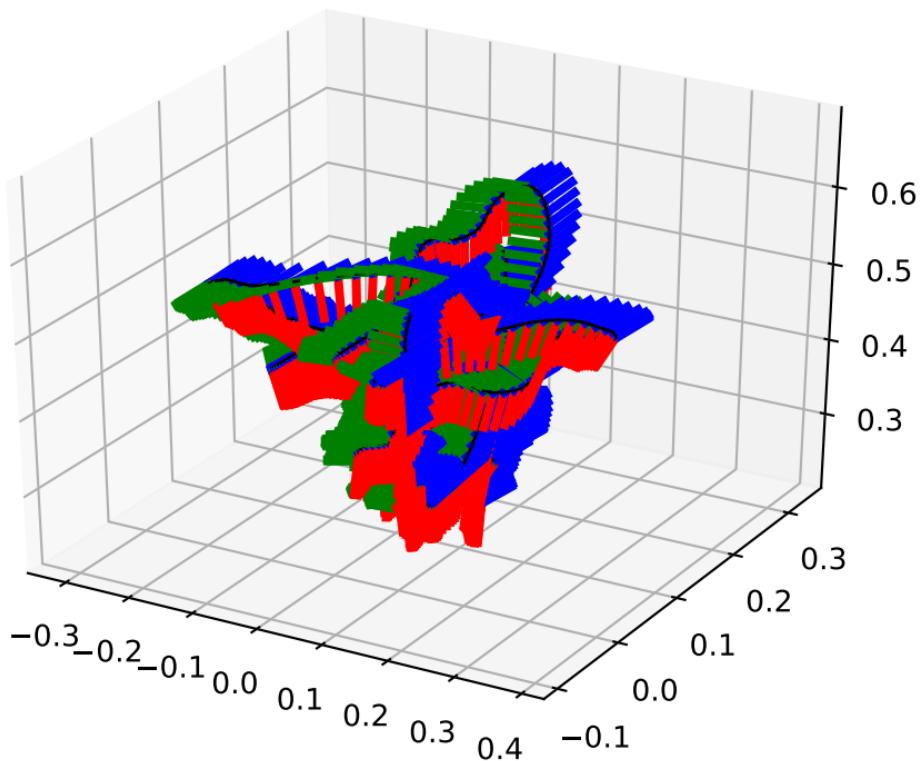
[0. 1. 0. 0.]

[0. 0. 1. 0.]

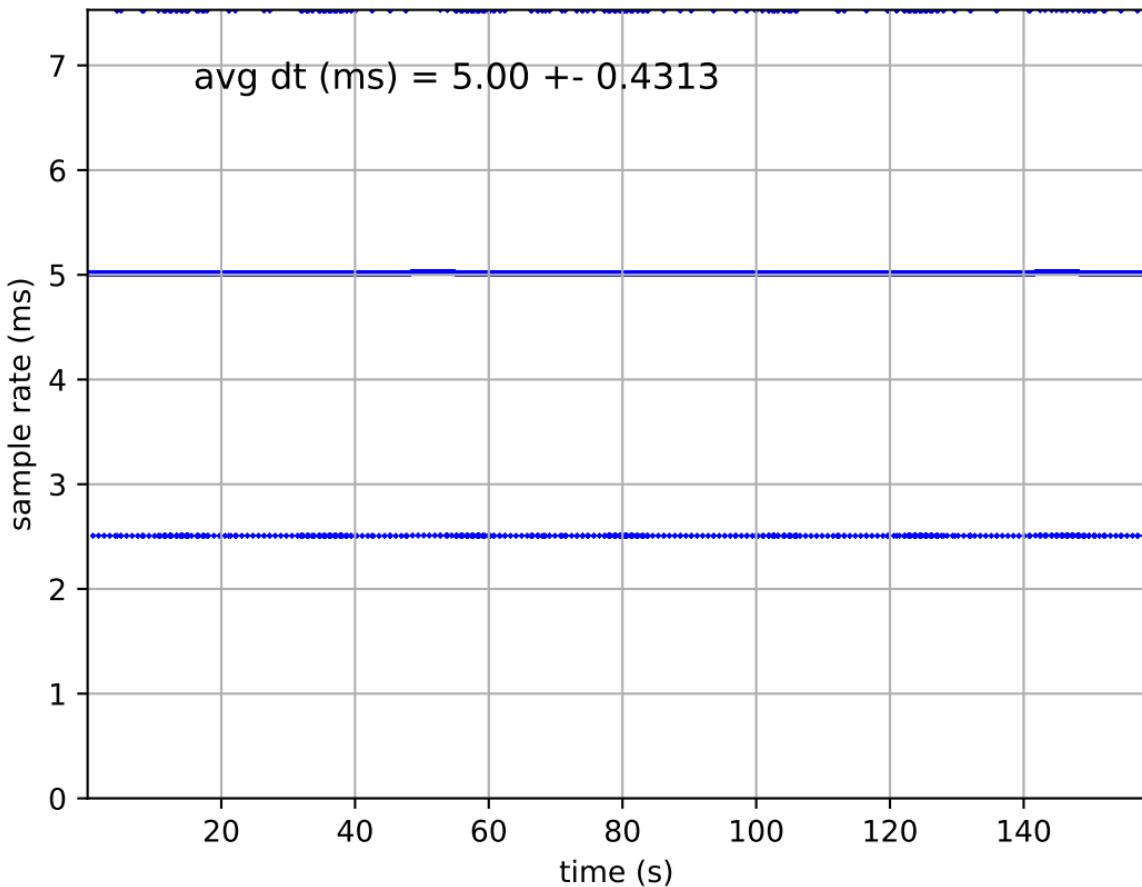
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

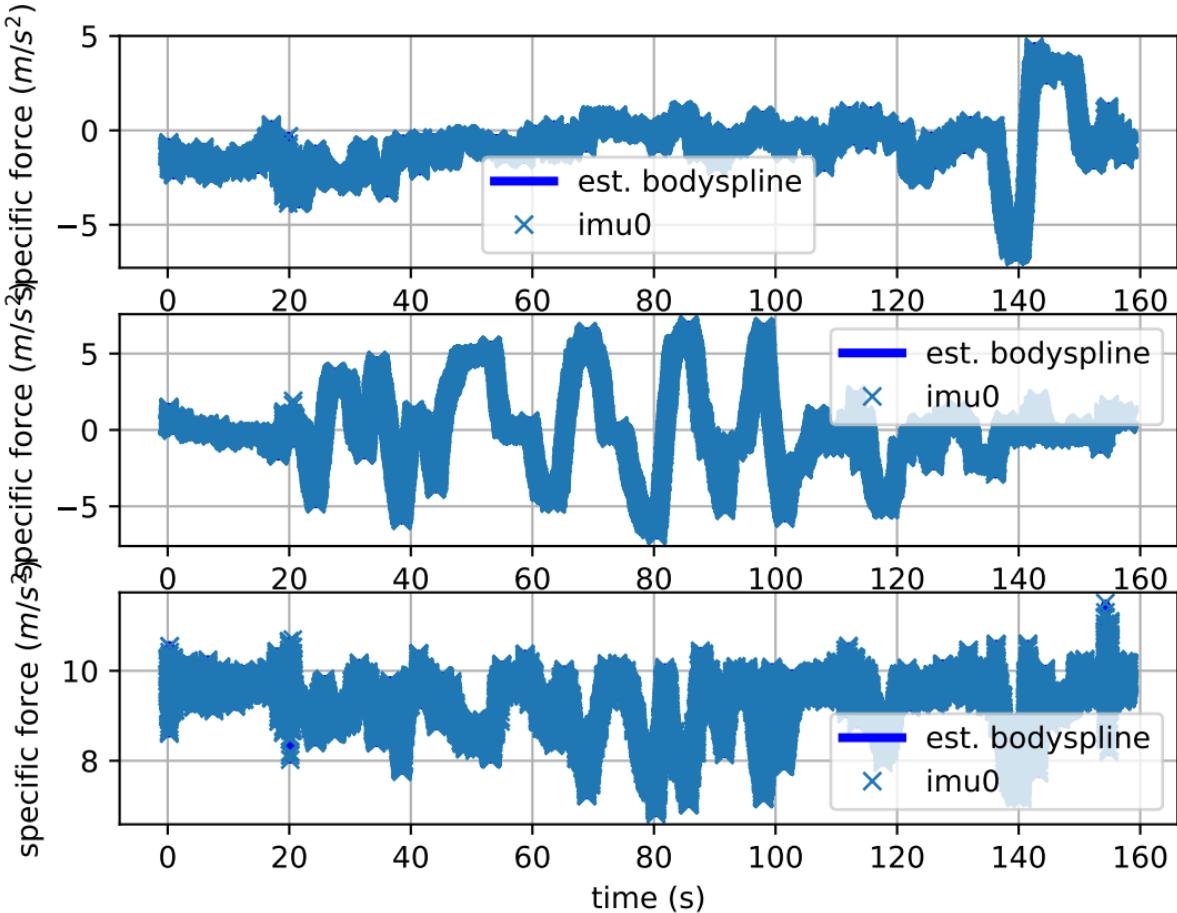
imu0: estimated poses



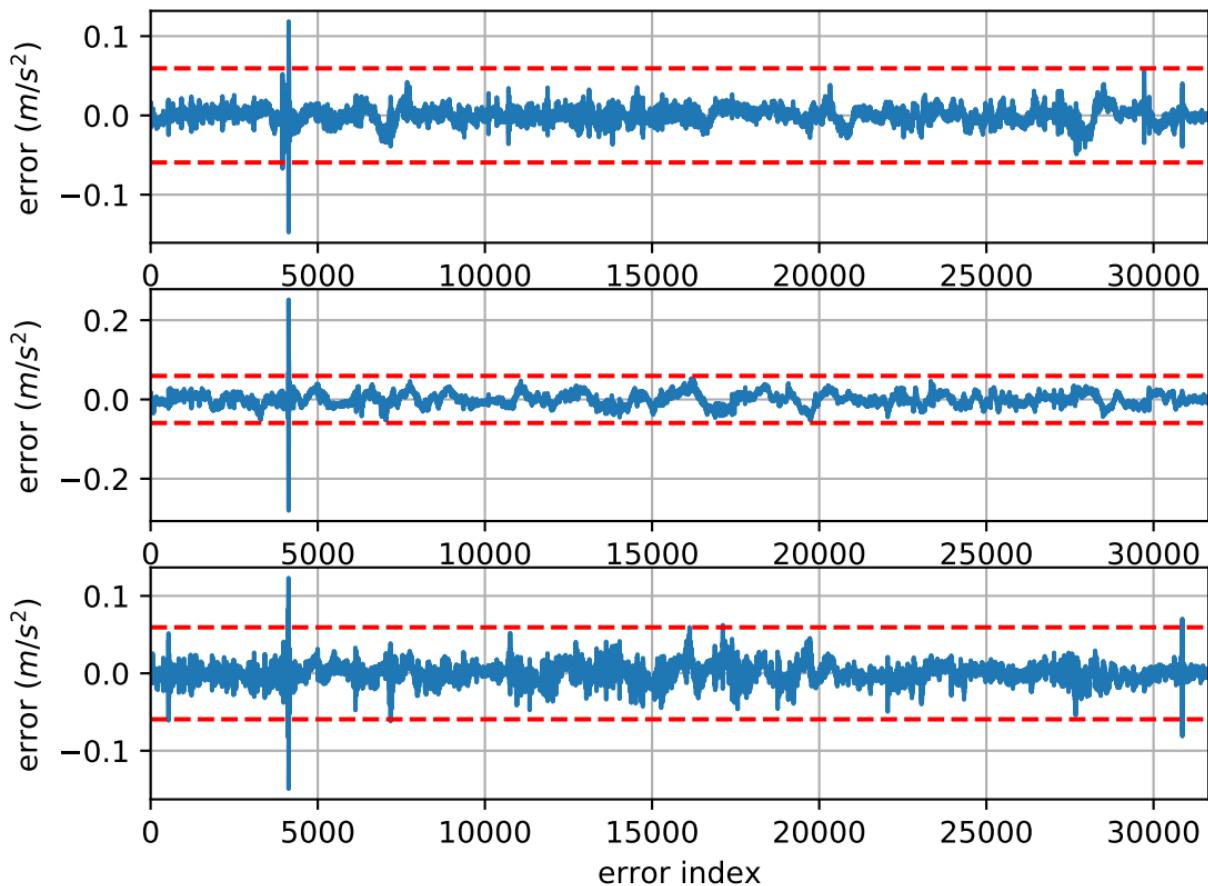
imu0: sample inertial rate



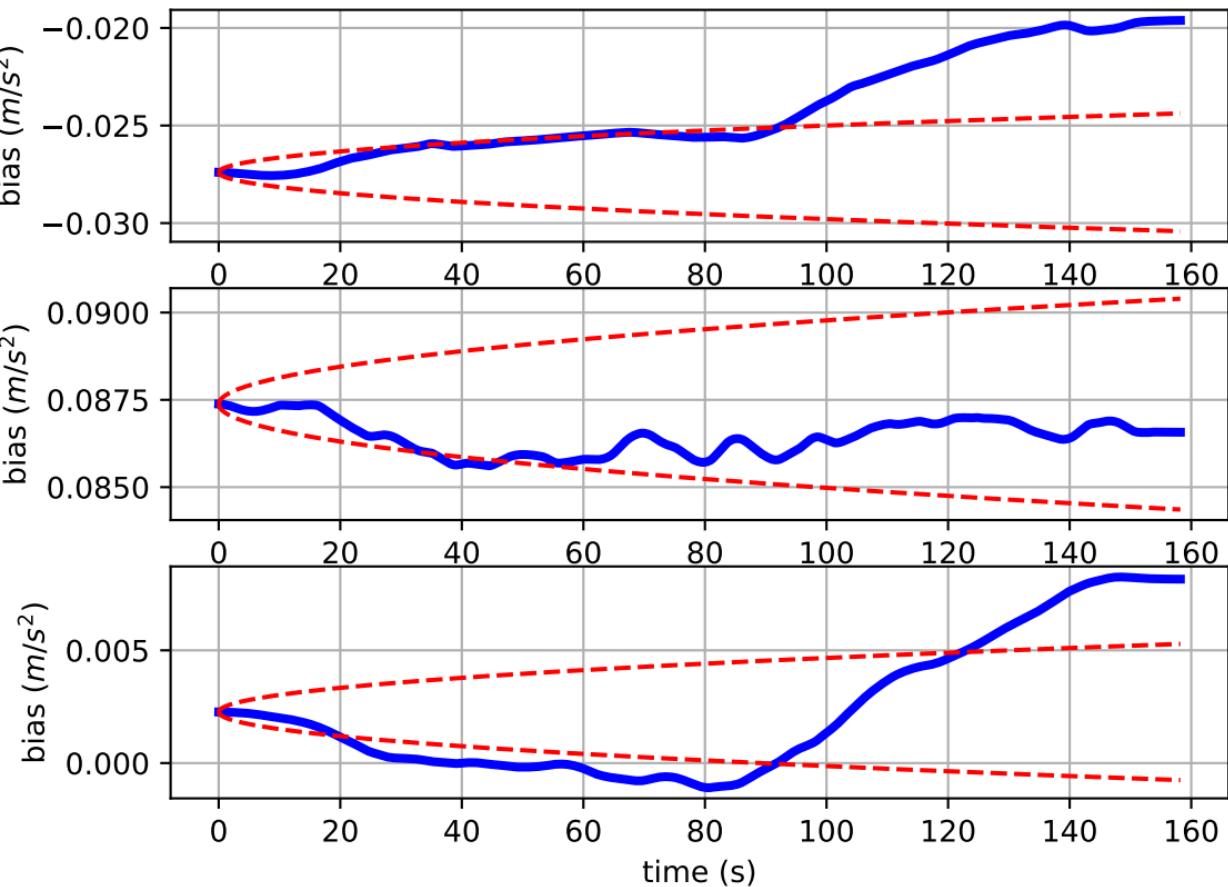
Comparison of predicted and measured specific force (imu0 frame)



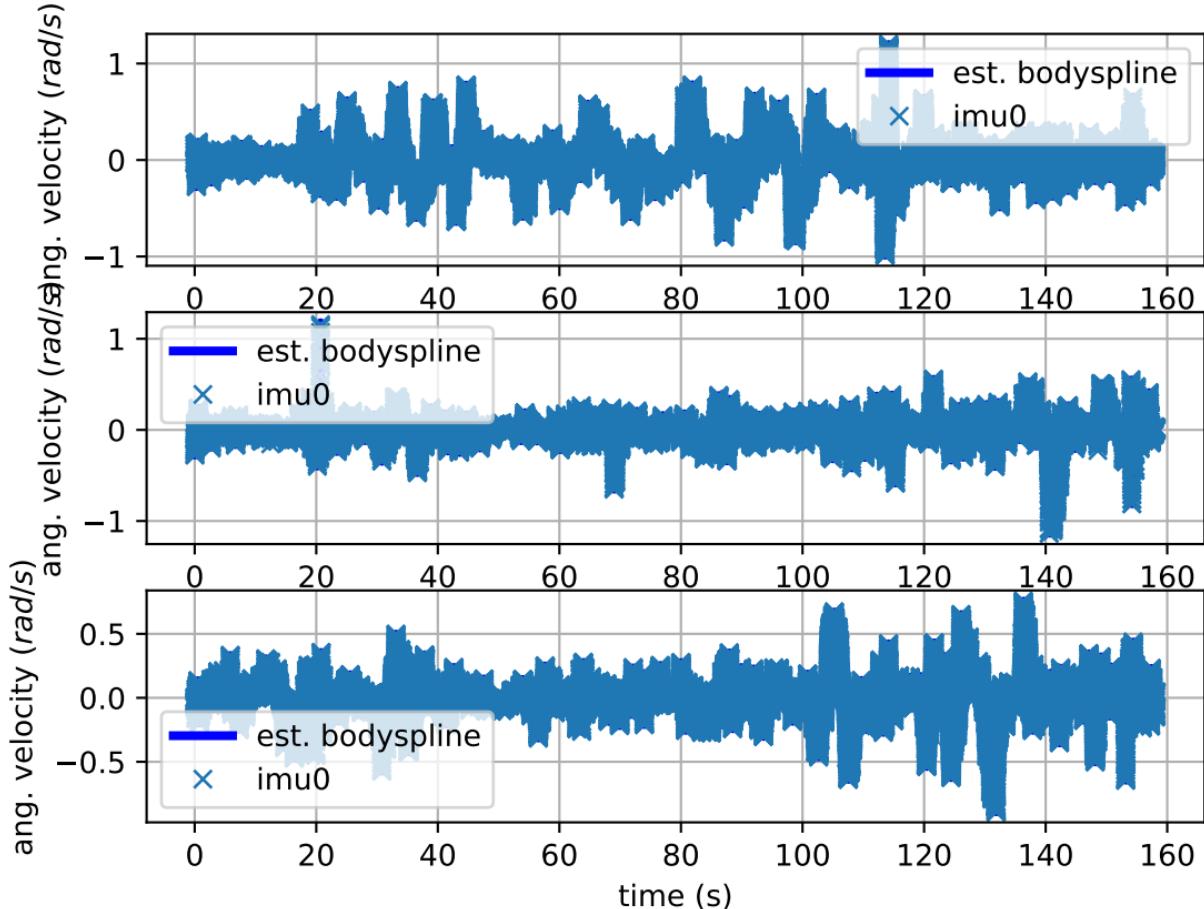
imu0: acceleration error



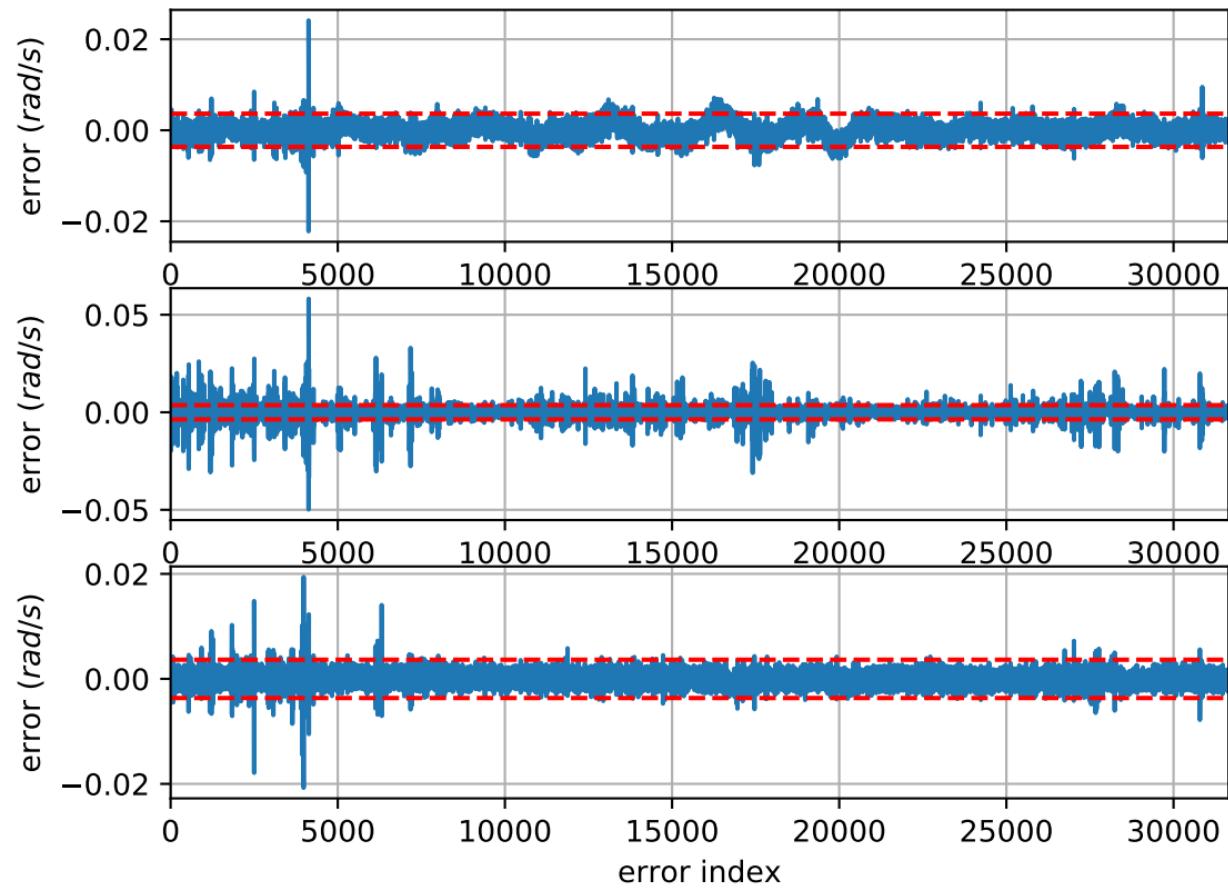
imu0: estimated accelerometer bias (imu frame)



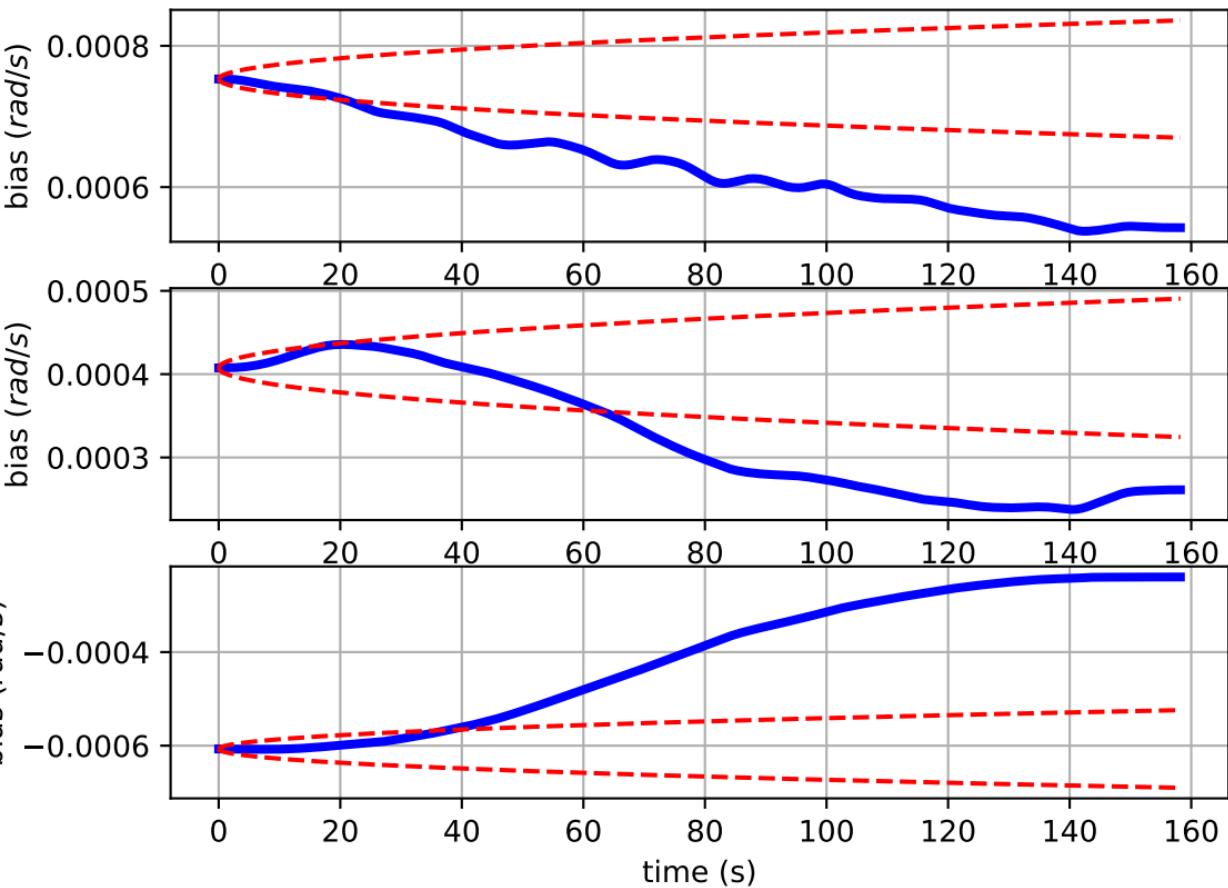
Comparison of predicted and measured angular velocities (body frame)



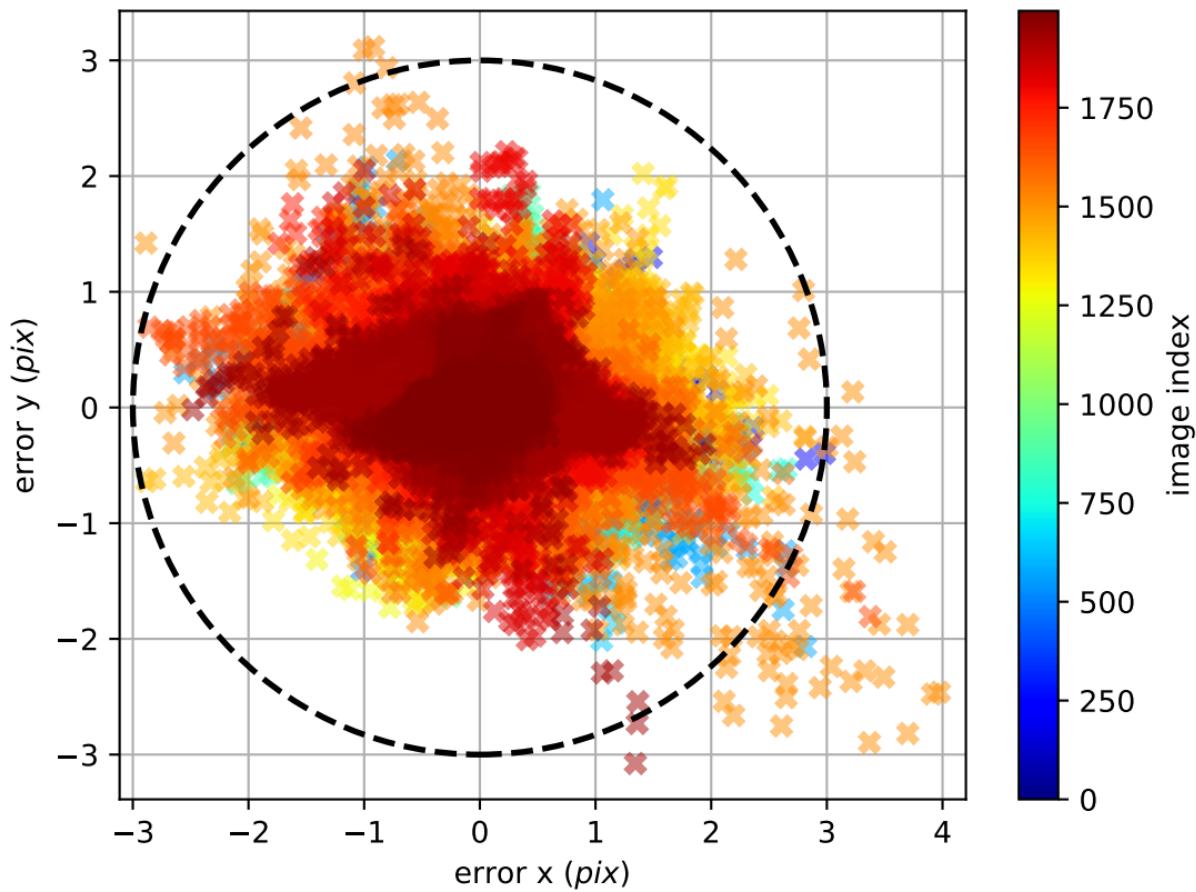
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

