

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.328640717124, median 0.263700542596, std: 0.241496901956

Reprojection error (cam1): mean 0.317887484685, median 0.255752375379, std: 0.232080276853

Gyroscope error (imu0): mean 1.71287780407, median 1.49795274867, std: 0.996268085586

Accelerometer error (imu0): mean 2.45915127147, median 1.40569047127, std: 2.53878723247

Residuals

Reprojection error (cam0) [px]: mean 0.328640717124, median 0.263700542596, std: 0.241496901956

Reprojection error (cam1) [px]: mean 0.317887484685, median 0.255752375379, std: 0.232080276853

Gyroscope error (imu0) [rad/s]: mean 0.00353348510596, median 0.00309011752869, std: 0.00205519531726

Accelerometer error (imu0) [m/s²]: mean 0.0605360820278, median 0.0346033994175, std: 0.0624964531216

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.99997261 -0.00208762  0.00710138 -0.0025664 ]  
[ 0.00214007  0.99997043 -0.00738642  0.0167797 ]  
[-0.00708575  0.00740141  0.9999475 -0.02369016]  
[ 0.          0.          1.          ]]]
```

T_ic: (cam0 to imu0):

```
[[-0.99997261  0.00214007 -0.00708575  0.00236256]  
[-0.00208762  0.99997043  0.00740141 -0.01660922]  
[ 0.00710138 -0.00738642  0.9999475  0.02383109]  
[ 0.          0.          1.          ]]]
```

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

0.00401289272394

Transformation (cam1):

T_ci: (imu0 to cam1):
[[0.99996794 -0.0020119 0.00775049 -0.05253035]
[0.00206806 0.99997162 -0.00724438 0.01675489]
[-0.00773569 0.00726018 0.99994372 -0.02370344]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[0.99996794 0.00206806 -0.00773569 0.05231065]
[-0.0020119 0.99997162 0.00726018 -0.01668801]
[0.00775049 -0.00724438 0.99994372 0.02423062]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
0.00399968701914

Baselines:

Baseline (cam0 to cam1):
[[0.99999979 0.00007091 0.00064967 -0.04994975]
[-0.00007101 0.99999999 0.00014255 -0.00002161]
[-0.00064966 -0.0001426 0.99999978 -0.00001256]
[0. 0. 0. 1.]]
baseline norm: 0.0499497519732 [m]

Gravity vector in target coords: [m/s^2]
[-0.05640031 -9.80638328 -0.00942903]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [420.3849483748887, 422.37201899494823]
Principal point: [426.48058028849005, 235.79239332081772]
Distortion model: radtan
Distortion coefficients: [0.0011872547552499587, -0.0006795410975125896, -0.0004668300496499715, 0.00029842304640345055]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0625 [m]
Spacing 0.01875 [m]

cam1

=====

Camera model: pinhole
Focal length: [420.44955459342043, 422.4025482760406]
Principal point: [426.6360719046911, 235.6621048332724]
Distortion model: radtan
Distortion coefficients: [0.0012936412253883945, -0.0005862040343975327, -0.0005600980319221272, 0.0001589004381851821]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0625 [m]
Spacing 0.01875 [m]

IMU configuration

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IMU0:

Model: calibrated
Update rate: 200.0

Accelerometer:

Noise density: 0.00174066047115

Noise density (discrete): 0.0246166564579

Random walk: 0.00015307422326

Gyroscope:

Noise density: 0.000145868623769

Noise density (discrete): 0.00206289386059

Random walk: 4.93014580923e-06

T_{ib} (imu0 to imu0)

[[1. 0. 0. 0.]

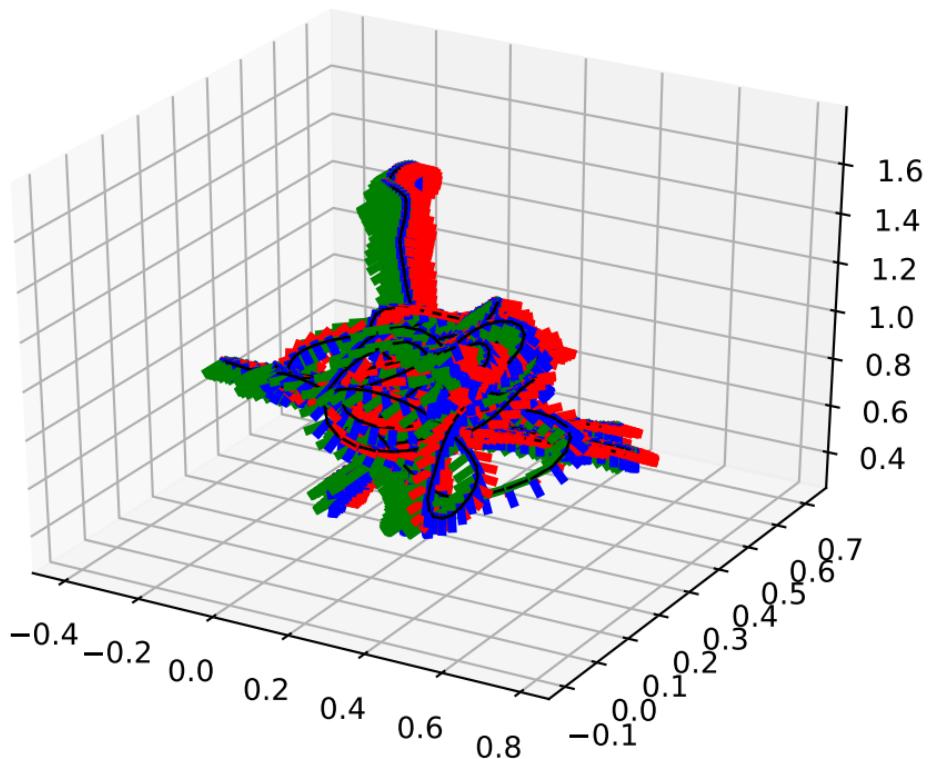
 [0. 1. 0. 0.]

 [0. 0. 1. 0.]

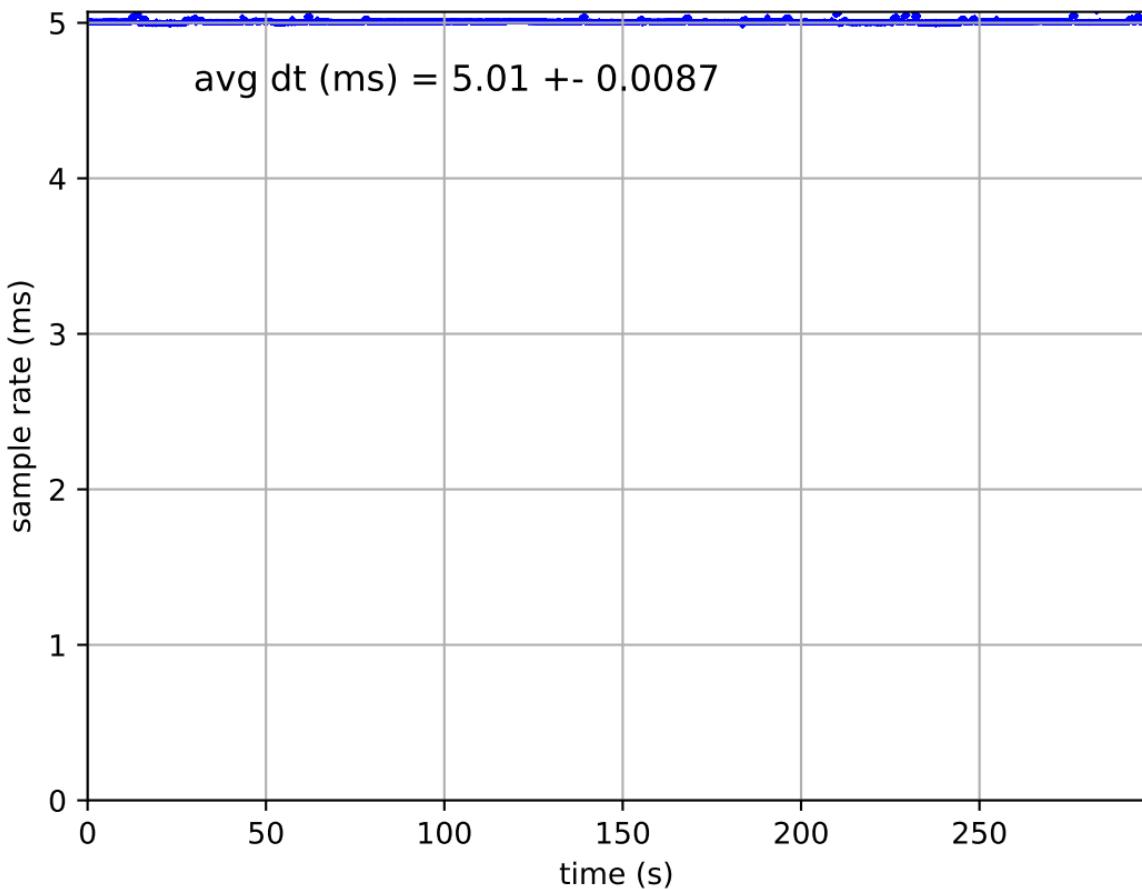
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

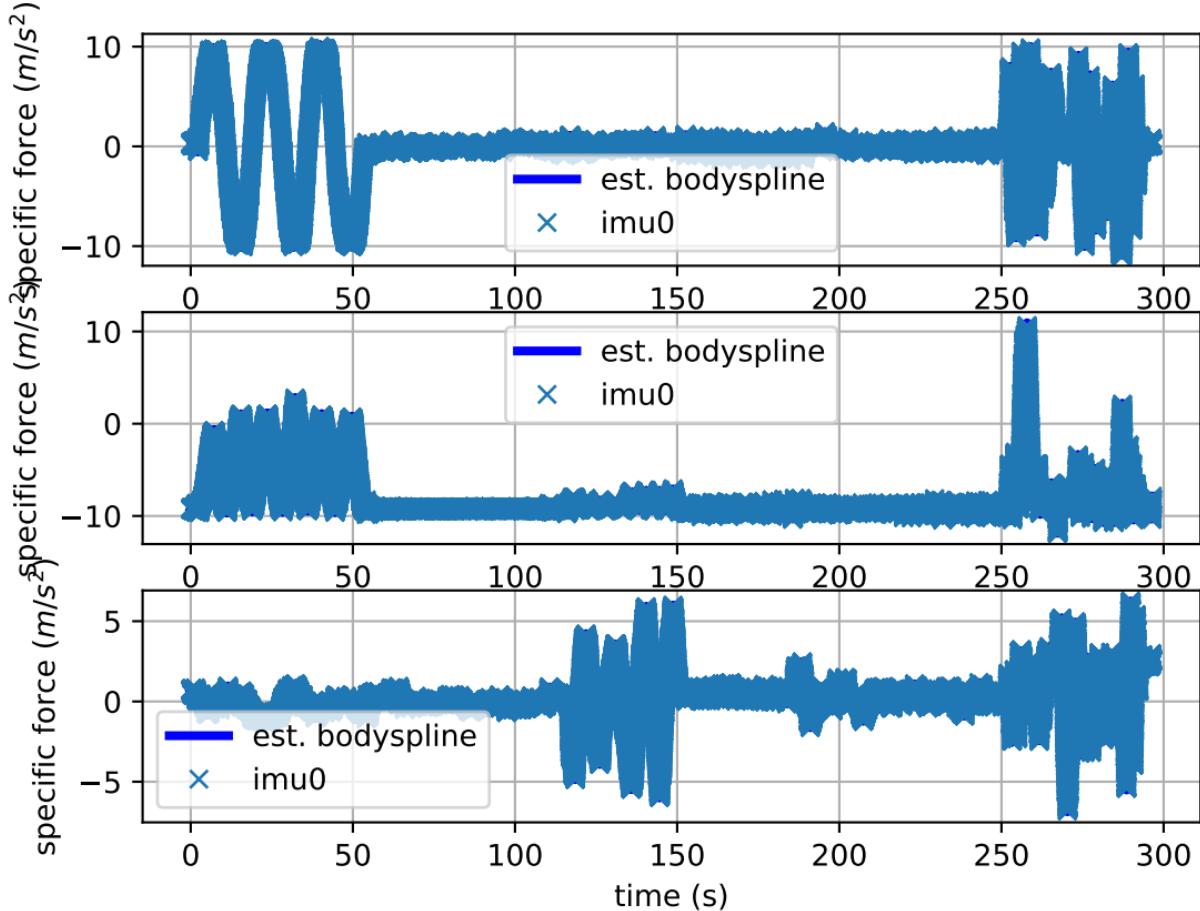
imu0: estimated poses



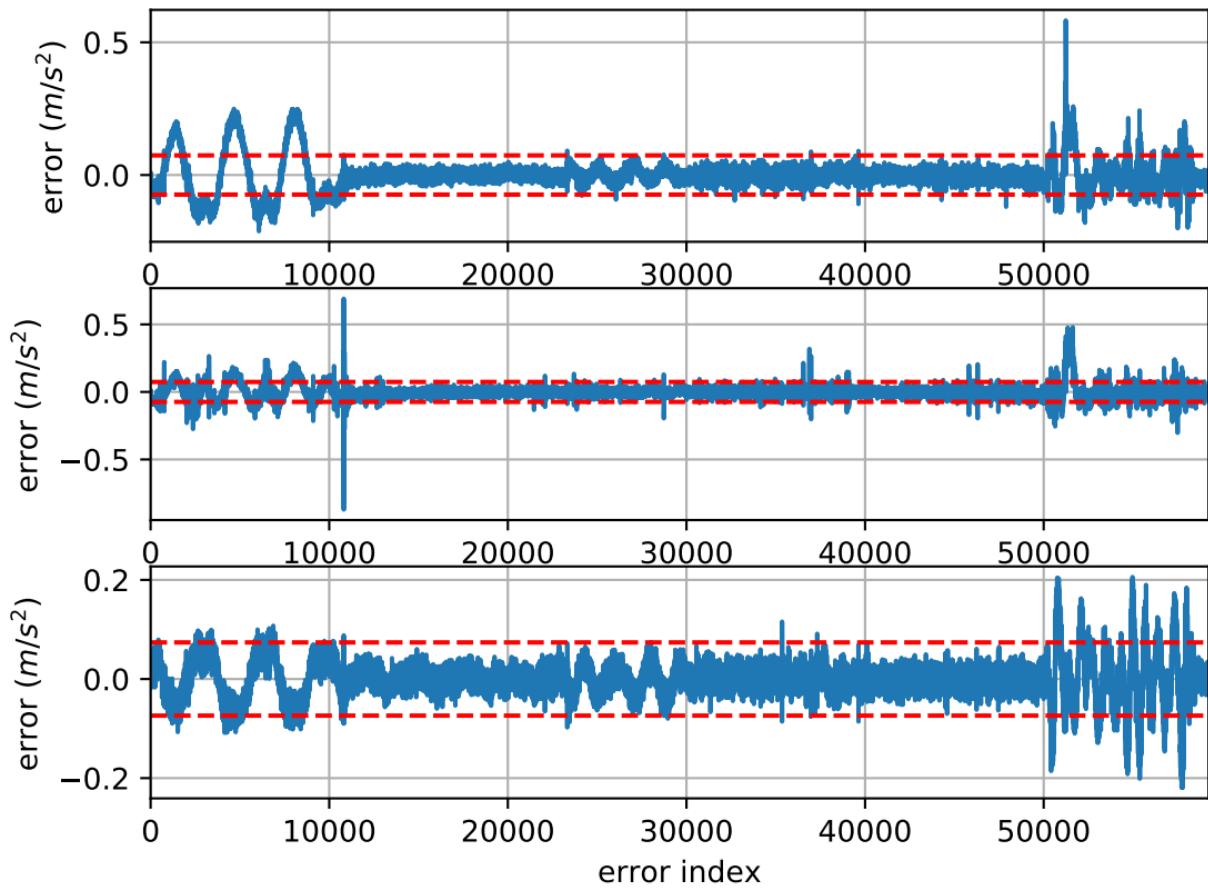
imu0: sample inertial rate



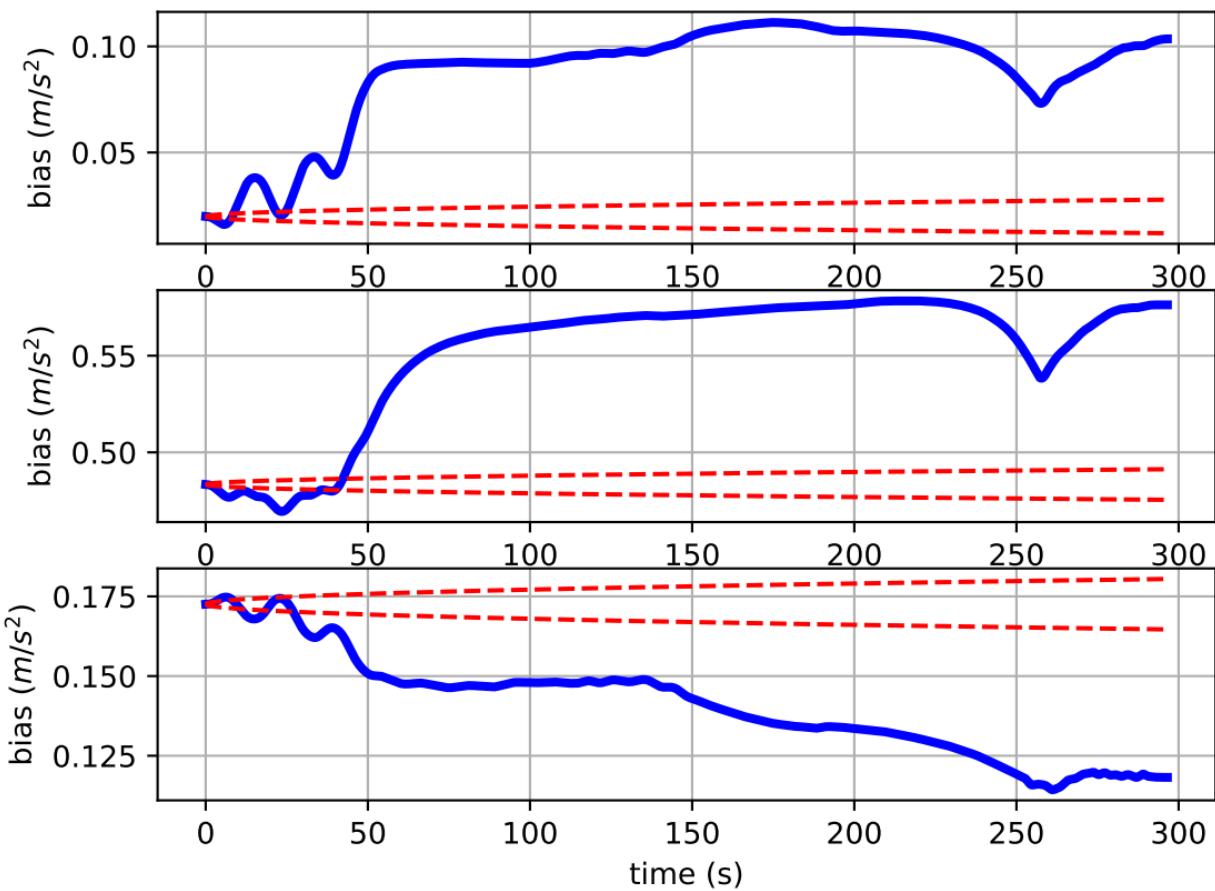
Comparison of predicted and measured specific force (imu0 frame)



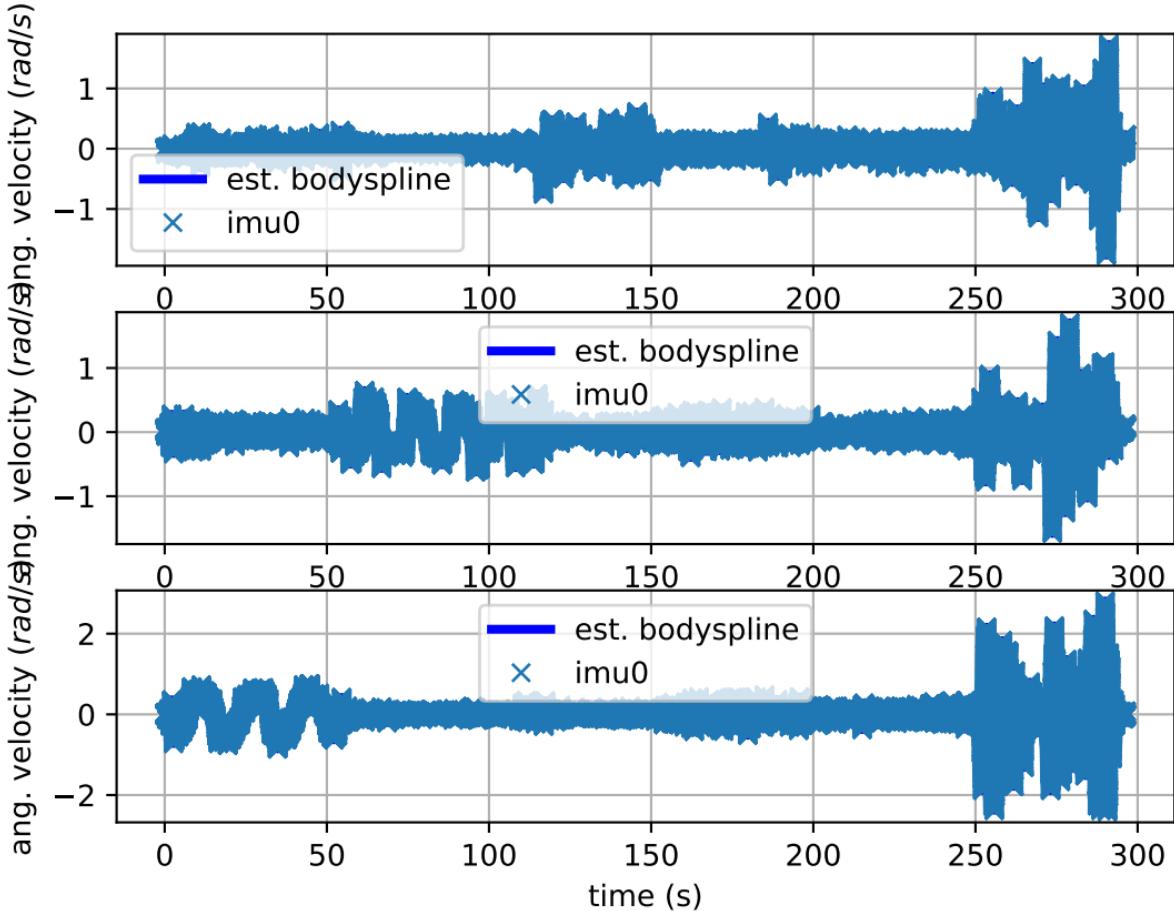
imu0: acceleration error



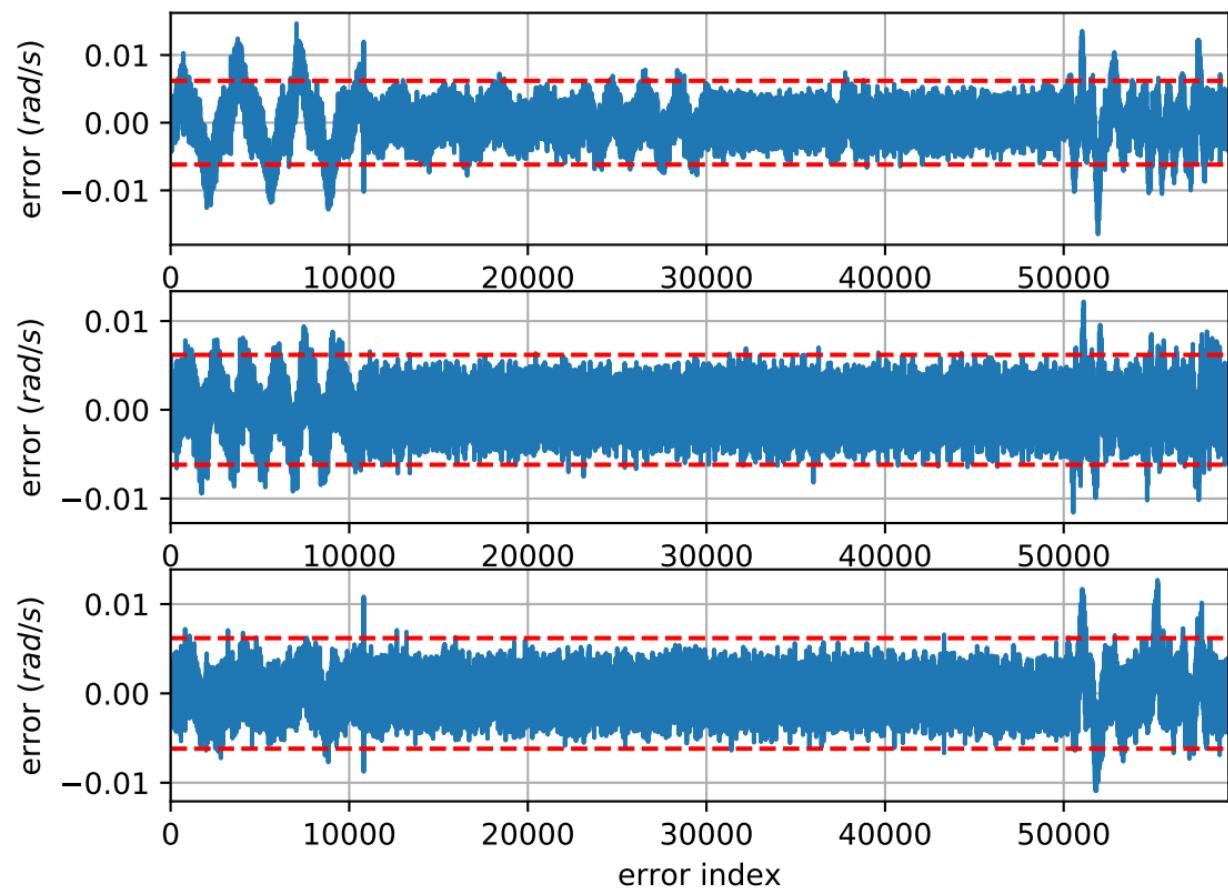
imu0: estimated accelerometer bias (imu frame)



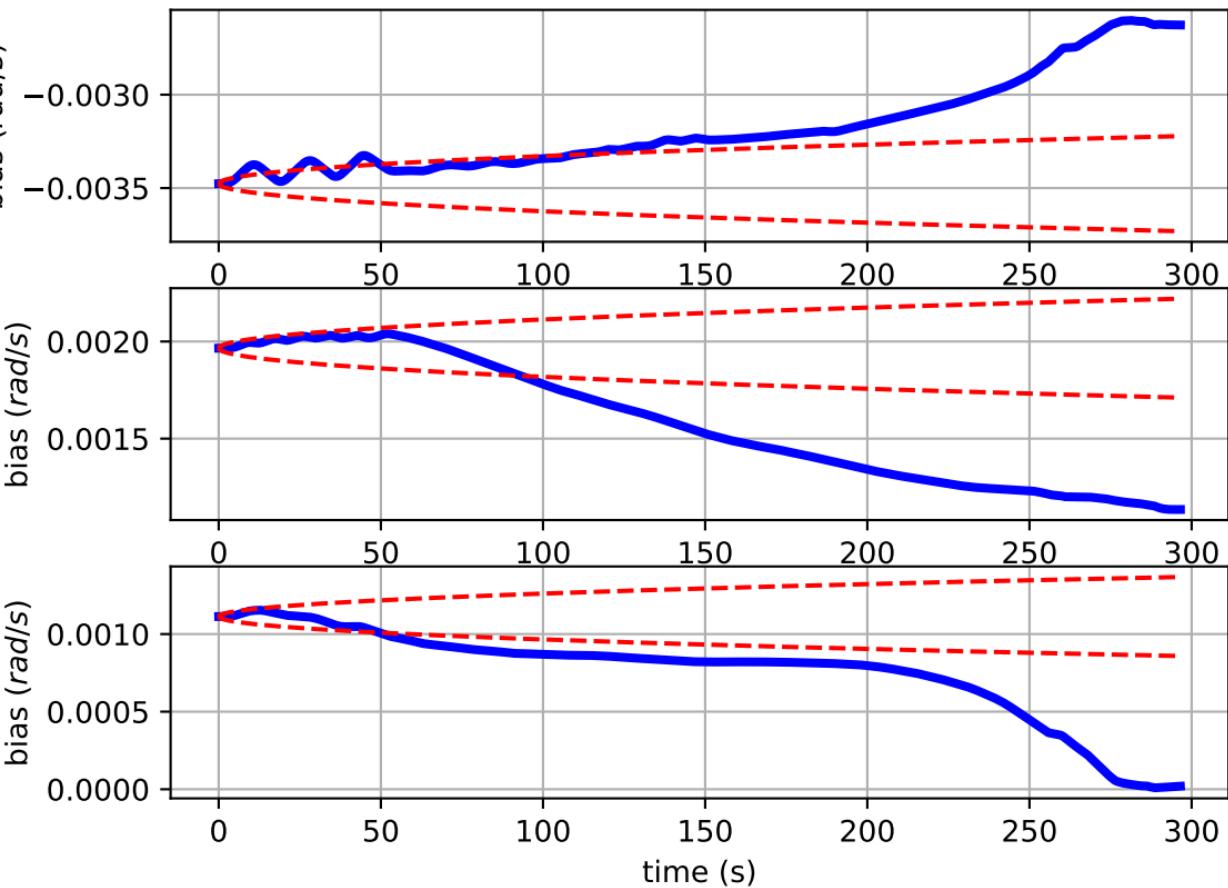
Comparison of predicted and measured angular velocities (body frame)



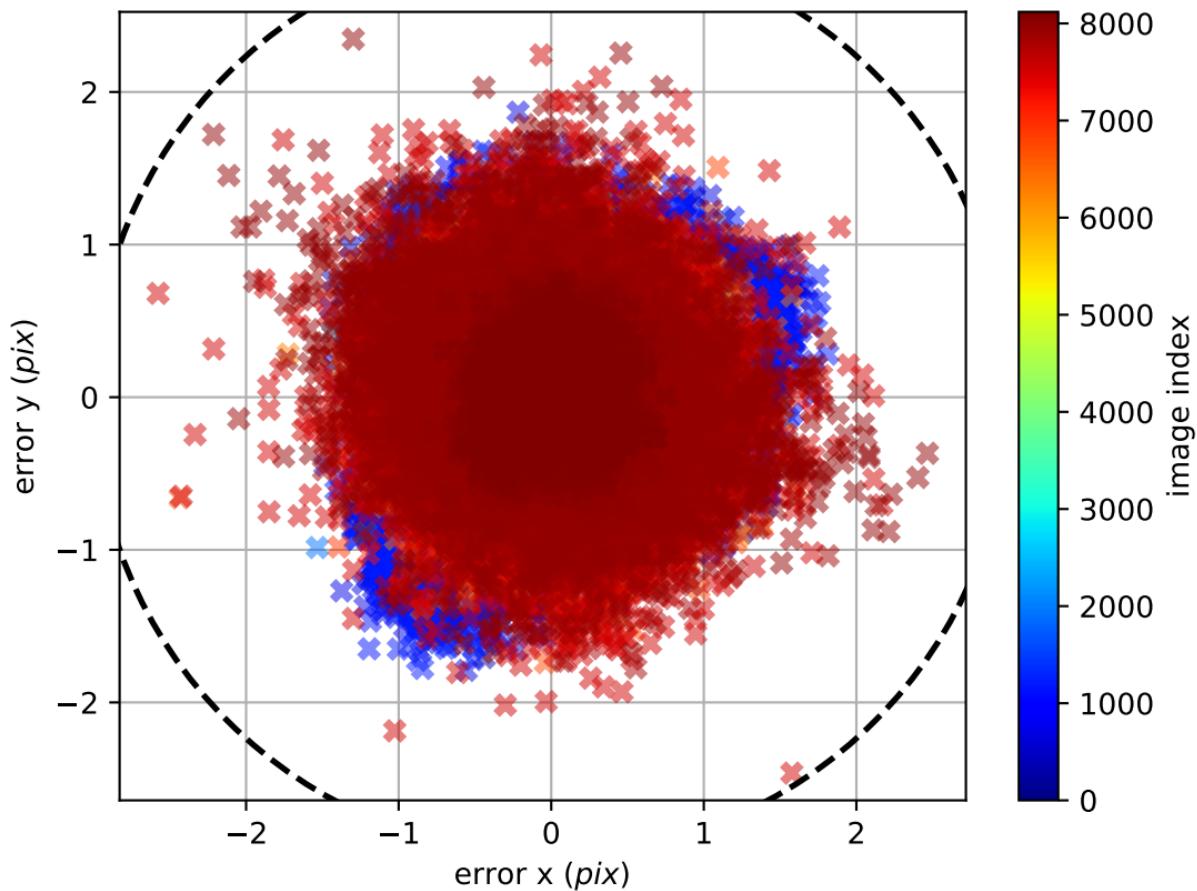
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

