

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.996761315367, median 0.916417007033, std: 0.551622147398

Reprojection error (cam1): mean 1.06731131126, median 1.01355016344, std: 0.526785947806

Gyroscope error (imu0): mean 0.479229485718, median 0.408360220074, std: 0.307303979319

Accelerometer error (imu0): mean 0.586221678406, median 0.426855808077, std: 0.486903374395

Residuals

Reprojection error (cam0) [px]: mean 0.996761315367, median 0.916417007033, std: 0.551622147398

Reprojection error (cam1) [px]: mean 1.06731131126, median 1.01355016344, std: 0.526785947806

Gyroscope error (imu0) [rad/s]: mean 0.0112371186753, median 0.009575354589, std: 0.0072057571329

Accelerometer error (imu0) [m/s^2]: mean 0.148934121266, median 0.108445997521, std: 0.123701543081

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.99997438 -0.00706794 -0.00113085  0.01331838]
 [ 0.00708318 -0.99987551 -0.01409925  0.00379393]
 [-0.00103105 -0.0141069  0.99989996 -0.00620018]
 [ 0.          0.          0.          1.        ]]
```

T_ic: (cam0 to imu0):

```
[[-0.99997438  0.00708318 -0.00103105  0.01328478]
 [-0.00706794 -0.99987551 -0.0141069  0.00380012]
 [-0.00113085 -0.01409925  0.99989996  0.00626811]
 [ 0.          0.          0.          1.        ]]
```

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

-0.000604853598718

Transformation (cam1):

T_ci: (imu0 to cam1):

```
[ 0.      0.      0.      1.      ]]
```

T_ic: (cam1 to imu0):

```
[-0.99998224 -0.00407935 -0.00434444 -0.05175502]
[ 0.00413037 -0.99992184 -0.01180087  0.00385994]
[-0.00429596 -0.0118186  0.99992093  0.00841304]
[ 0.      0.      0.      1.      ]]
```

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

```
-0.00245730039755
```

Baselines:

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Baseline (cam0 to cam1):

```
[ 0.99993229 -0.01115234 -0.00332276 -0.06502967]
[ 0.01115999  0.9999351  0.00229259 -0.00018016]
[ 0.00329698 -0.00232951  0.99999185 -0.00242662]
[ 0.      0.      0.      1.      ]]
baseline norm: 0.0650751785814 [m]
```

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

```
[-0.53846711 -9.79175119  0.00920095]
```

Calibration configuration

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cam0

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Camera model: omni

Focal length: [564.1673377333339, 559.4539715388482]

Principal point: [418.33652976109613, 413.2744935489872]

Omni xi: 0.95909316177

Distortion model: radtan

Distortion coefficients: [-0.2558938171490923, -0.0460934839068549, -0.00414934653924308, 0.0007768]

Type: aprilgrid

Size: 0.025 [m]
Spacing 0.0075 [m]

cam1

====

Camera model: omni
Focal length: [556.9637359565154, 553.816051011247]
Principal point: [419.47350438648533, 406.59047995751183]
Omni xi: 0.963625518442
Distortion model: radtan
Distortion coefficients: [-0.2204827920930757, -0.08227157719154526, -0.00483280276623621, -0.00377
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.025 [m]
Spacing 0.0075 [m]

IMU configuration

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IMU0:

Model: calibrated

Update rate: 200.0

Accelerometer:

 Noise density: 0.0179645910372

 Noise density (discrete): 0.254057682873

 Random walk: 0.0003955073249

Gyroscope:

 Noise density: 0.00165804547782

 Noise density (discrete): 0.0234483040176

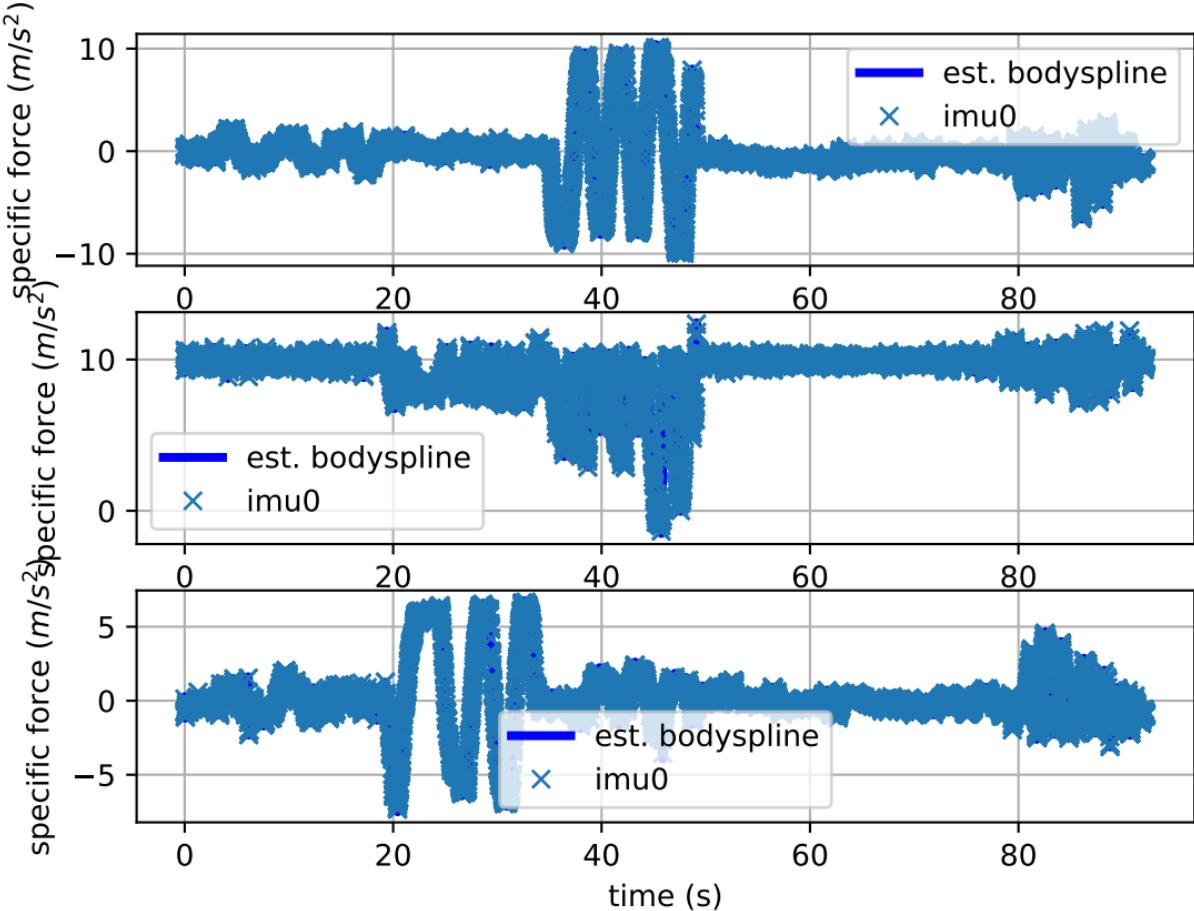
 Random walk: 1.12505642292e-05

T i b

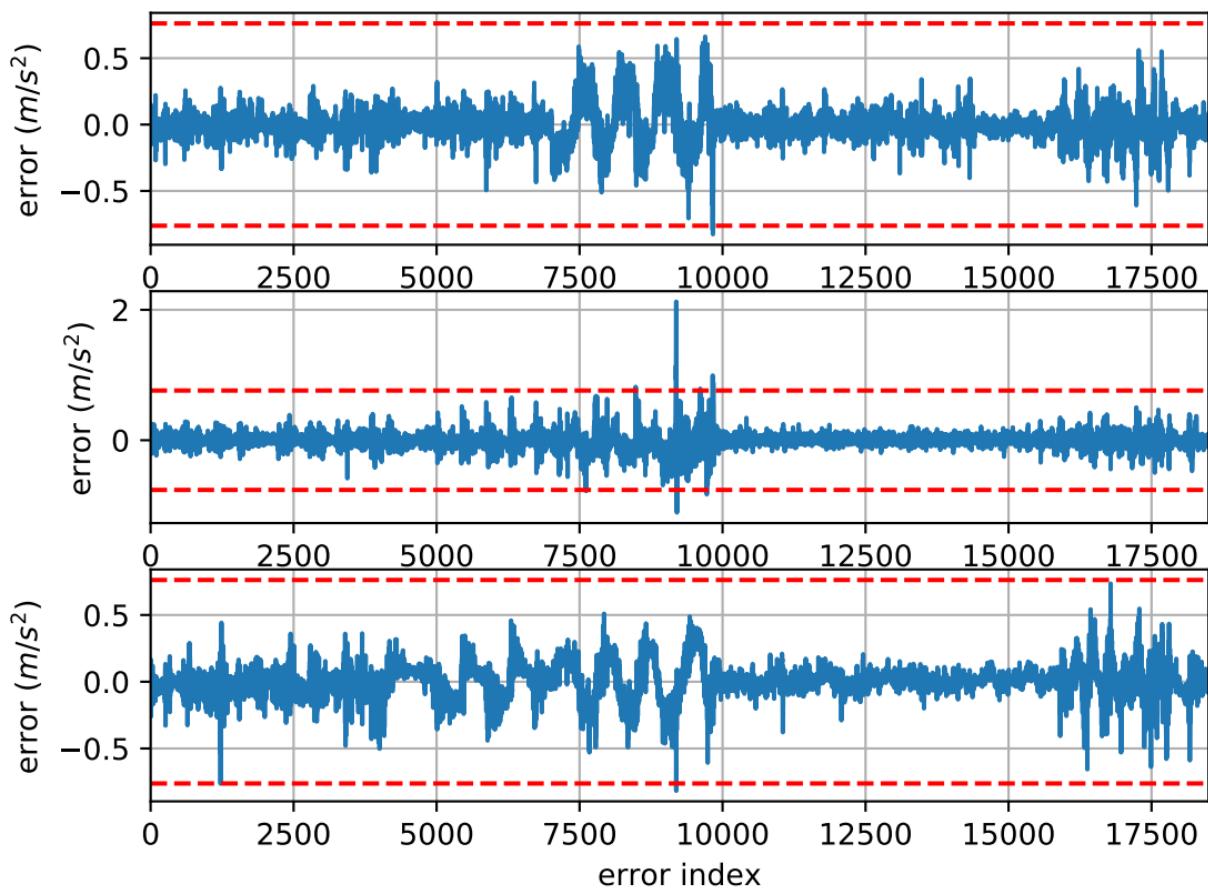
[0. 0. 0. 1.]

time offset with respect to IMU0: 0.0 [s]

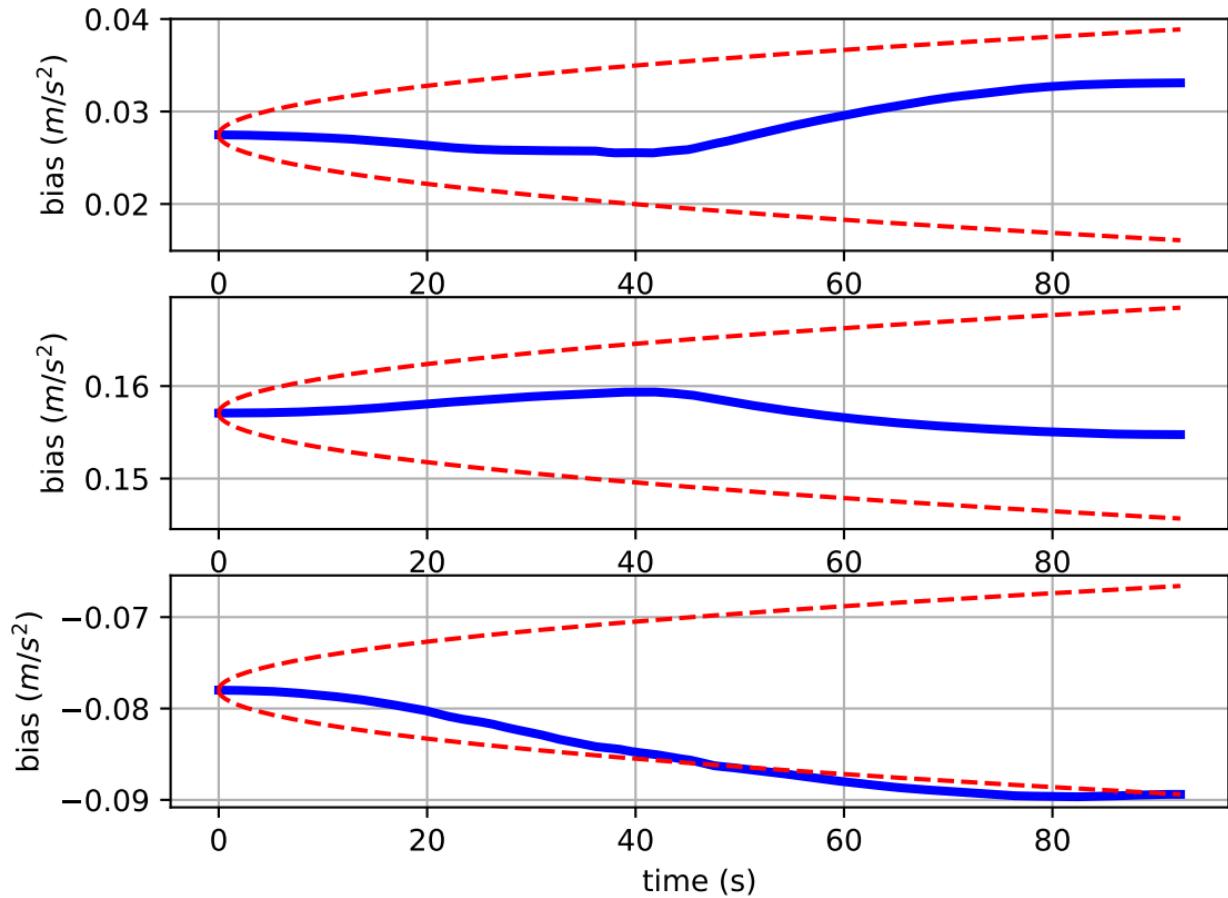
Comparison of predicted and measured specific force (imu0 frame)



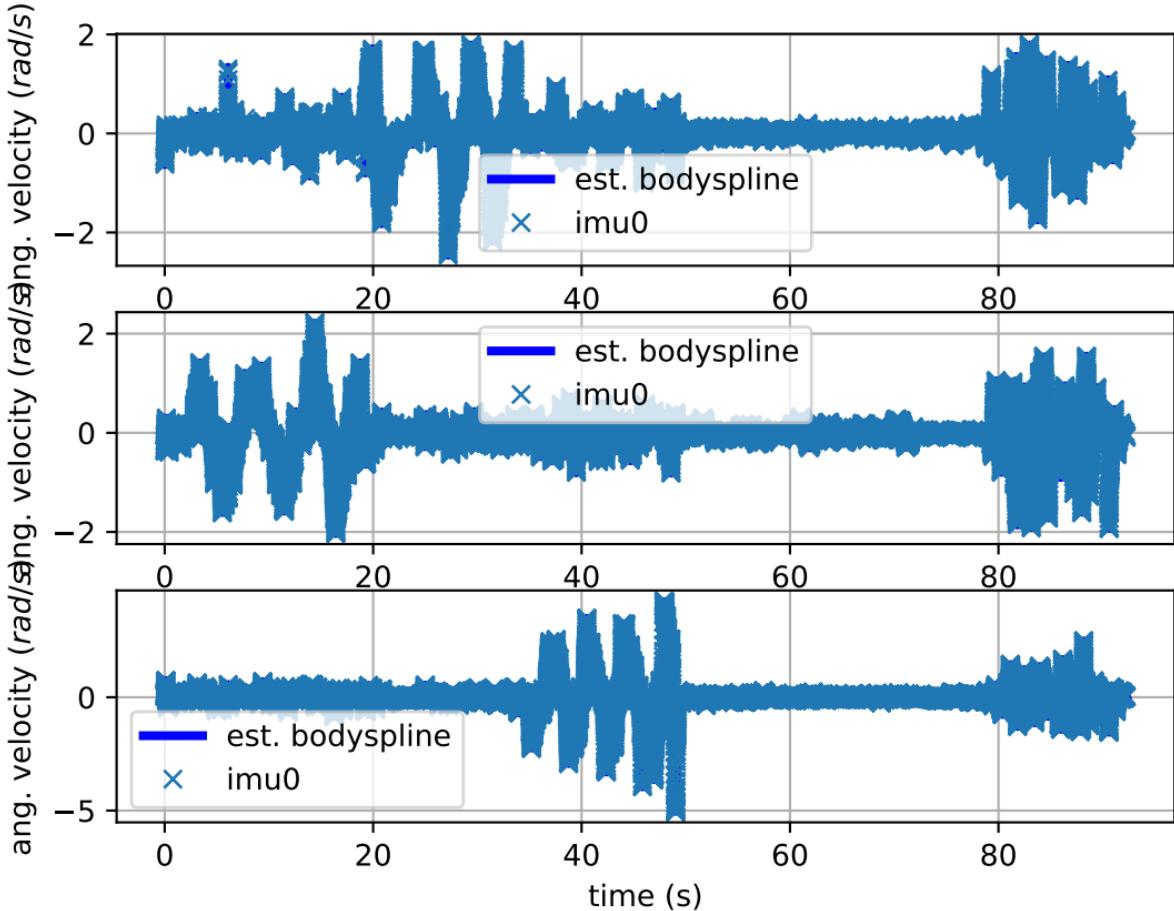
imu0: acceleration error



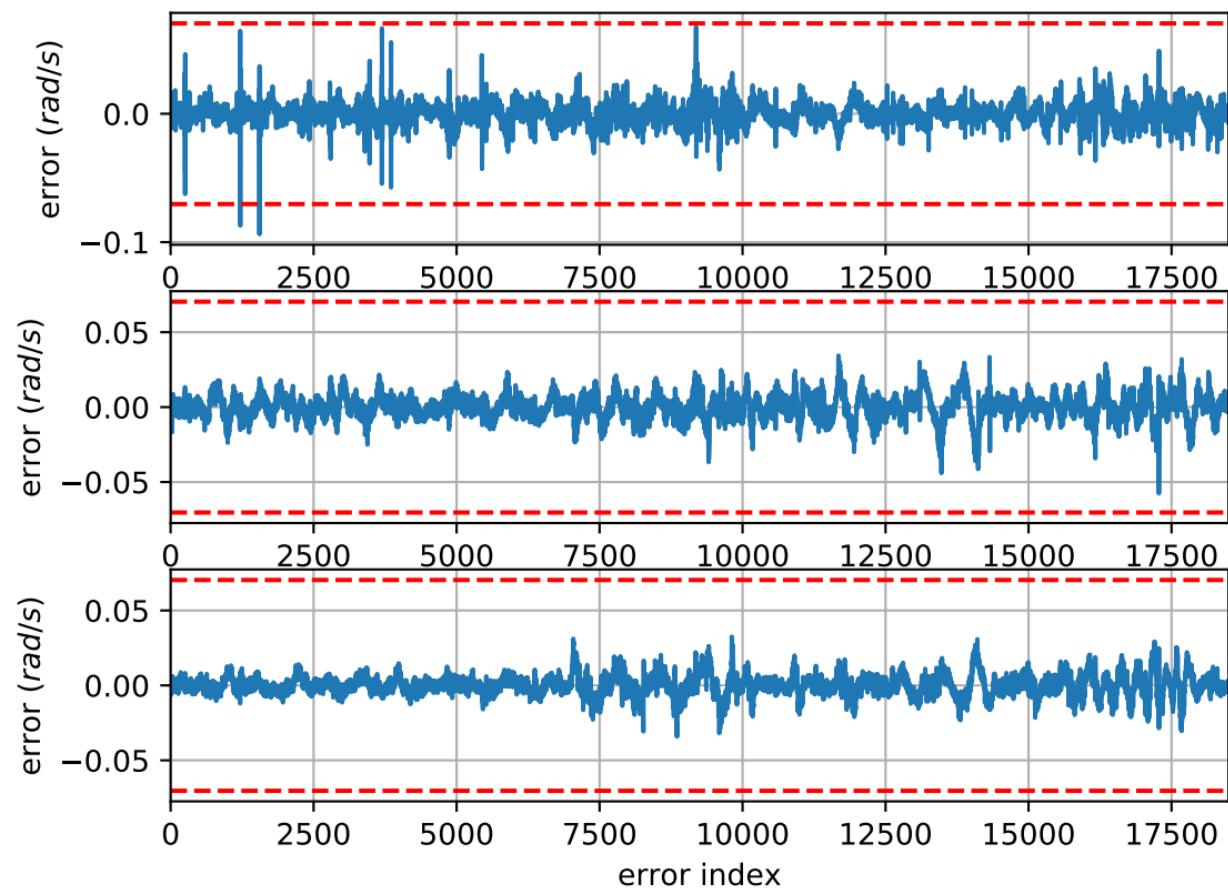
imu0: estimated accelerometer bias (imu frame)



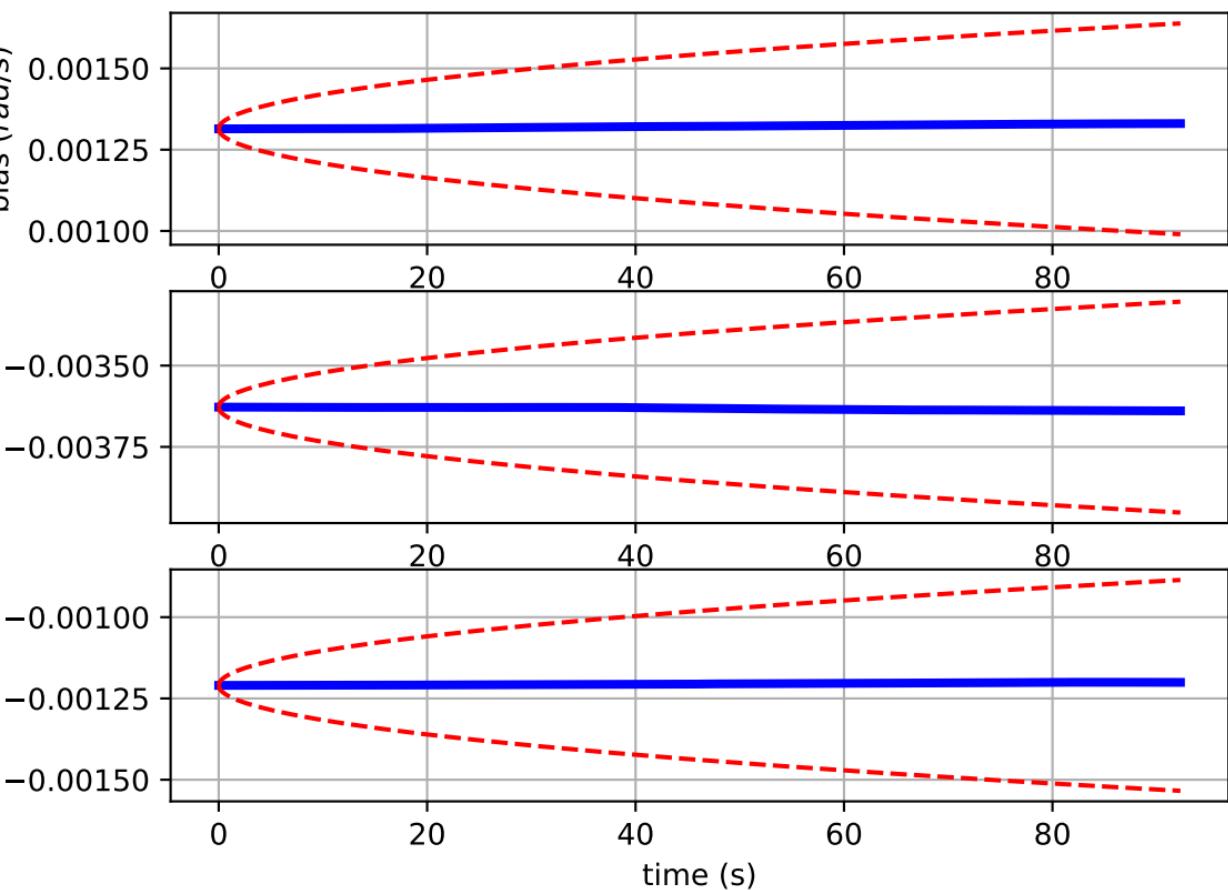
Comparison of predicted and measured angular velocities (body frame)



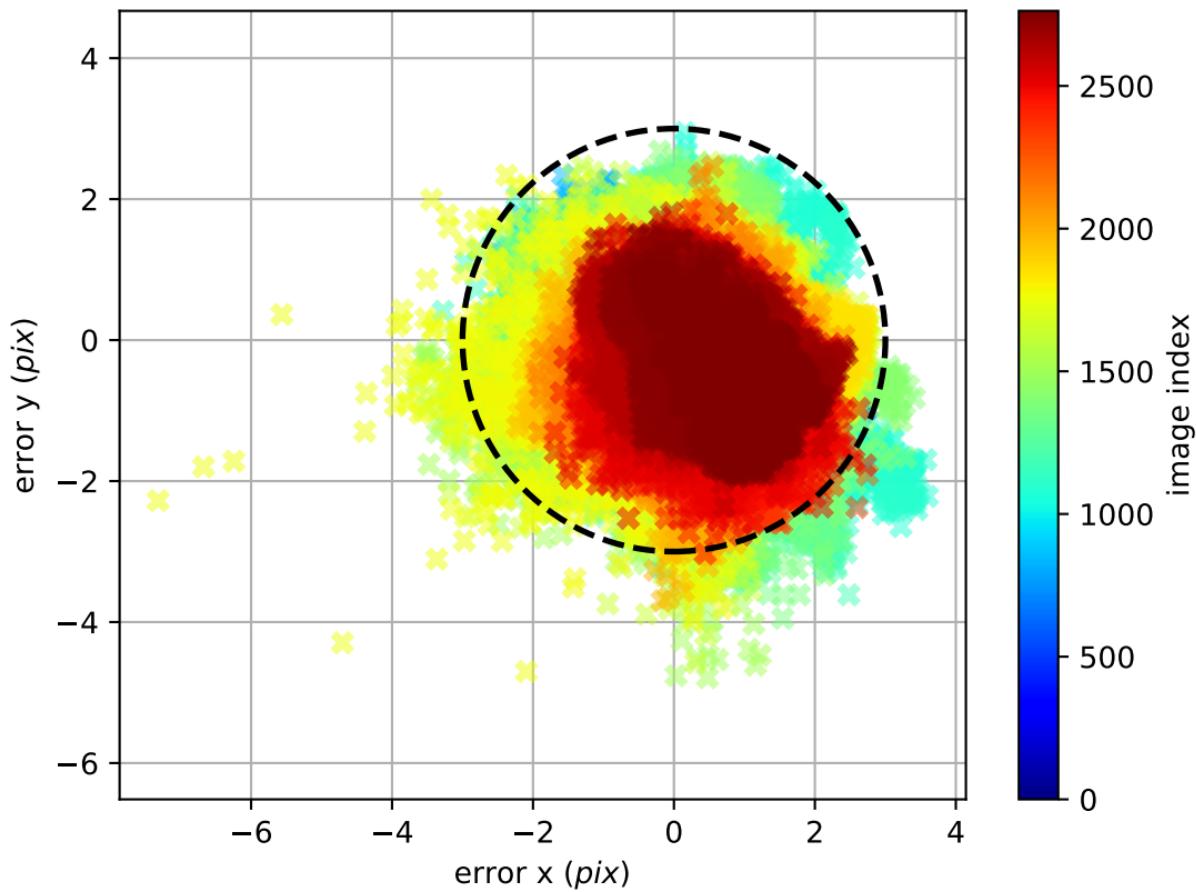
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

