

## Calibration results

=====

### Normalized Residuals

-----

Reprojection error (cam0): mean 0.48181720317, median 0.366347848539, std: 0.432600971546  
Gyroscope error (imu0): mean 0.969852482317, median 0.579547447344, std: 1.32138701482  
Accelerometer error (imu0): mean 0.793456478467, median 0.498367793411, std: 1.01319972383

### Residuals

-----

Reprojection error (cam0) [px]: mean 0.48181720317, median 0.366347848539, std: 0.432600971546  
Gyroscope error (imu0) [rad/s]: mean 0.18285120708, median 0.109265019412, std: 0.249127795294  
Accelerometer error (imu0) [m/s<sup>2</sup>]: mean 0.416136064688, median 0.261373897555, std: 0.53138257391

### Transformation (cam0):

-----

T\_ci: (imu0 to cam0):

```
[[ 0.58016198  0.76261095  0.286071  0.00539466]
 [-0.23437548  0.4926752  -0.83805685 -0.03141503]
 [-0.78005142  0.41916069  0.46456872 -0.02839436]
 [ 0.          0.          0.          1.          ]]
```

T\_ic: (cam0 to imu0):

```
[[ 0.58016198 -0.23437548 -0.78005142 -0.03264174]
 [ 0.76261095  0.4926752  0.41916069  0.02326518]
 [ 0.286071  -0.83805685  0.46456872 -0.0146797 ]
 [ 0.          0.          0.          1.          ]]
```

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)  
0.4632458106514751

Gravity vector in target coords: [m/s<sup>2</sup>]  
[ 4.34393001 7.73506494 -4.17940969]

Calibration configuration

-----  
Camera model: pinhole  
Focal length: [606.0150343825649, 606.3035923500496]  
Principal point: [323.3991173372467, 233.81093687917368]  
Distortion model: radtan  
Distortion coefficients: [0.0, 0.0, 0.0, 0.0]  
Type: checkerboard  
Rows  
  Count: 6  
  Distance: 0.07 [m]  
Cols  
  Count: 7  
  Distance: 0.07 [m]

#### IMU configuration

##### =====

##### IMU0:

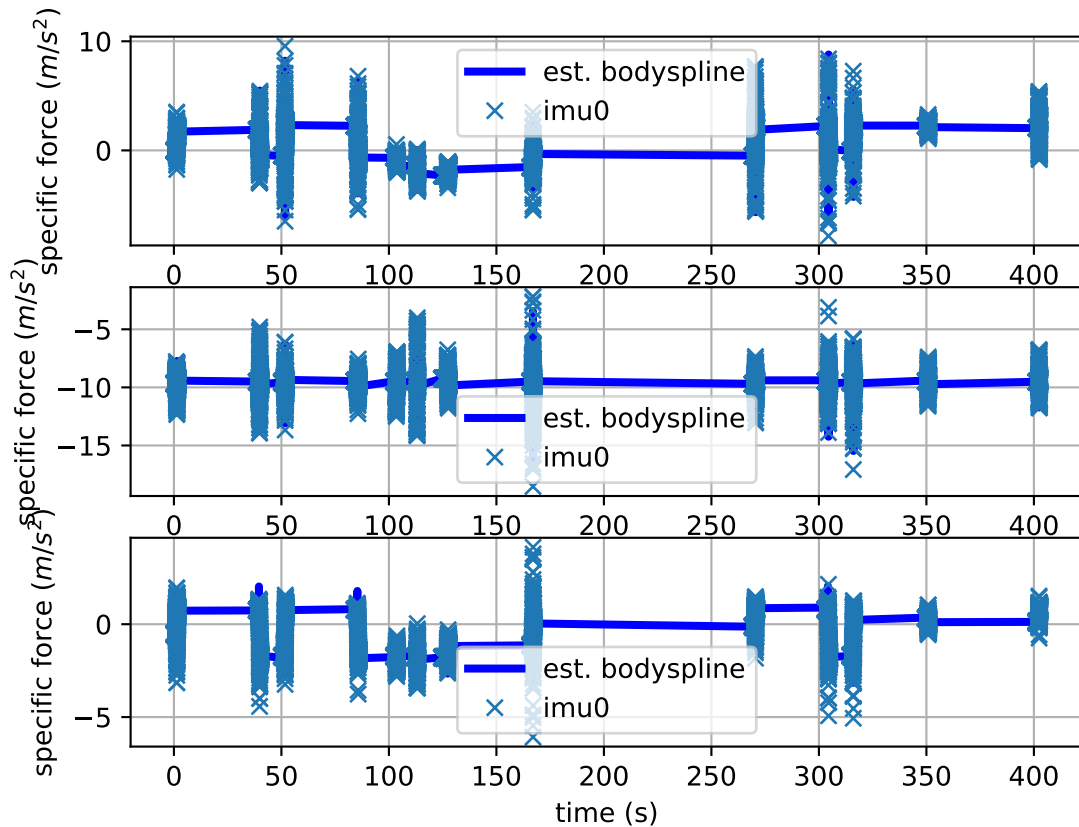
-----  
Model: calibrated  
Update rate: 372.288  
Accelerometer:  
  Noise density: 0.0271814566306  
  Noise density (discrete): 0.524459848752  
  Random walk: 0.000665010403509  
Gyroscope:  
  Noise density: 0.00977130638508  
  Noise density (discrete): 0.188535071482  
  Random walk: 5.36329314159e-05

##### T\_i\_b

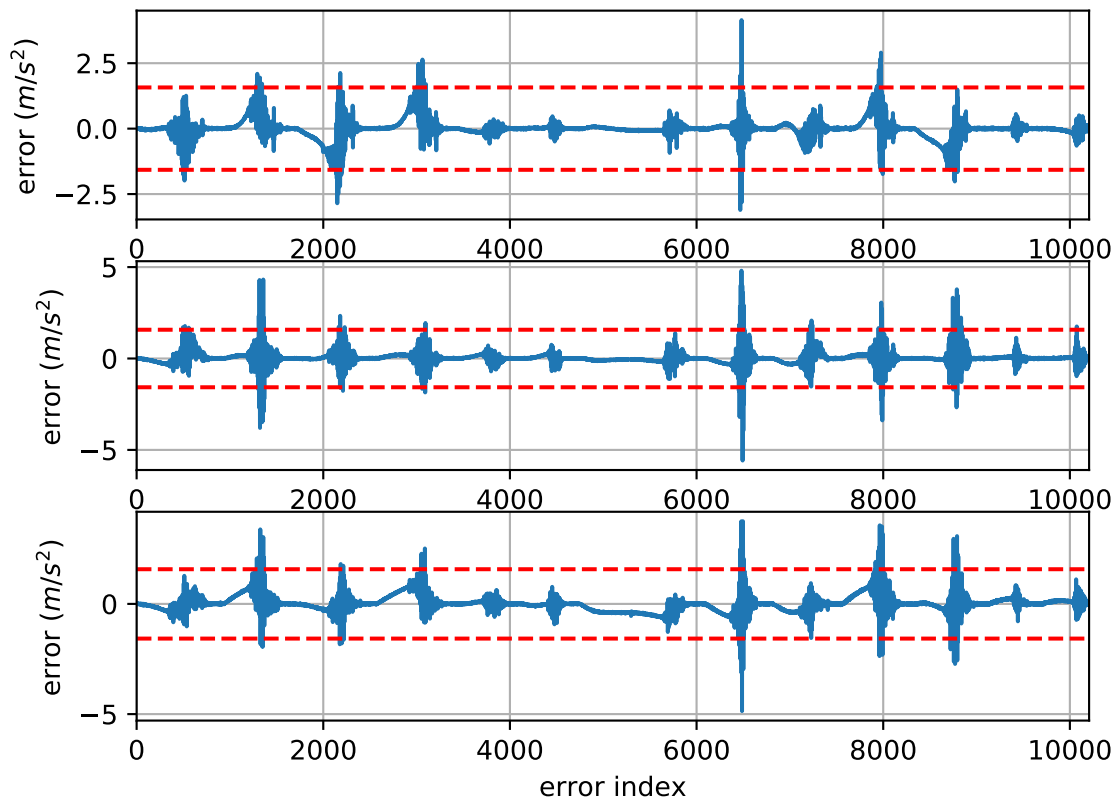
[[1. 0. 0. 0.]  
[0. 1. 0. 0.]  
[0. 0. 1. 0.]  
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

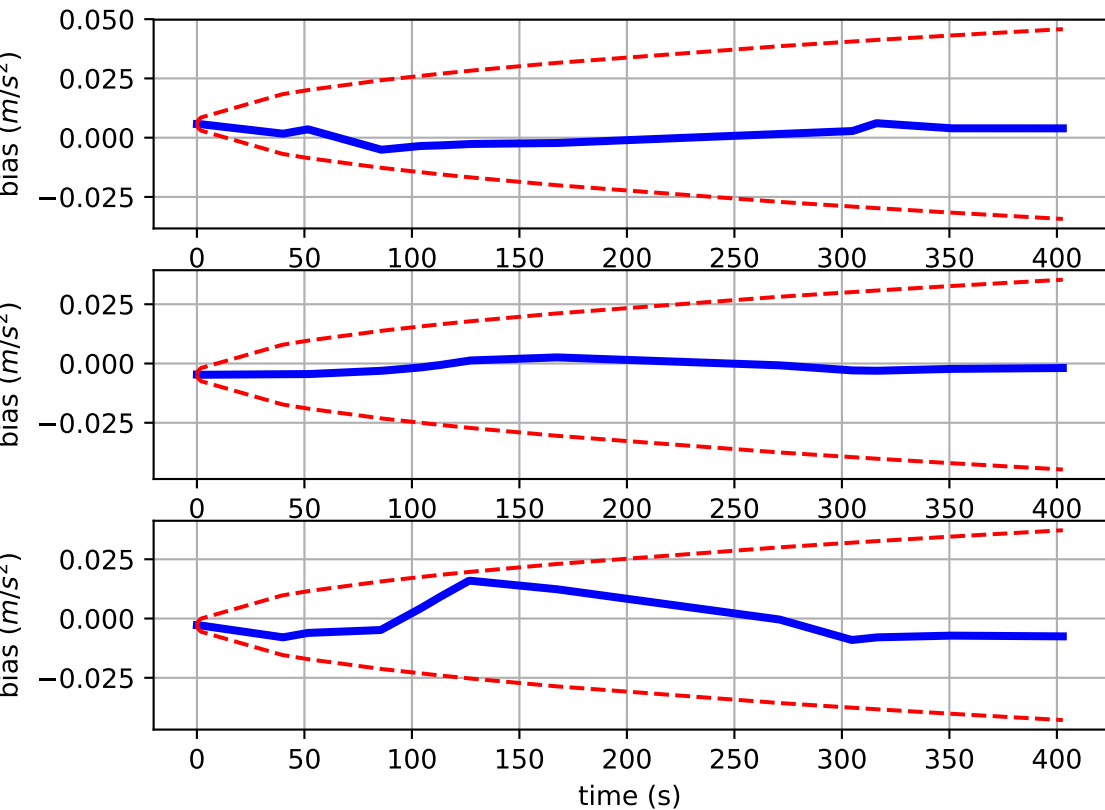
Comparison of predicted and measured specific force (imu0 frame)



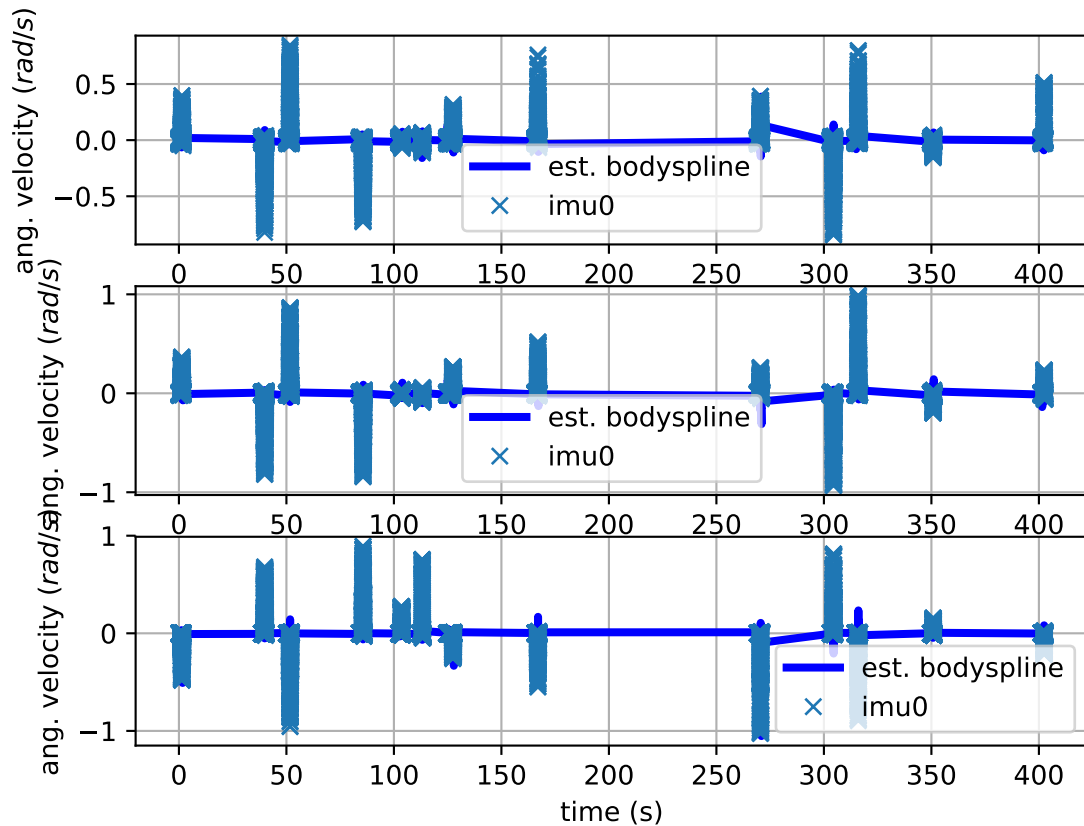
imu0: acceleration error



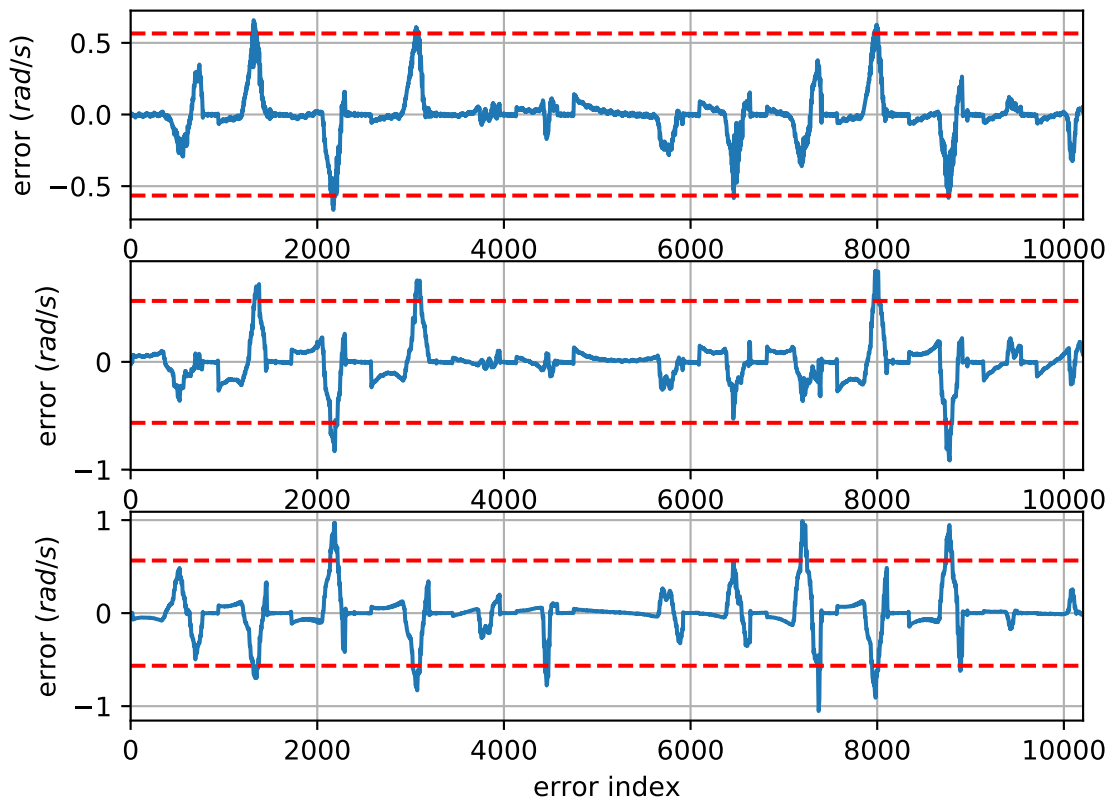
imu0: estimated accelerometer bias (imu frame)



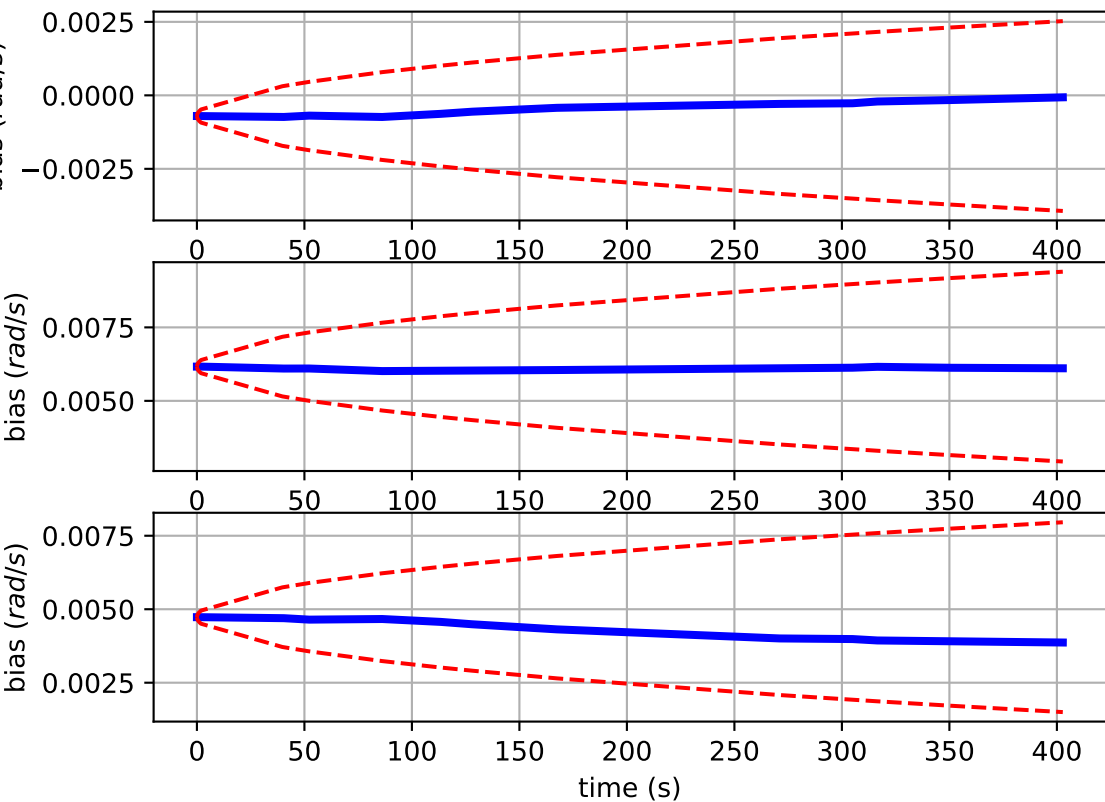
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)





cam0: reprojection errors

