

## Calibration results

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### Normalized Residuals

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Reprojection error (cam0): mean 0.0962359253036, median 0.0893346904227, std: 0.0512436974644

Gyroscope error (imu0): mean 2.28928707939, median 2.24391876082, std: 0.825108676922

Accelerometer error (imu0): mean 32.3171259418, median 32.2065144662, std: 2.06323593398

### Residuals

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Reprojection error (cam0) [px]: mean 0.0962359253036, median 0.0893346904227, std: 0.0512436974644

Gyroscope error (imu0) [rad/s]: mean 0.000742870432322, median 0.000728148476859, std: 0.00026774

Accelerometer error (imu0) [m/s^2]: mean 1.08153789792, median 1.07783612991, std: 0.0690490812508

### Transformation (cam0):

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T\_ci: (imu0 to cam0):

```
[[-0.0015205 -0.99999756 -0.00160372 0.0583196 ]
 [ 0.99999862 -0.00151943 -0.0006702 0.0006001 ]
 [ 0.00066776 -0.00160474 0.99999849 -0.09704304]
 [ 0.         0.         0.         1.         ]]
```

T\_ic: (cam0 to imu0):

```
[[-0.0015205 0.99999862 0.00066776 -0.00044662]
 [-0.99999756 -0.00151943 -0.00160474 0.05816464]
 [-0.00160372 -0.0006702 0.99999849 0.09713682]
 [ 0.         0.         0.         1.         ]]
```

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

0.003913783353790558

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

[0.01643626 9.8065148 0.0204976 ]

Calibration configuration

-----  
Camera model: pinhole  
Focal length: [585.7561, 585.7561]  
Principal point: [320.5, 240.5]  
Distortion model: radtan  
Distortion coefficients: [0.0, 0.0, 0.0, 0.0]  
Type: checkerboard  
Rows  
  Count: 6  
  Distance: 0.01 [m]  
Cols  
  Count: 7  
  Distance: 0.01 [m]

#### IMU configuration

##### =====

##### IMU0:

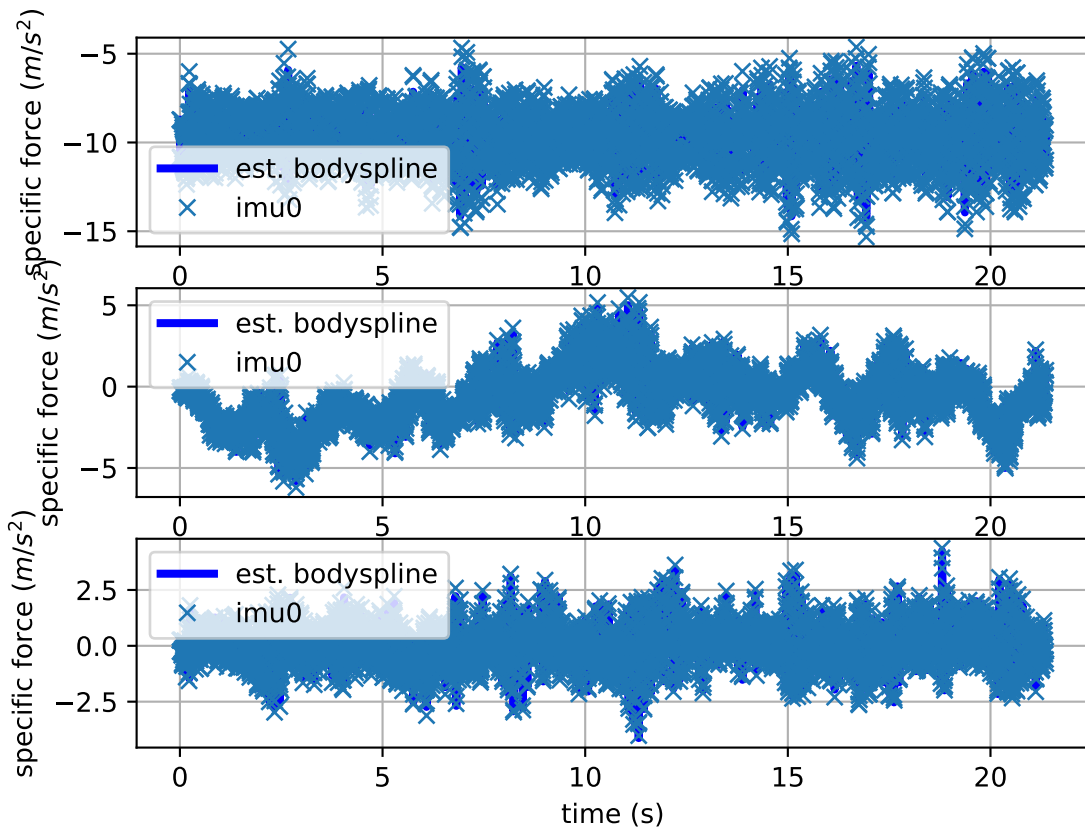
-----  
Model: calibrated  
Update rate: 70.0  
Accelerometer:  
  Noise density: 0.004  
  Noise density (discrete): 0.0334664010614  
  Random walk: 0.006  
Gyroscope:  
  Noise density: 3.8785e-05  
  Noise density (discrete): 0.000324498591291  
  Random walk: 0.0003394

##### T\_i b

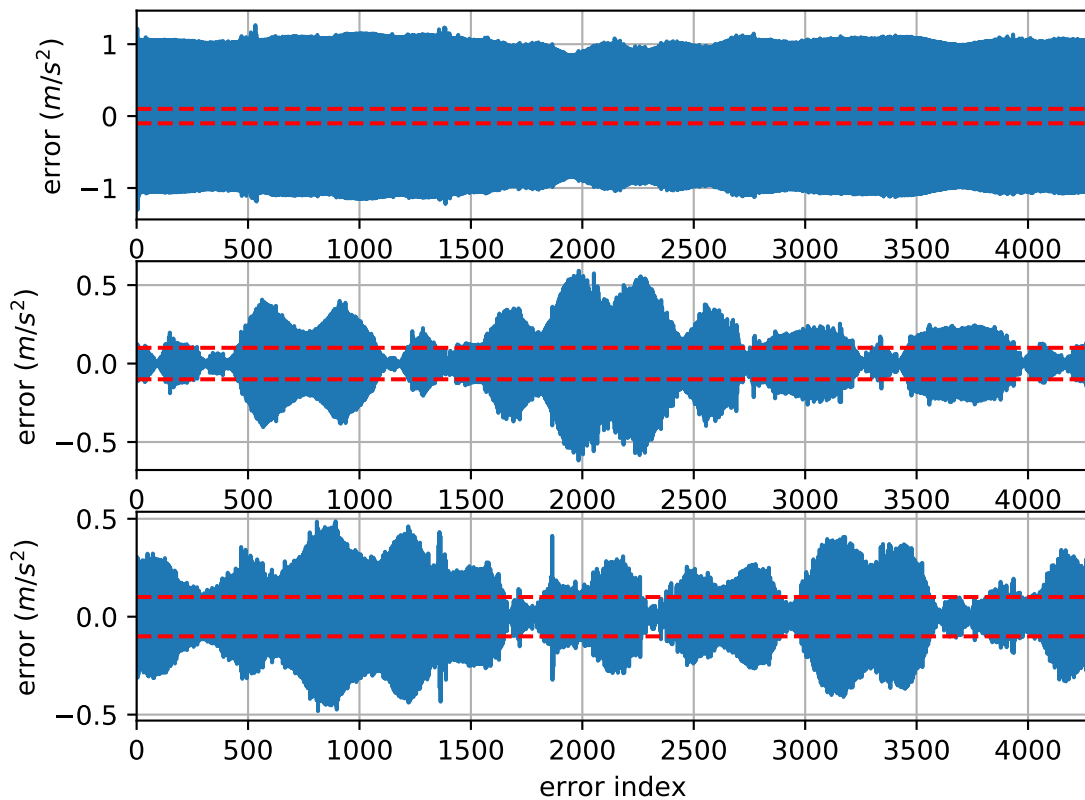
[[1. 0. 0. 0.]  
[0. 1. 0. 0.]  
[0. 0. 1. 0.]  
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

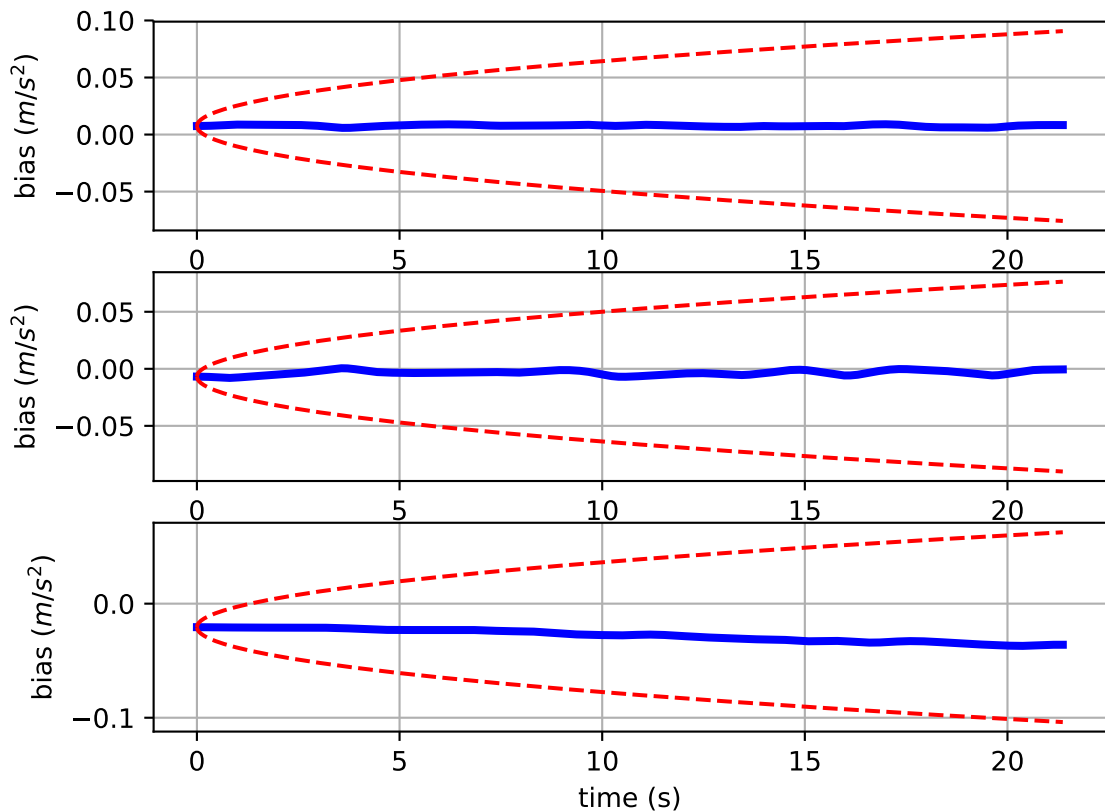
Comparison of predicted and measured specific force (imu0 frame)



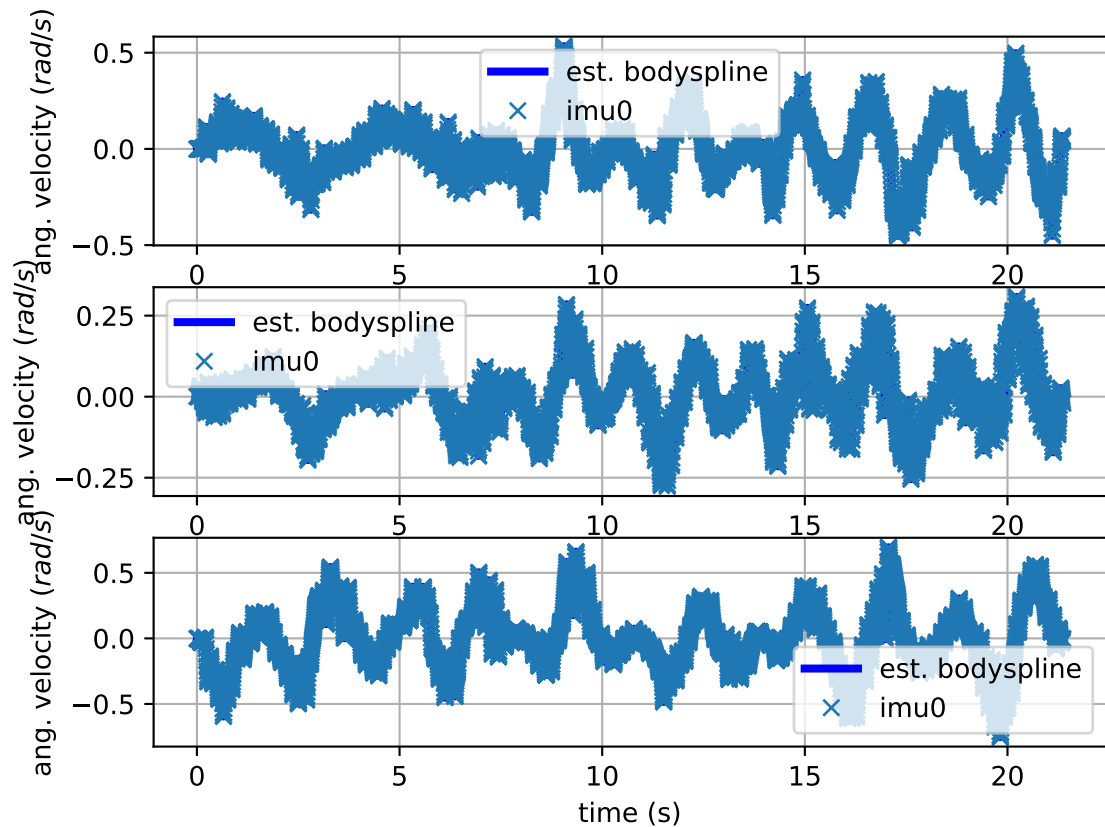
imu0: acceleration error



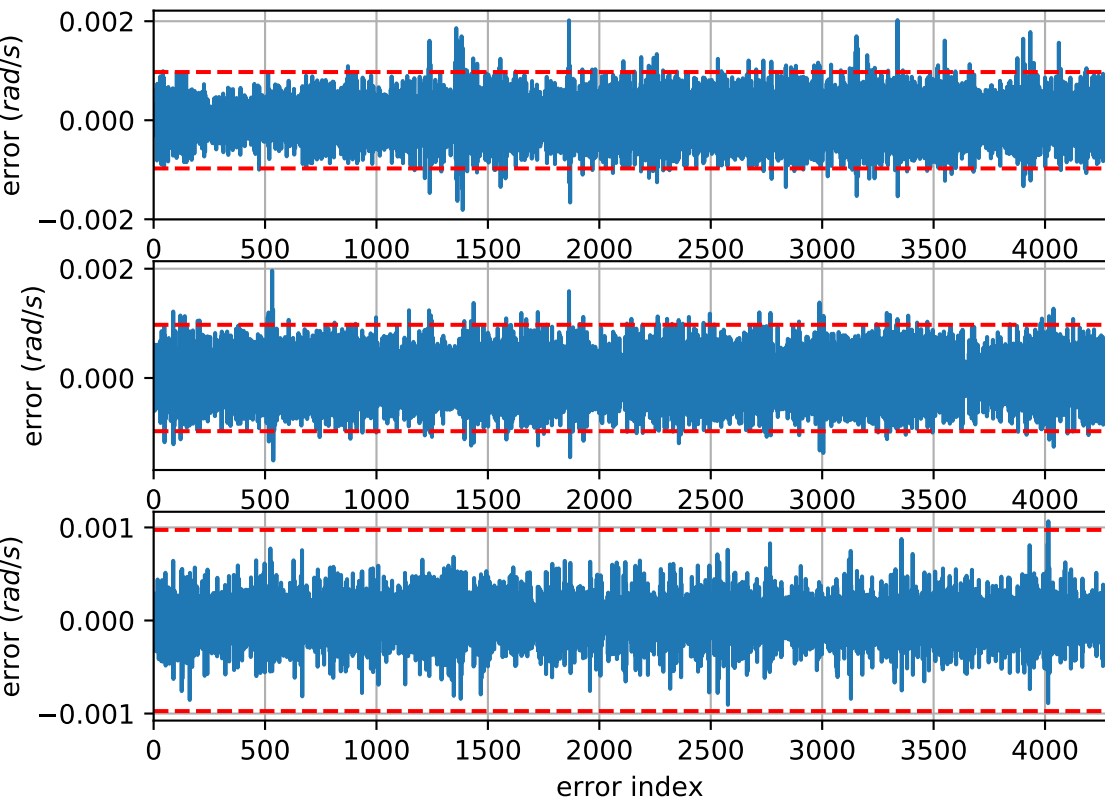
imu0: estimated accelerometer bias (imu frame)



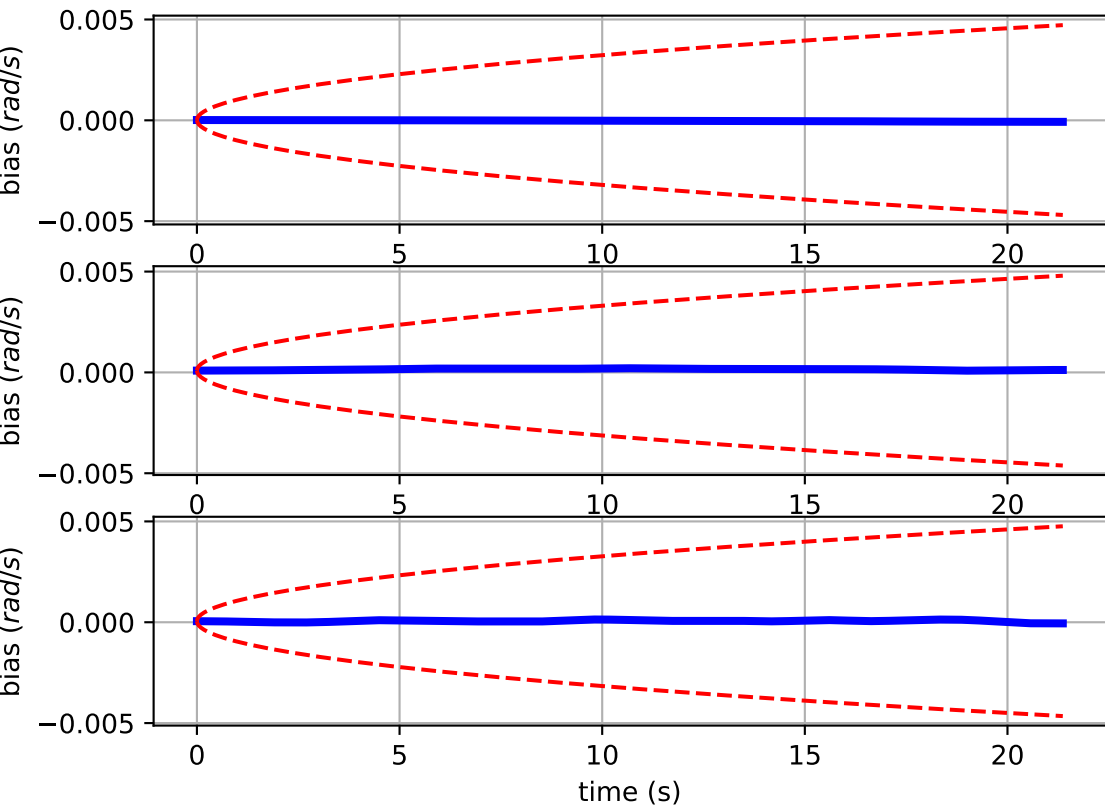
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)





cam0: reprojection errors

