

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.111469363021, median 0.106658007688, std: 0.0555000157014
Reprojection error (cam1): mean 0.116242291691, median 0.111174841259, std: 0.0584828391203
Gyroscope error (imu0): mean 0.0502820104099, median 0.0462530018015, std: 0.0311856643983
Accelerometer error (imu0): mean 0.0526923106259, median 0.0479938898501, std: 0.0284744528232

Residuals

Reprojection error (cam0) [px]: mean 0.111469363021, median 0.106658007688, std: 0.0555000157014
Reprojection error (cam1) [px]: mean 0.116242291691, median 0.111174841259, std: 0.0584828391203
Gyroscope error (imu0) [rad/s]: mean 0.00827875857314, median 0.00761539628341, std: 0.00513461145232
Accelerometer error (imu0) [m/s²]: mean 0.0927291177504, median 0.0844607308039, std: 0.0501099848793

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.99974293  0.01555953 -0.01649148  0.04784041]
 [-0.01562929  0.99986941 -0.0041097   0.00534674]
 [ 0.01642538  0.00436639  0.99985556  0.00250811]
 [ 0.          0.          1.          ]]]
```

T_ic: (cam0 to imu0):

```
[[-0.99974293 -0.01562929  0.01642538 -0.04778574]
 [ 0.01555953  0.99986941  0.00436639 -0.00610137]
 [-0.01649148 -0.0041097   0.99985556 -0.00169681]
 [ 0.          0.          1.          ]]]
```

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)
-0.00168594342565

Transformation (cam1):

T_ci: (imu0 to cam1):
[[0.99996308 -0.00792886 -0.00331148 -0.0326272]
[0.00790129 0.99993468 -0.00825855 0.00637118]
[0.00337674 0.00823208 0.99996041 0.00279098]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[0.99996308 0.00790129 0.00337674 0.03256623]
[-0.00792886 0.99993468 0.00823208 -0.00665244]
[-0.00331148 -0.00825855 0.99996041 -0.0028463]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
-0.00170349618093

Baselines:

Baseline (cam0 to cam1):
[[0.99963727 -0.02354293 0.01307915 -0.08035718]
[0.02359397 0.99971455 -0.00376147 -0.00009334]
[-0.01298686 0.00406869 0.99990739 0.00088265]
[0. 0. 0. 1.]]
baseline norm: 0.0803620800186 [m]

Gravity vector in target coords: [m/s^2]
[-9.80612563 -0.00872999 0.09081221]

Calibration configuration

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cam0

Camera model: eucm
Focal length: [287.51602037018824, 288.0538872769775]
Principal point: [315.44939019888733, 199.14979993192478]
EUCM alpha: 0.569911040554
EUCM beta: 1.19954927566
Distortion model: none
Distortion coefficients: []
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0312 [m]
Spacing 0.00959999976 [m]

cam1

Camera model: eucm
Focal length: [287.4053684654479, 288.11728811724277]
Principal point: [314.9633463395032, 198.27917577724492]
EUCM alpha: 0.569077405514
EUCM beta: 1.19774164862
Distortion model: none
Distortion coefficients: []
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0312 [m]
Spacing 0.00959999976 [m]

IMU configuration

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IMU0:

Model: calibrated

Update rate: 1000.0

Accelerometer:

Noise density: 0.055650476137

Noise density (discrete): 1.75982257466

Random walk: 0.000935944634767

Gyroscope:

Noise density: 0.00520658046016

Noise density (discrete): 0.16464653075

Random walk: 9.79101890858e-05

T_ib (imu0 to imu0)

[[1. 0. 0. 0.]

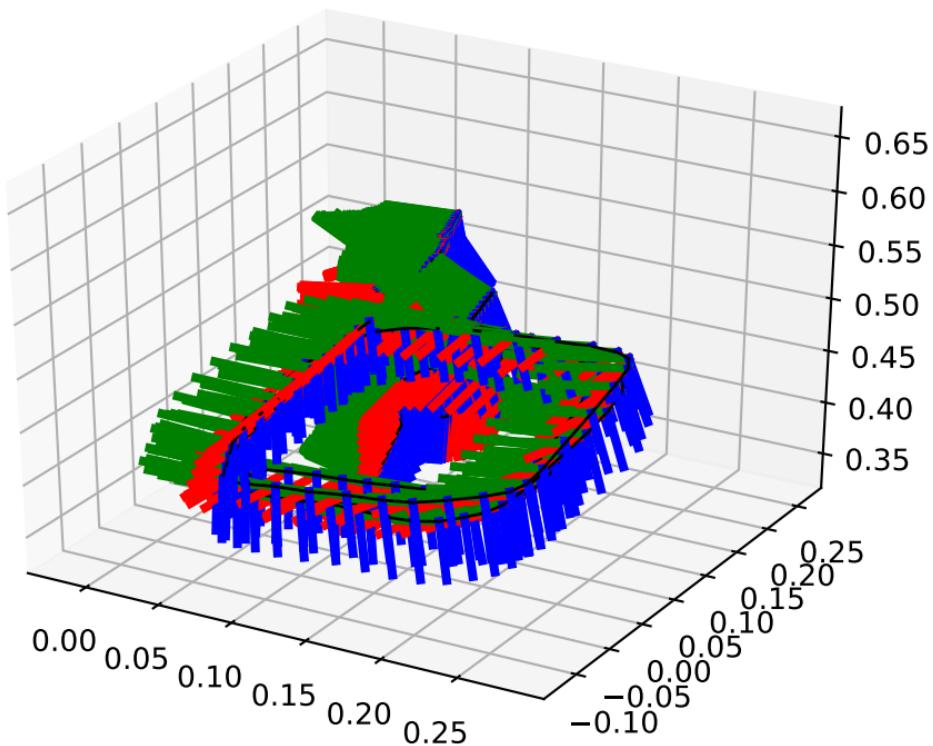
 [0. 1. 0. 0.]

 [0. 0. 1. 0.]

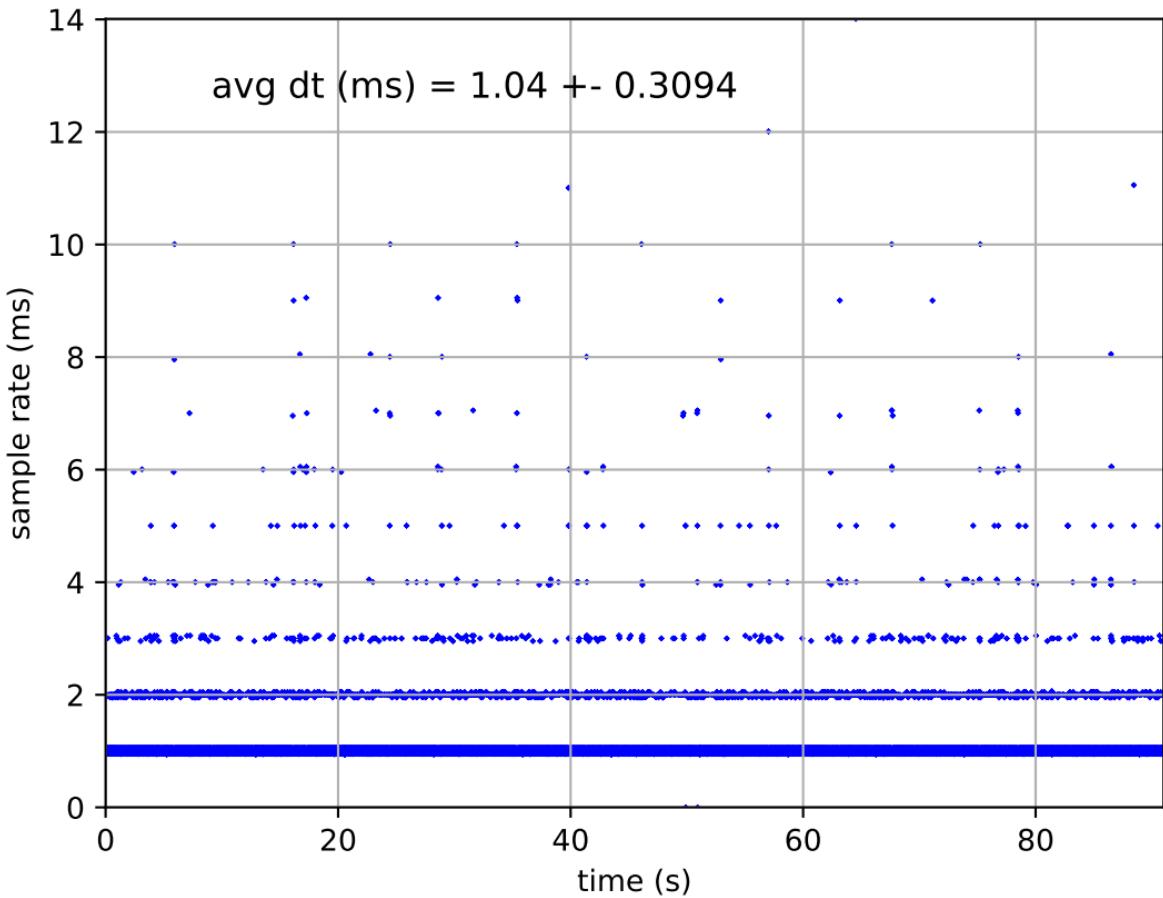
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

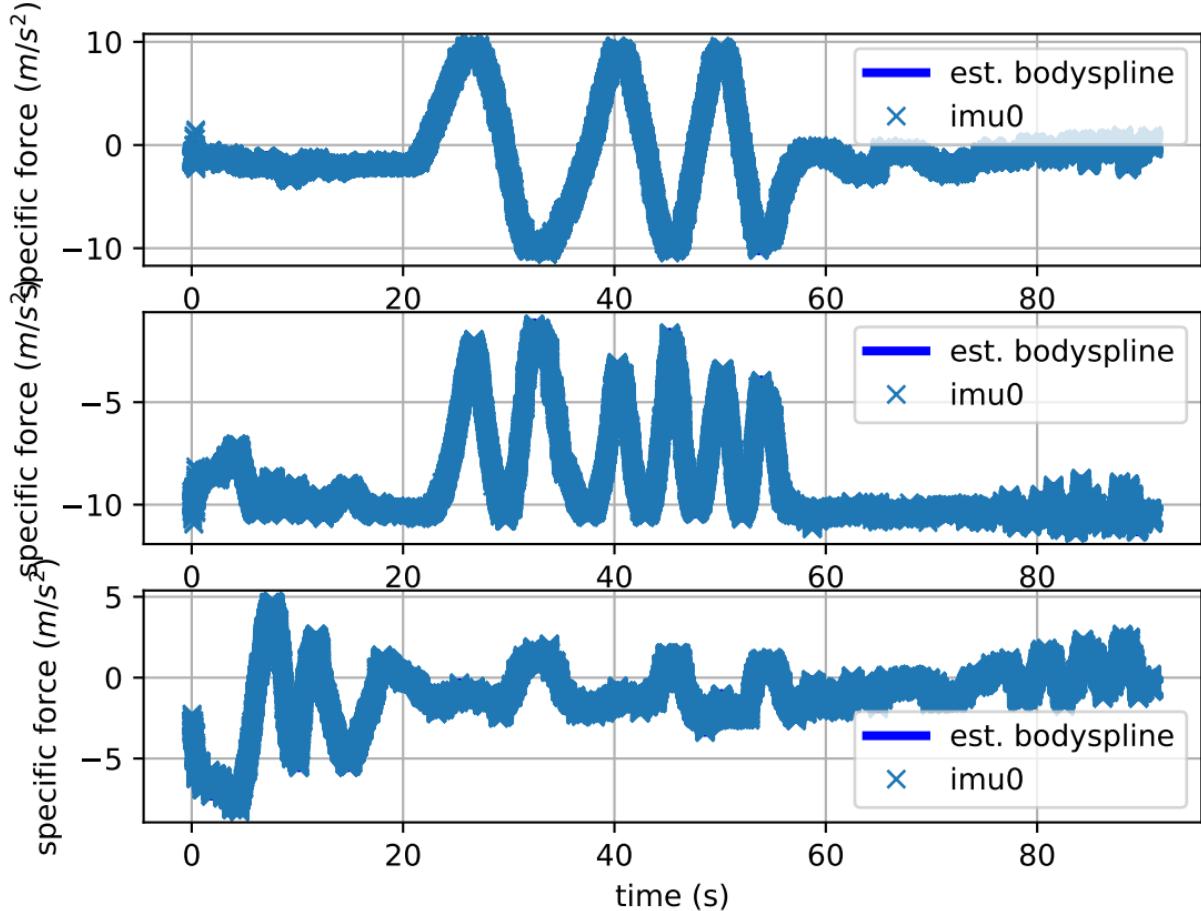
imu0: estimated poses



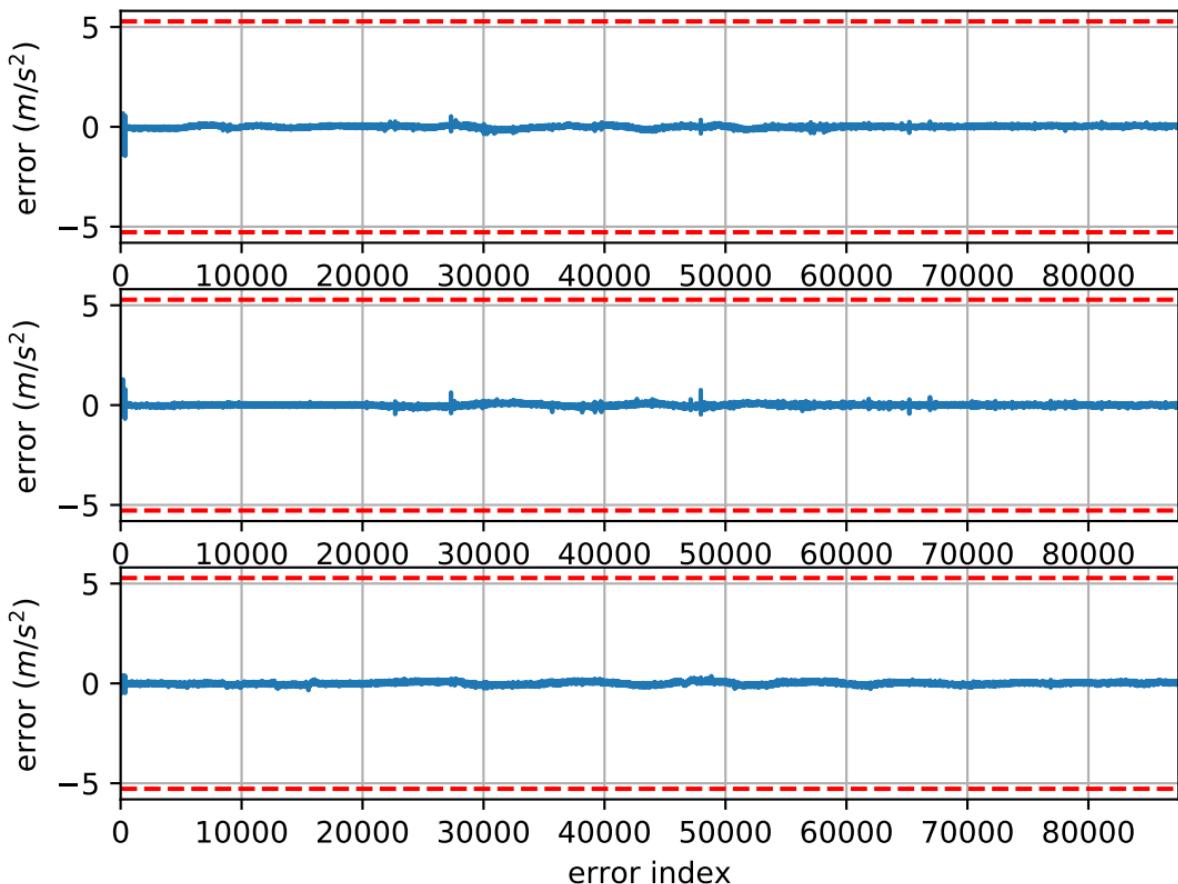
imu0: sample inertial rate



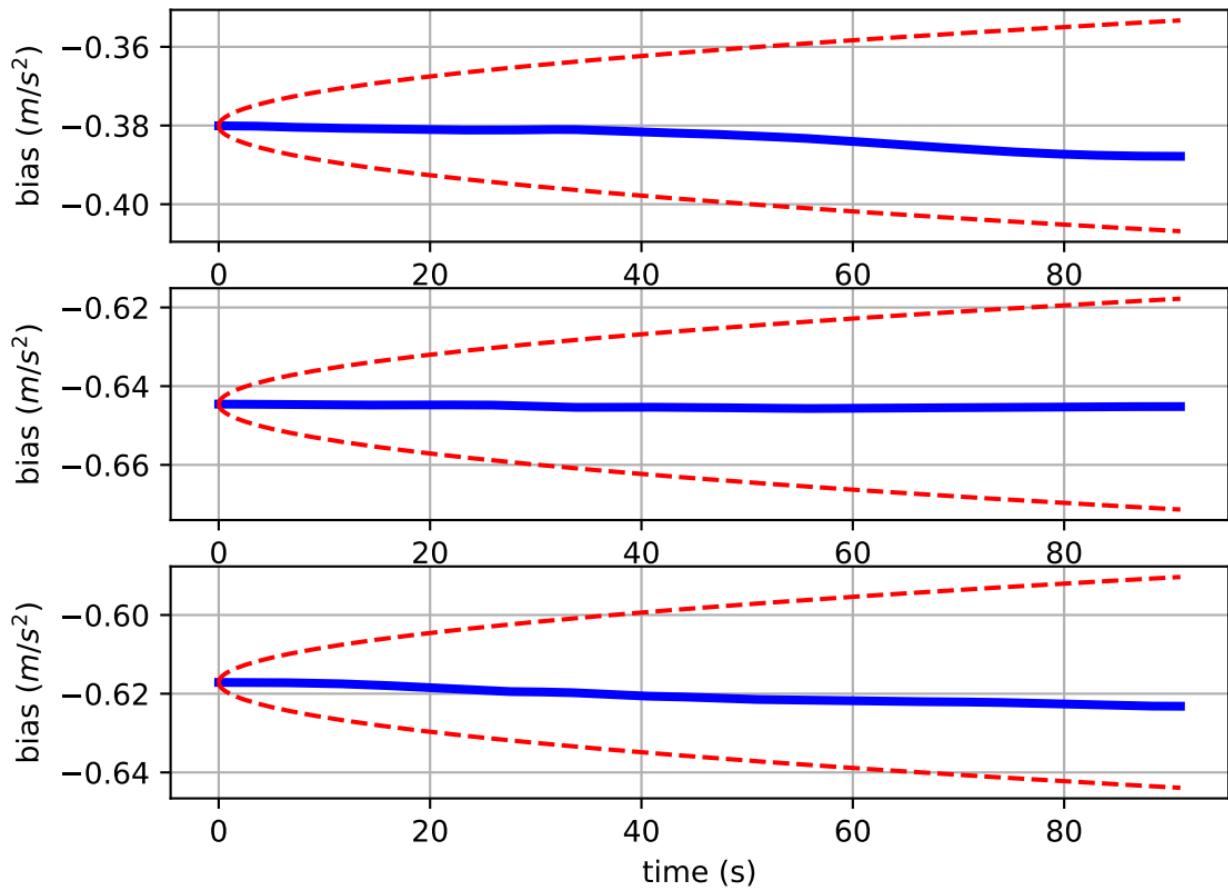
Comparison of predicted and measured specific force (imu0 frame)



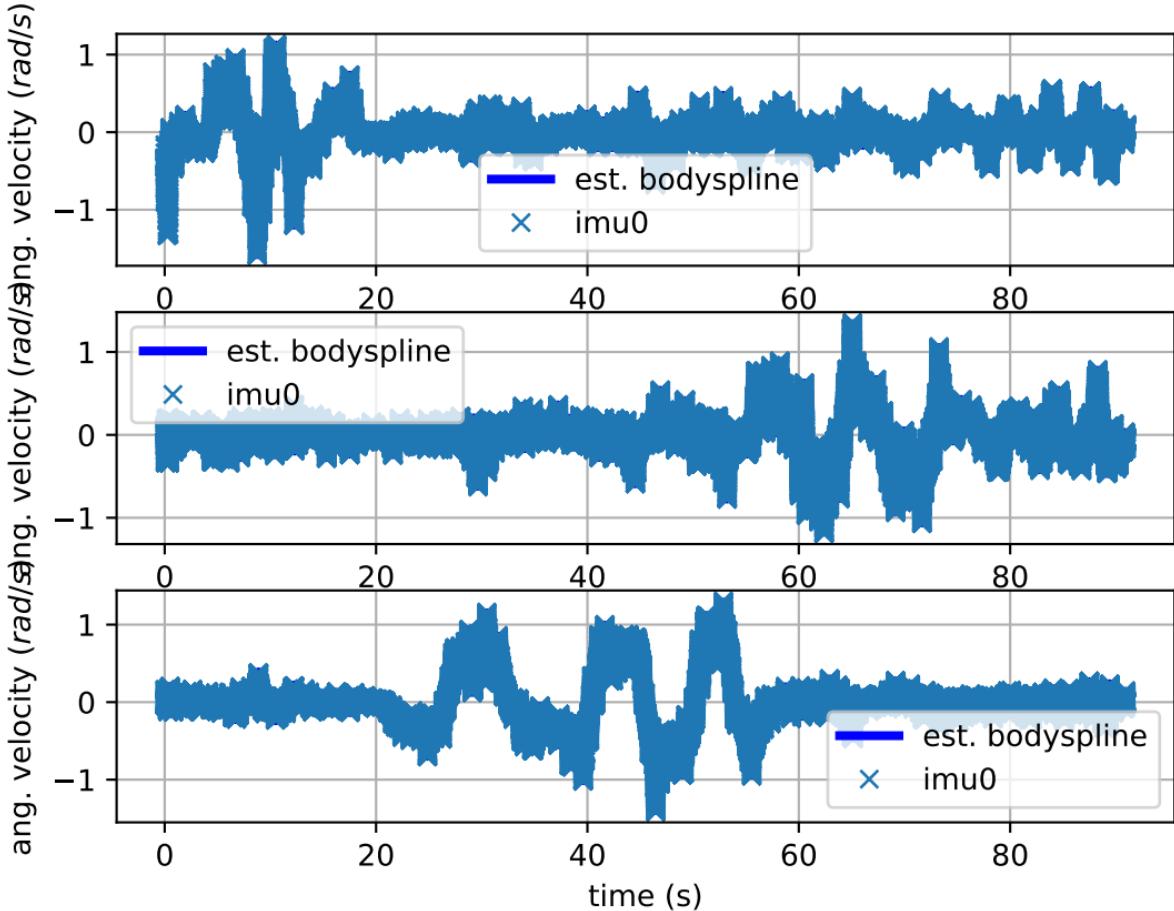
imu0: acceleration error



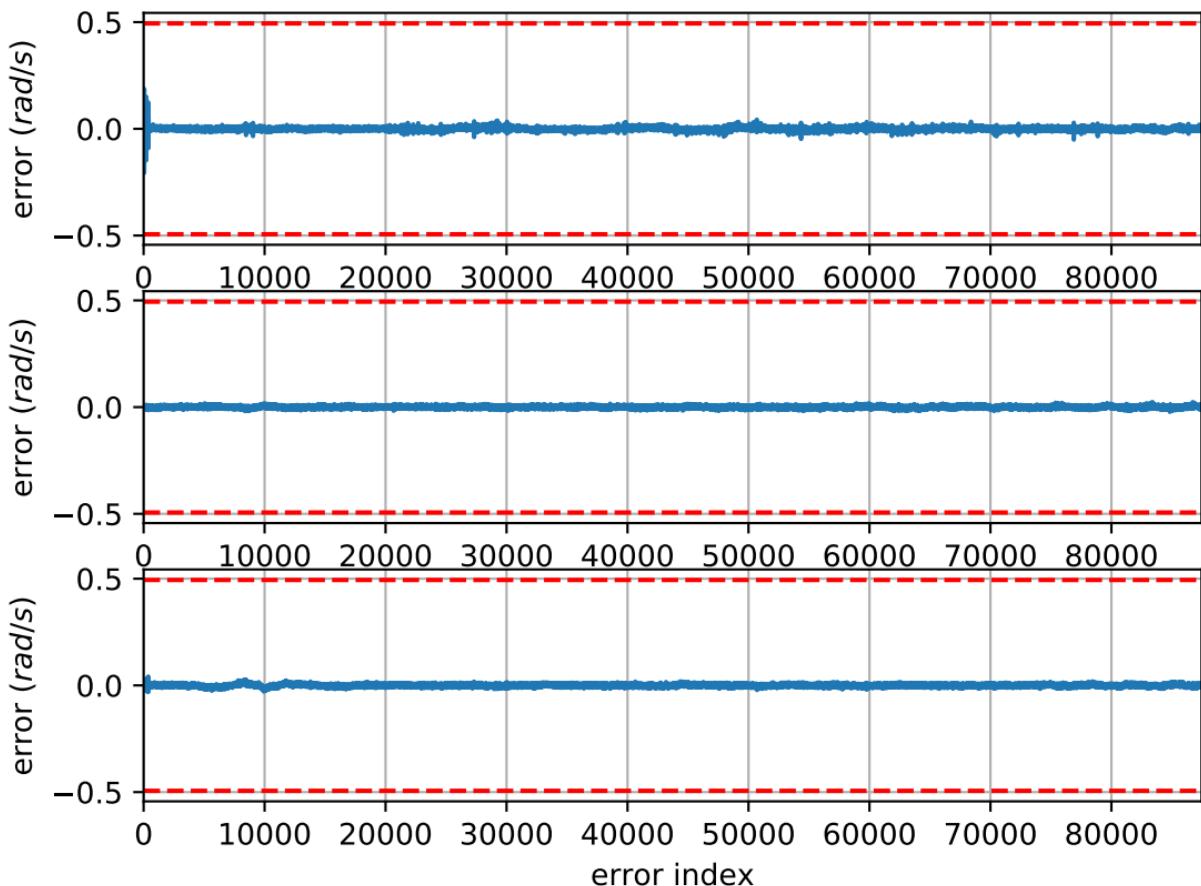
imu0: estimated accelerometer bias (imu frame)



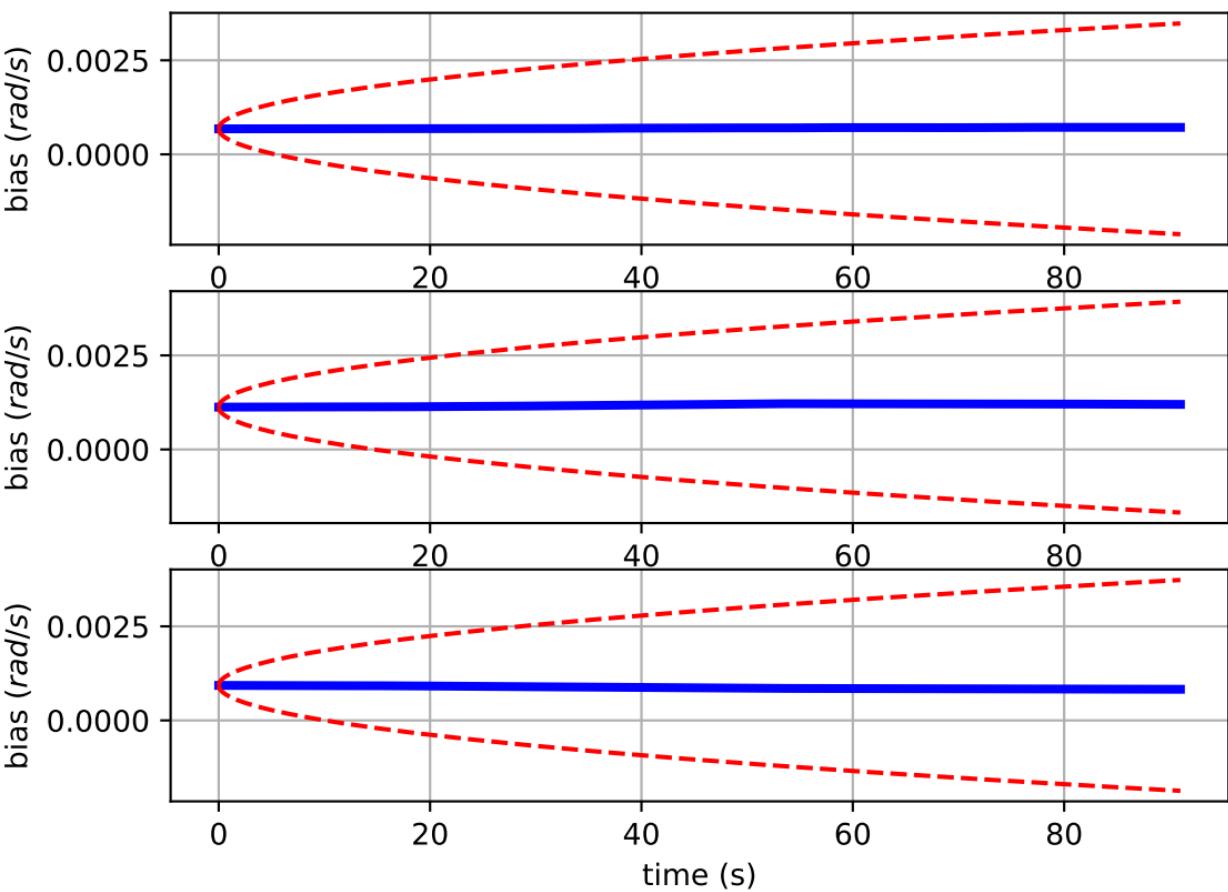
Comparison of predicted and measured angular velocities (body frame)



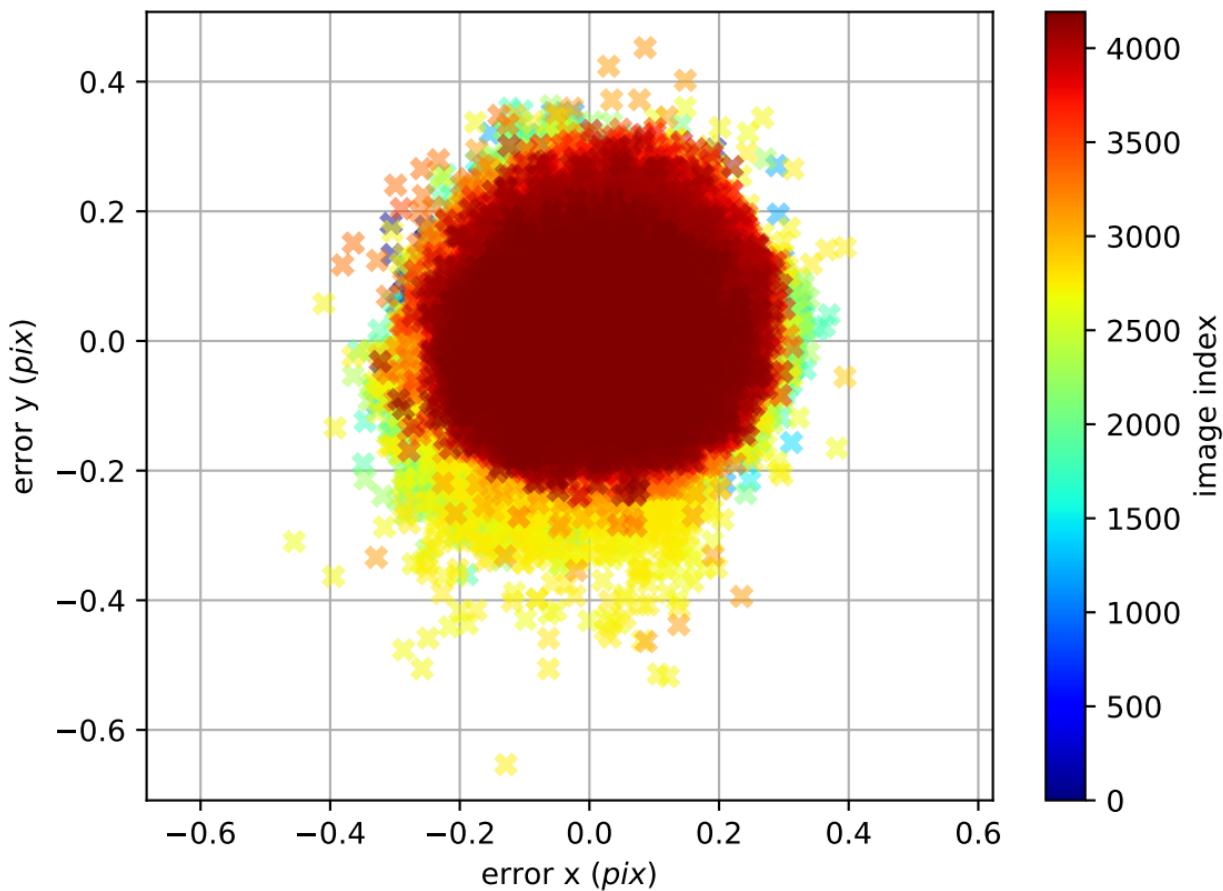
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

