

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.10507990406, median 0.100346755816, std: 0.0525791564259

Reprojection error (cam1): mean 0.108832652536, median 0.105294726192, std: 0.0525769670795

Gyroscope error (imu0): mean 0.05083420613, median 0.0466867861328, std: 0.0315526216344

Accelerometer error (imu0): mean 0.0537939140396, median 0.0490919176989, std: 0.0289131752736

Residuals

Reprojection error (cam0) [px]: mean 0.10507990406, median 0.100346755816, std: 0.0525791564259

Reprojection error (cam1) [px]: mean 0.108832652536, median 0.105294726192, std: 0.0525769670795

Gyroscope error (imu0) [rad/s]: mean 0.00836967568276, median 0.00768681736865, std: 0.00519502968819

Accelerometer error (imu0) [m/s^2]: mean 0.0946677443062, median 0.0863930649999, std: 0.0508820585516

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.99961378 0.0177827 -0.02135568 0.0451619 ]
 [-0.01803853 0.9997671 -0.0118472 0.00238052]
 [ 0.02114003 0.01222785 0.99970174 0.0017373 ]
 [ 0.          0.          1.          ]]]
```

T_ic: (cam0 to imu0):

```
[[-0.99961378 -0.01803853 0.02114003 -0.04513825]
 [ 0.0177827 0.9997671 0.01222785 -0.00320431]
 [-0.02135568 -0.0118472 0.99970174 -0.00074412]
 [ 0.          0.          1.          ]]]
```

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

-0.00164644449021

Transformation (cam1):

T_ci: (imu0 to cam1):
[[0.99993004 -0.00684166 -0.00964912 -0.03547554]
[0.0066749 0.99982963 -0.01720921 0.00342621]
[0.00976521 0.0171436 0.99980535 0.00127575]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[0.99993004 0.0066749 0.00976521 0.03543773]
[-0.00684166 0.99982963 0.0171436 -0.00369021]
[-0.00964912 -0.01720921 0.99980535 -0.00155884]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
-0.00172205144265

Baselines:

Baseline (cam0 to cam1):
[[0.99962825 -0.02476302 0.01140866 -0.08058153]
[0.02481951 0.99968025 -0.00483721 -0.00006604]
[-0.01128523 0.00511857 0.99992322 0.00003606]
[0. 0. 0. 1.]]
baseline norm: 0.0805815640955 [m]

Gravity vector in target coords: [m/s^2]
[-9.80594458 -0.03064446 0.10456883]

Calibration configuration

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cam0

Camera model: omni
Focal length: [830.7004540991314, 831.5796172172901]
Principal point: [318.4346794695246, 203.2299297682479]
Omni xi: 1.8975984002
Distortion model: radtan
Distortion coefficients: [-0.11604467172233306, 0.9906082251506084, -0.0035504075015582695, -0.0024597703836713586]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0312 [m]
Spacing 0.00959999976 [m]

cam1

Camera model: omni
Focal length: [842.2102421275769, 842.621275052926]
Principal point: [318.503835060286, 202.72239736621182]
Omni xi: 1.93776399203
Distortion model: radtan
Distortion coefficients: [-0.09993415472546212, 1.0724892865337292, -0.0050297983336975004, -0.00353097486826898]
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.]

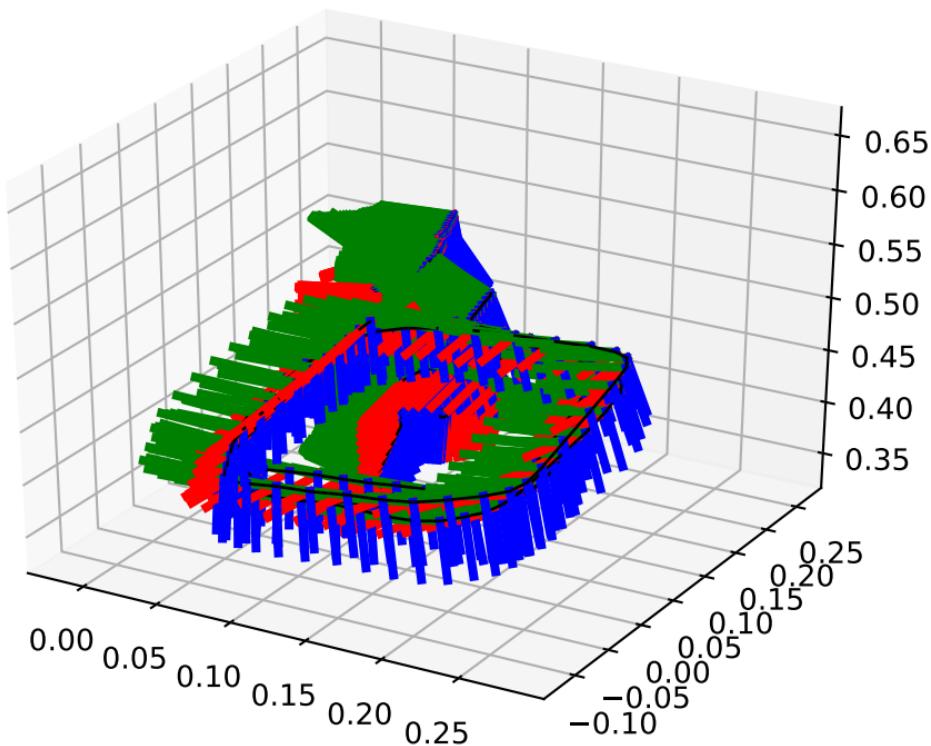
 [0. 1. 0. 0.]

 [0. 0. 1. 0.]

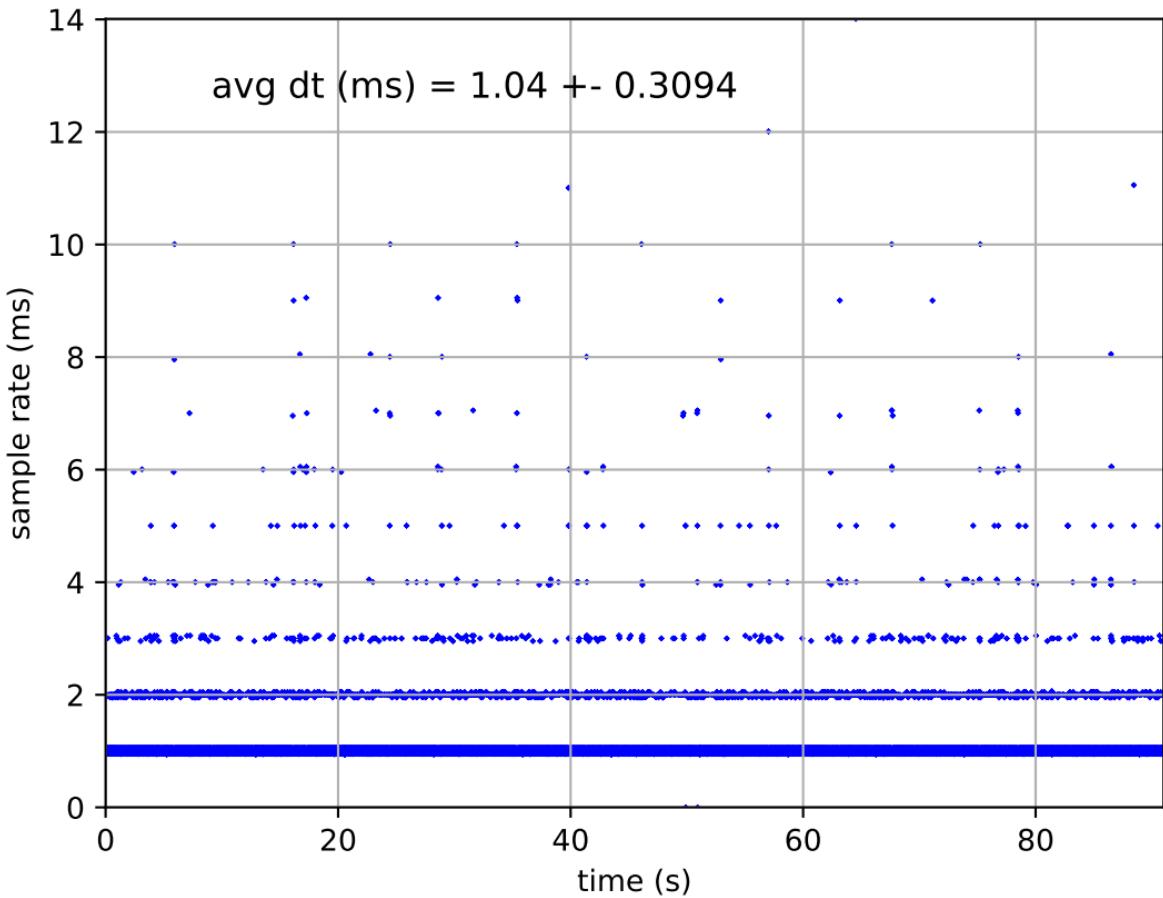
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

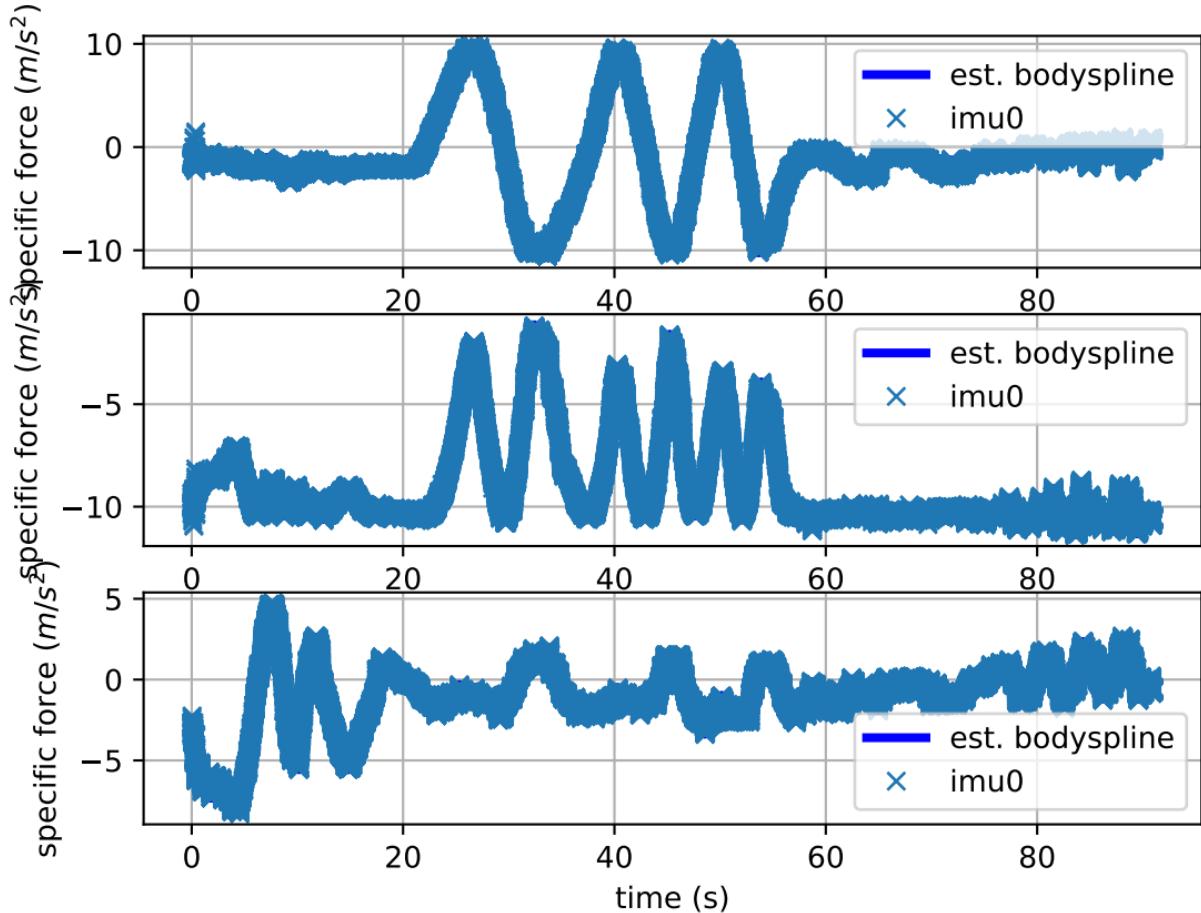
imu0: estimated poses



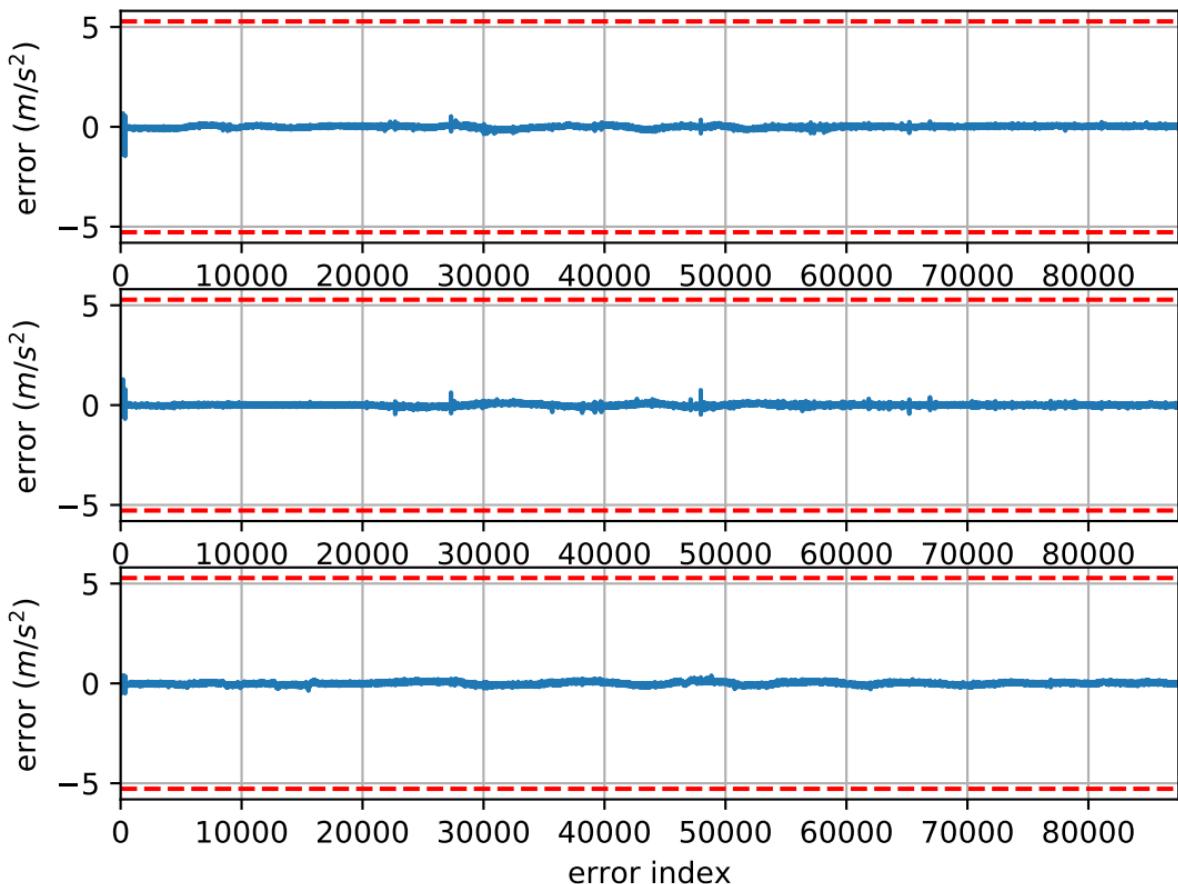
imu0: sample inertial rate



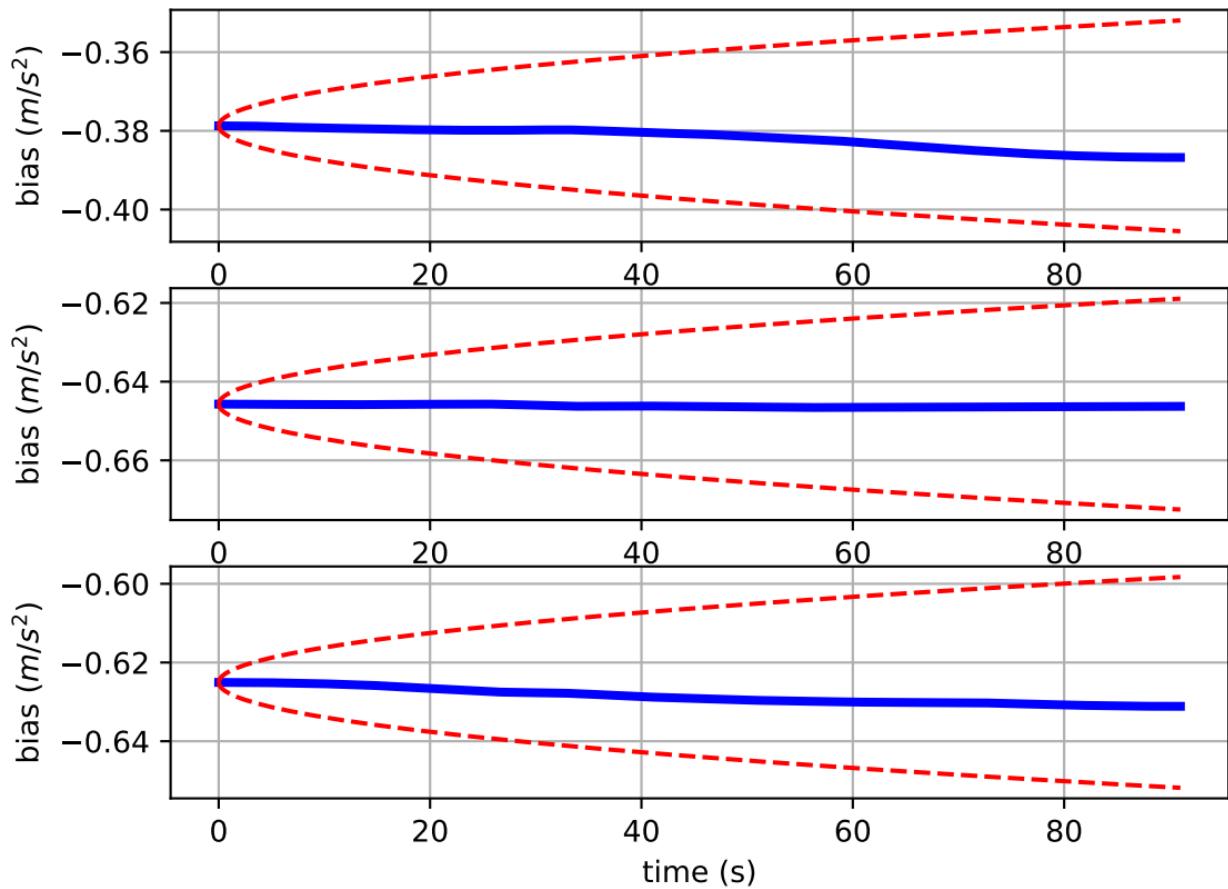
Comparison of predicted and measured specific force (imu0 frame)



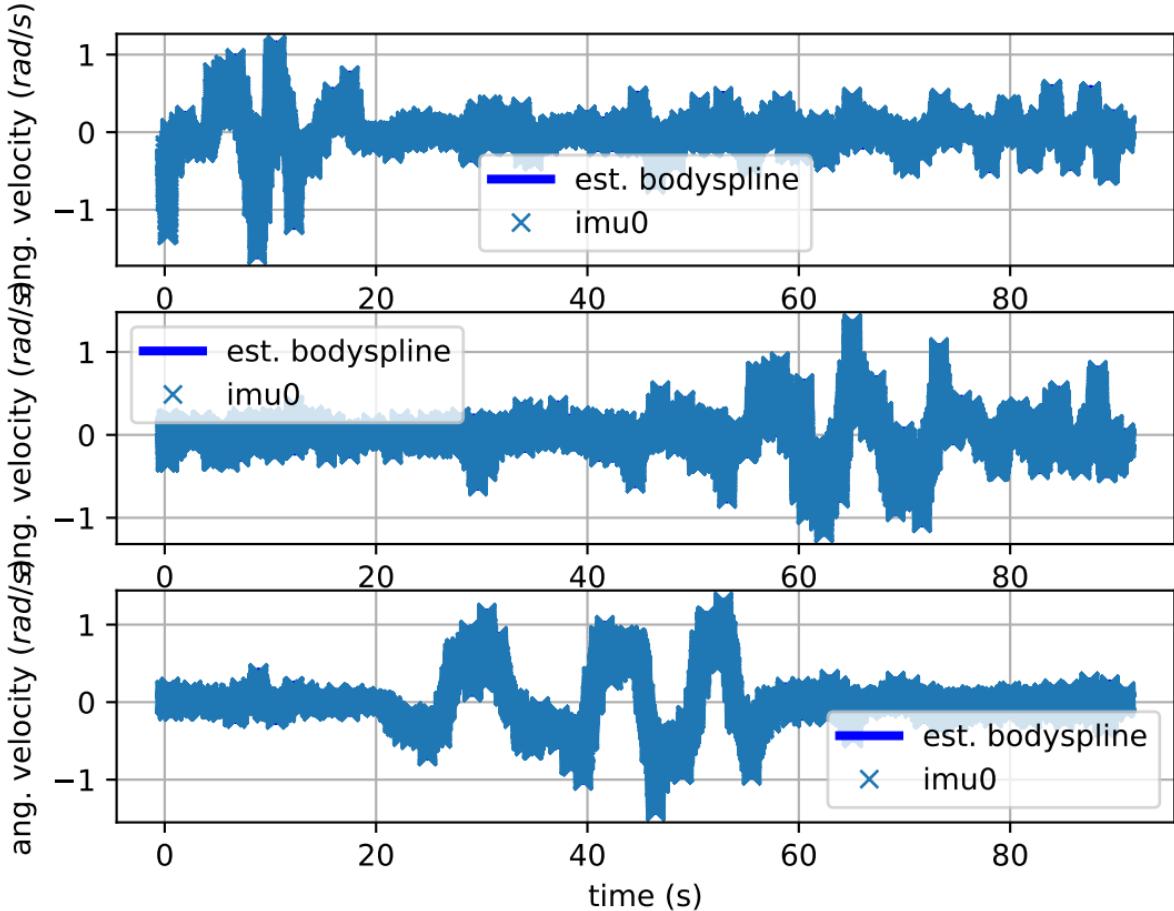
imu0: acceleration error



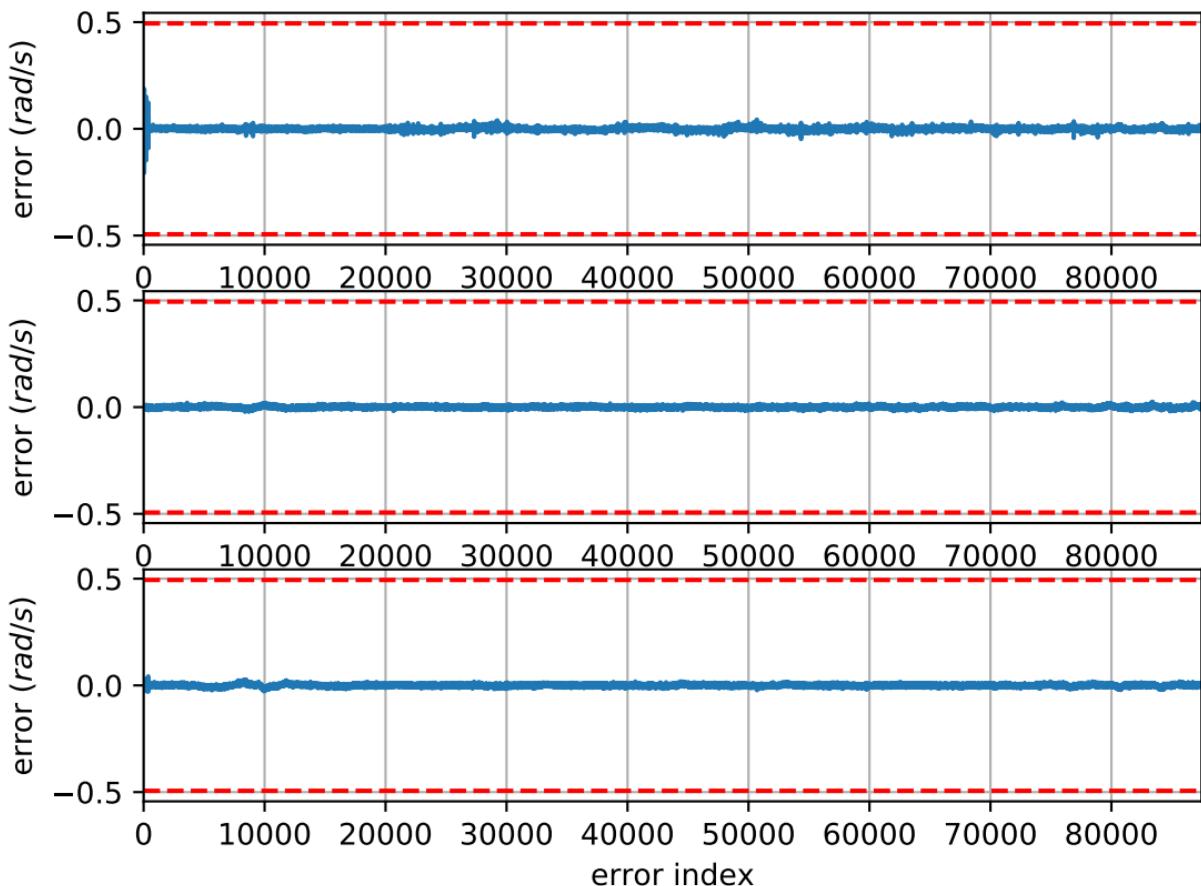
imu0: estimated accelerometer bias (imu frame)



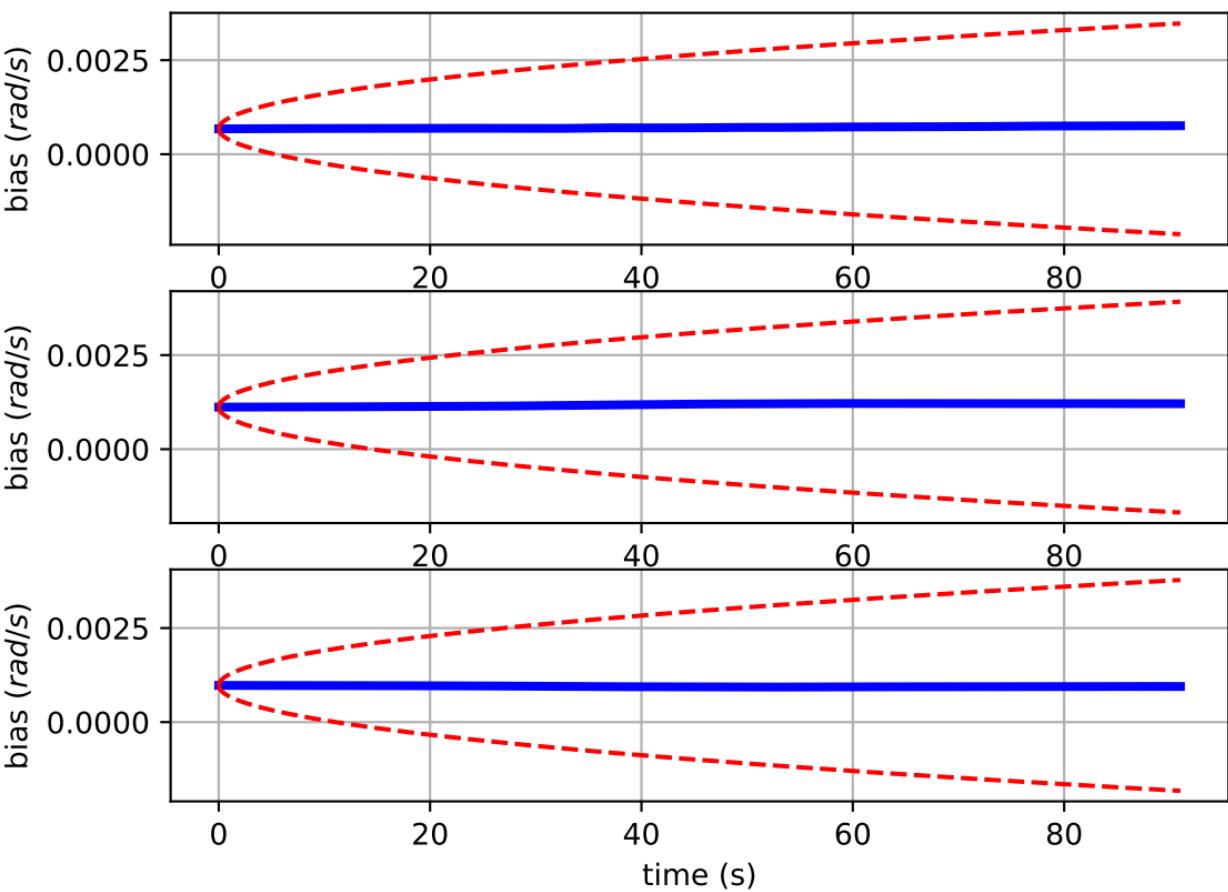
Comparison of predicted and measured angular velocities (body frame)



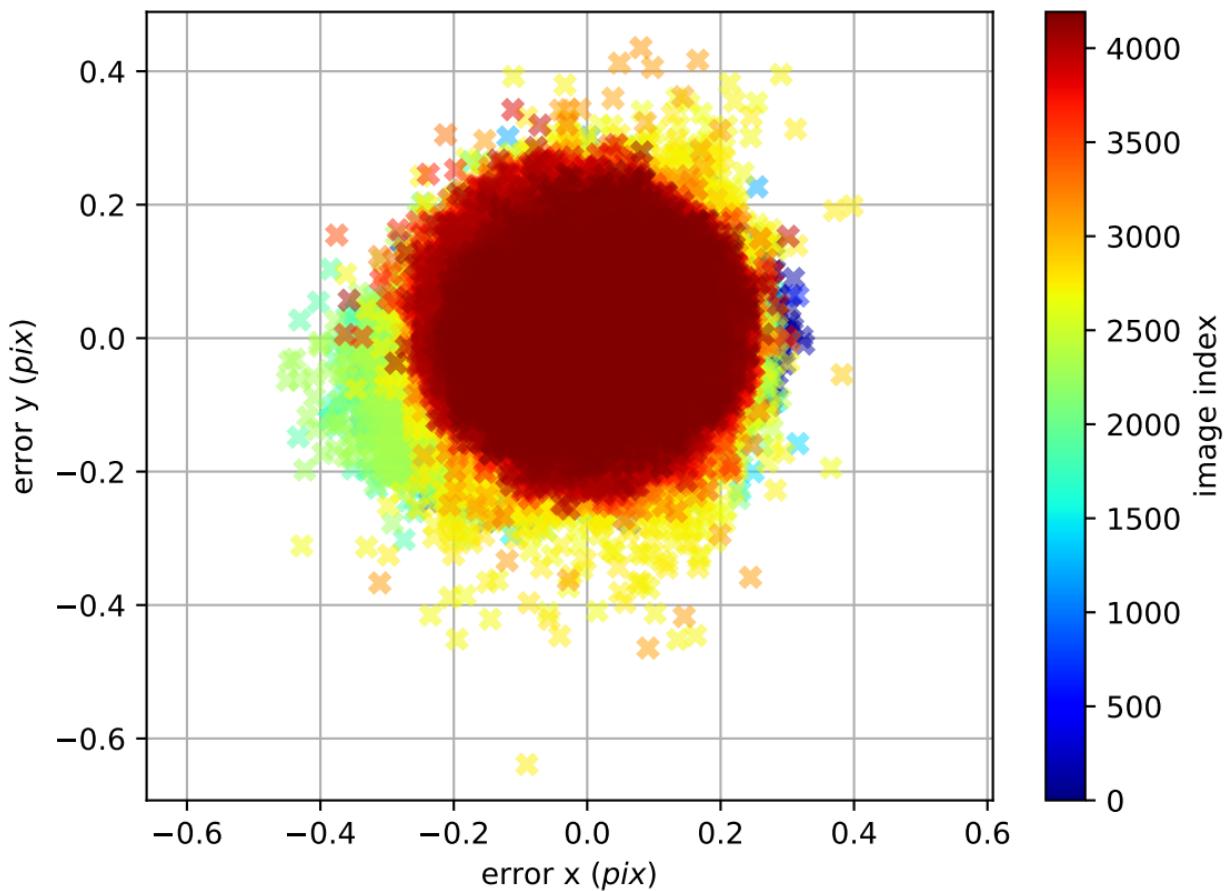
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

