

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.370086712287, median 0.292603726662, std: 0.283199173954

Reprojection error (cam1): mean 0.360981058806, median 0.288862639497, std: 0.268193460152

Gyroscope error (imu0): mean 2.47151078443, median 1.91285430169, std: 1.80152866371

Accelerometer error (imu0): mean 3.02227471036, median 1.77525083648, std: 3.0271272996

Residuals

Reprojection error (cam0) [px]: mean 0.370086712287, median 0.292603726662, std: 0.283199173954

Reprojection error (cam1) [px]: mean 0.360981058806, median 0.288862639497, std: 0.268193460152

Gyroscope error (imu0) [rad/s]: mean 0.00423121584059, median 0.0032747983432, std: 0.00308420932944

Accelerometer error (imu0) [m/s²]: mean 0.0776709778089, median 0.0456230758418, std: 0.0777956869726

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.9997825 -0.00595194  0.01998836  0.00105737]
 [ 0.0059787  0.99998131 -0.00127934 -0.03412364]
 [-0.01998037  0.00139856  0.99979939 -0.00432618]
 [ 0.          0.          1.          ]]
```

T_ic: (cam0 to imu0):

```
[[-0.9997825  0.0059787 -0.01998037 -0.00093957]
 [-0.00595194  0.99998131  0.00139856  0.03413534]
 [ 0.01998836 -0.00127934  0.99979939  0.00426052]
 [ 0.          0.          1.          ]]
```

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

0.00406930199958

Transformation (cam1):

T_ci: (imu0 to cam1):
[[0.99984829 -0.00627749 0.01624801 -0.04892454]
[0.0062976 0.99997947 -0.00118695 -0.03422996]
[-0.01624023 0.00128909 0.99986729 -0.00423931]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[0.99984829 0.0062976 -0.01624023 0.04906384]
[-0.00627749 0.99997947 0.00128909 0.0339276]
[0.01624801 -0.00118695 0.99986729 0.00499304]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
0.00406220261754

Baselines:

Baseline (cam0 to cam1):
[[0.99999295 -0.00032036 -0.00374137 -0.05000902]
[0.00032069 0.99999994 0.00008599 -0.00010629]
[0.00374134 -0.00008719 0.999993 0.00007991]
[0. 0. 0. 1.]]
baseline norm: 0.0500092001217 [m]

Gravity vector in target coords: [m/s^2]
[-0.15414346 -9.80522985 0.04615558]

Calibration configuration

=====

cam0

Camera model: pinhole
Focal length: [426.8825036040236, 429.4438220039055]
Principal point: [424.9969624435153, 245.6695137338236]
Distortion model: radtan
Distortion coefficients: [5.48324010490589e-05, -4.385406935558303e-05, -0.00020332907329503183, 0.00016572677706572472]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0625 [m]
Spacing 0.01875 [m]

cam1

=====

Camera model: pinhole
Focal length: [427.7800095351429, 430.3491378636911]
Principal point: [426.5920875648096, 246.406737303008]
Distortion model: radtan
Distortion coefficients: [0.0005335379318268691, -0.000402842600031004, -0.00013349069613134934, 0.00028898590369644847]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0625 [m]
Spacing 0.01875 [m]

IMU configuration

=====

IMU0:

Model: calibrated
Update rate: 200.0

Accelerometer:

Noise density: 0.00181722974824

Noise density (discrete): 0.0256995095591

Random walk: 0.000213123254149

Gyroscope:

Noise density: 0.00012105637703

Noise density (discrete): 0.00171199570208

Random walk: 2.55594110844e-06

T_{ib} (imu0 to imu0)

[[1. 0. 0. 0.]

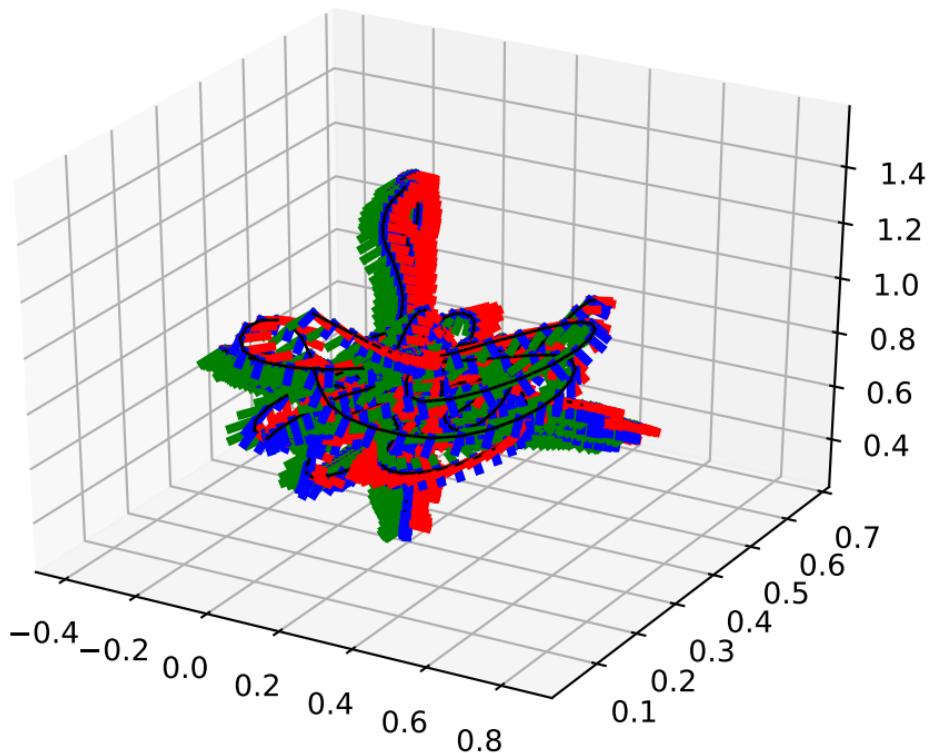
 [0. 1. 0. 0.]

 [0. 0. 1. 0.]

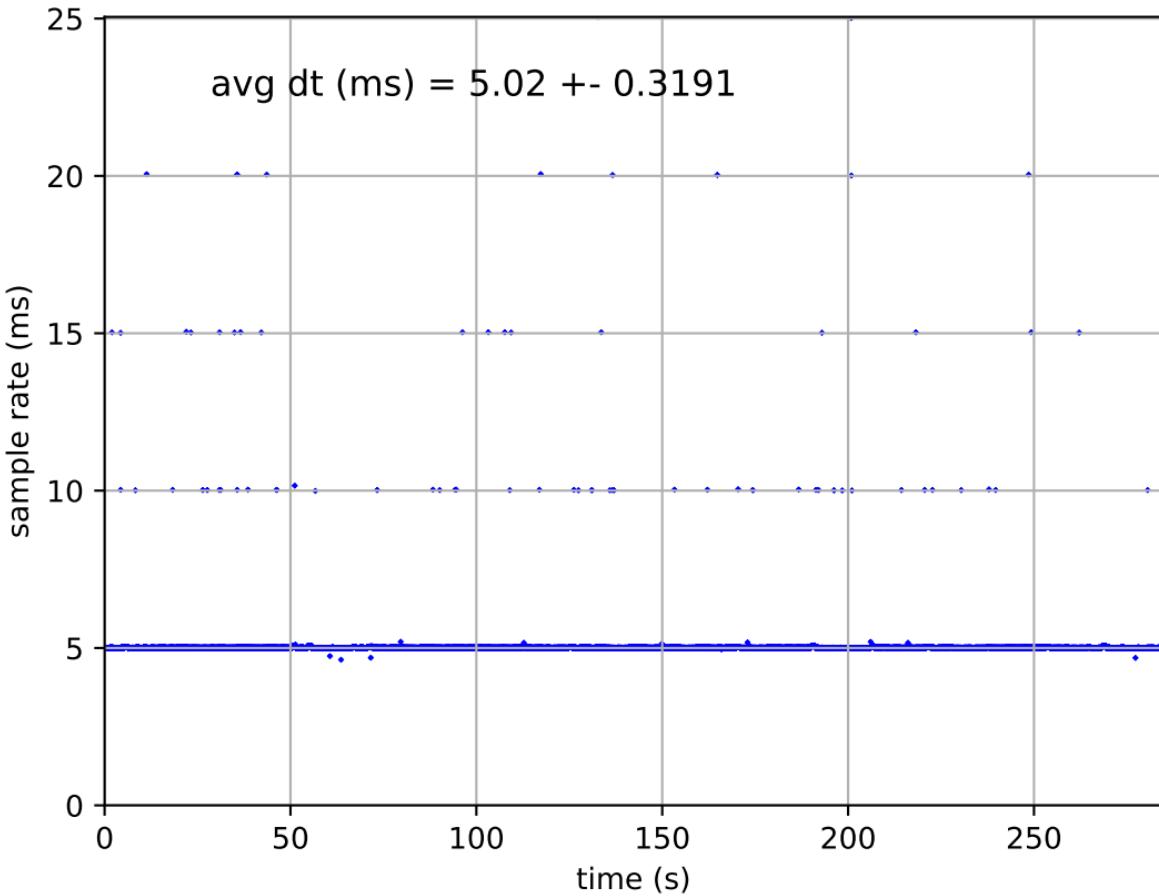
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

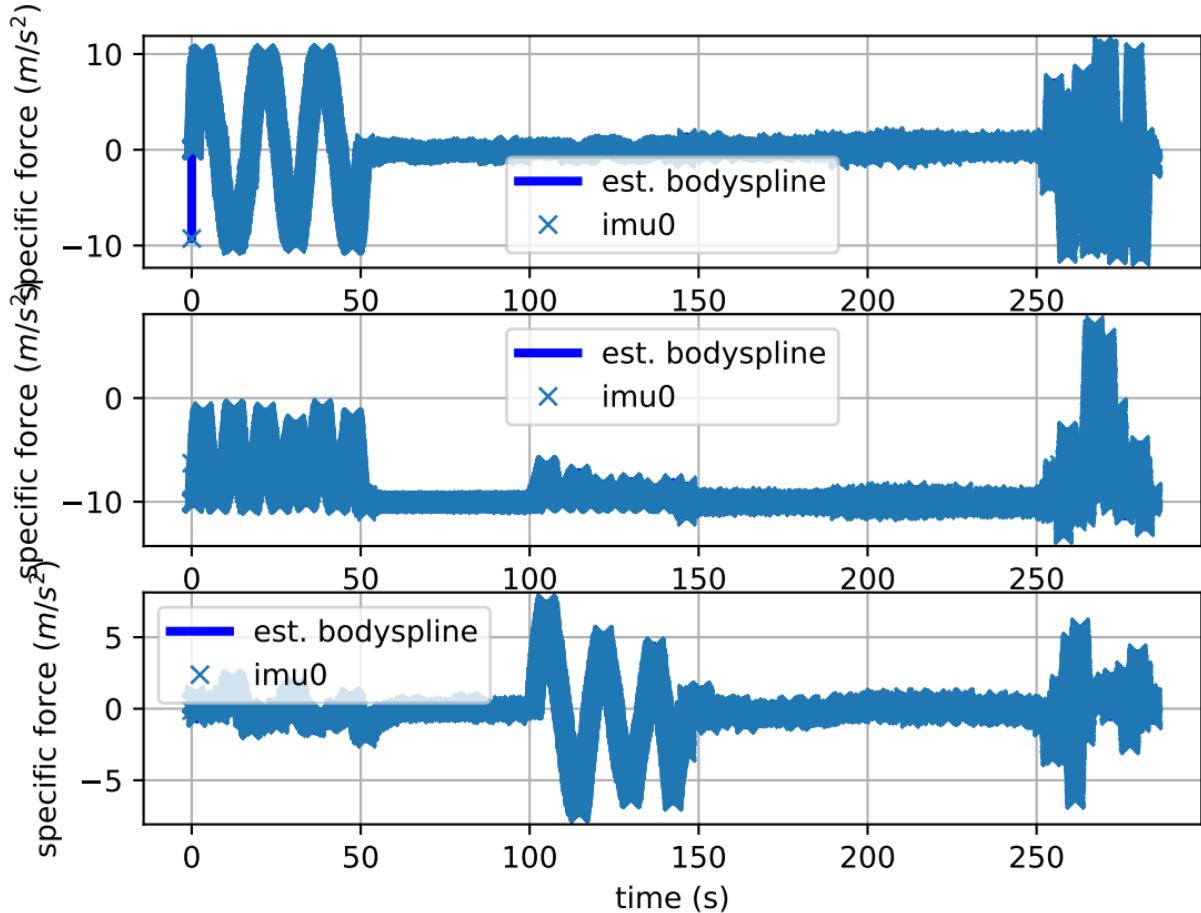
imu0: estimated poses



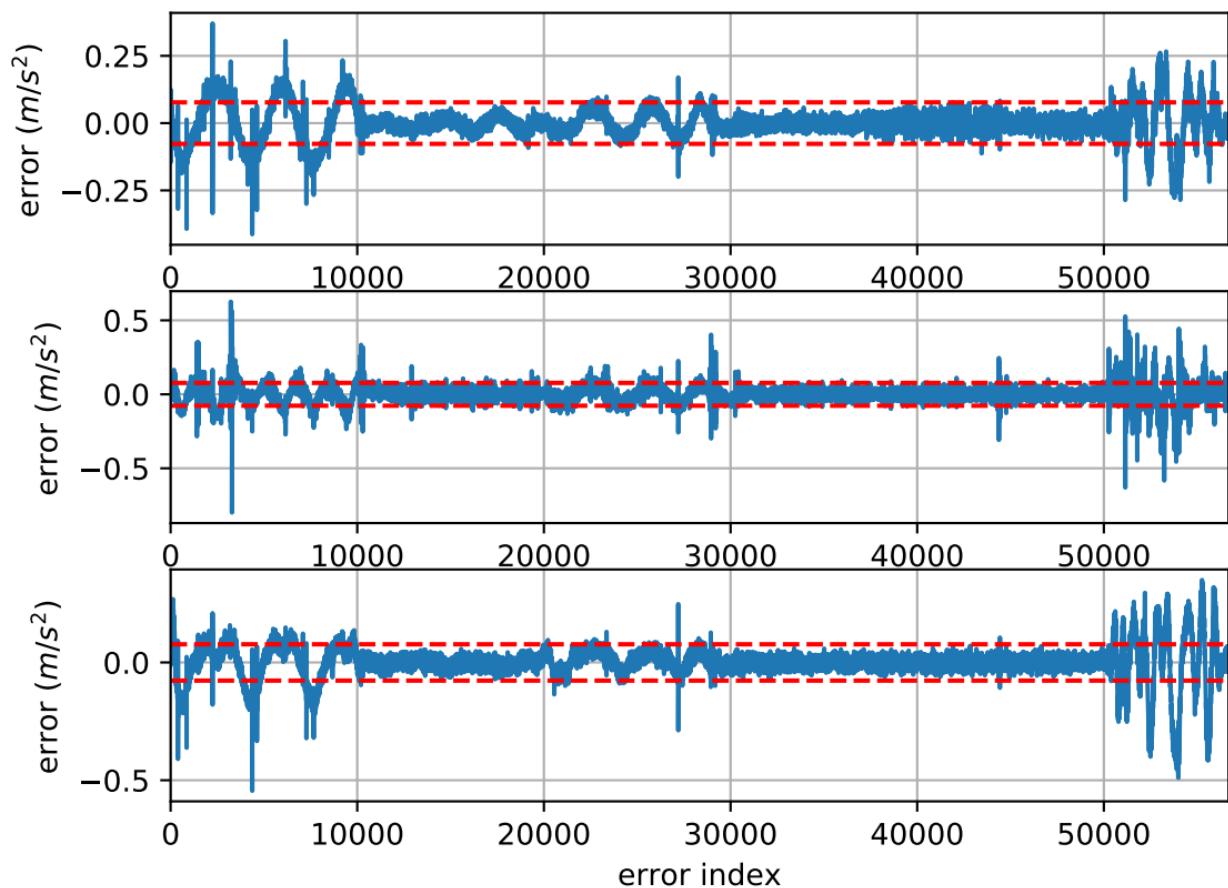
imu0: sample inertial rate



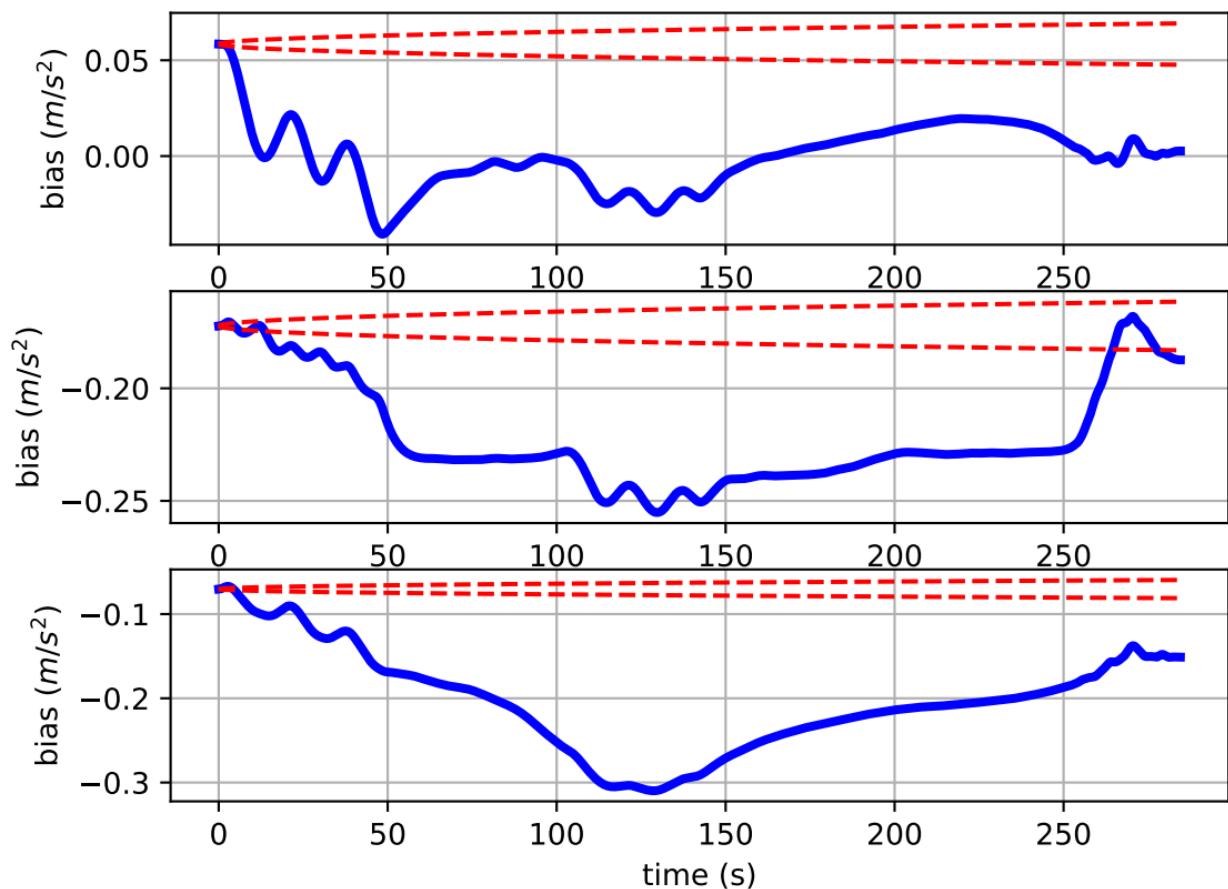
Comparison of predicted and measured specific force (imu0 frame)



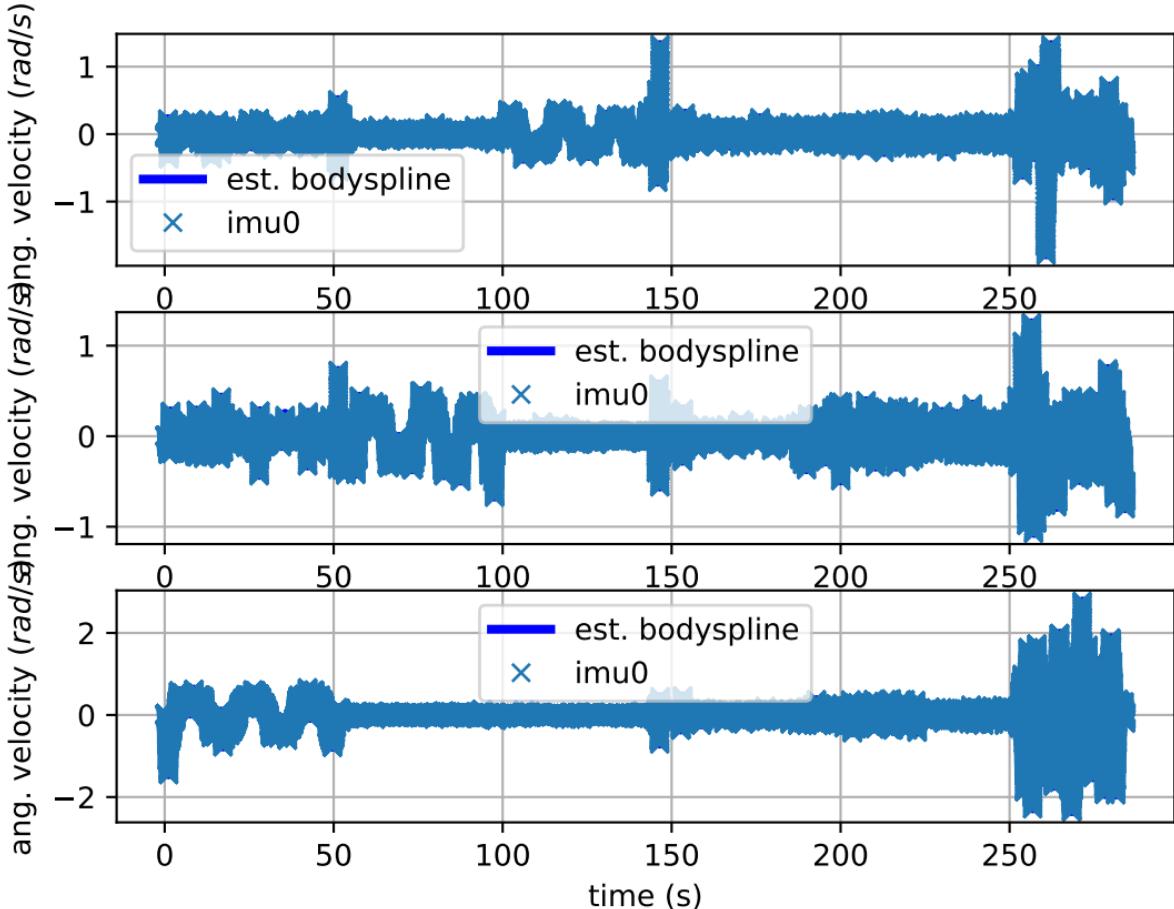
imu0: acceleration error



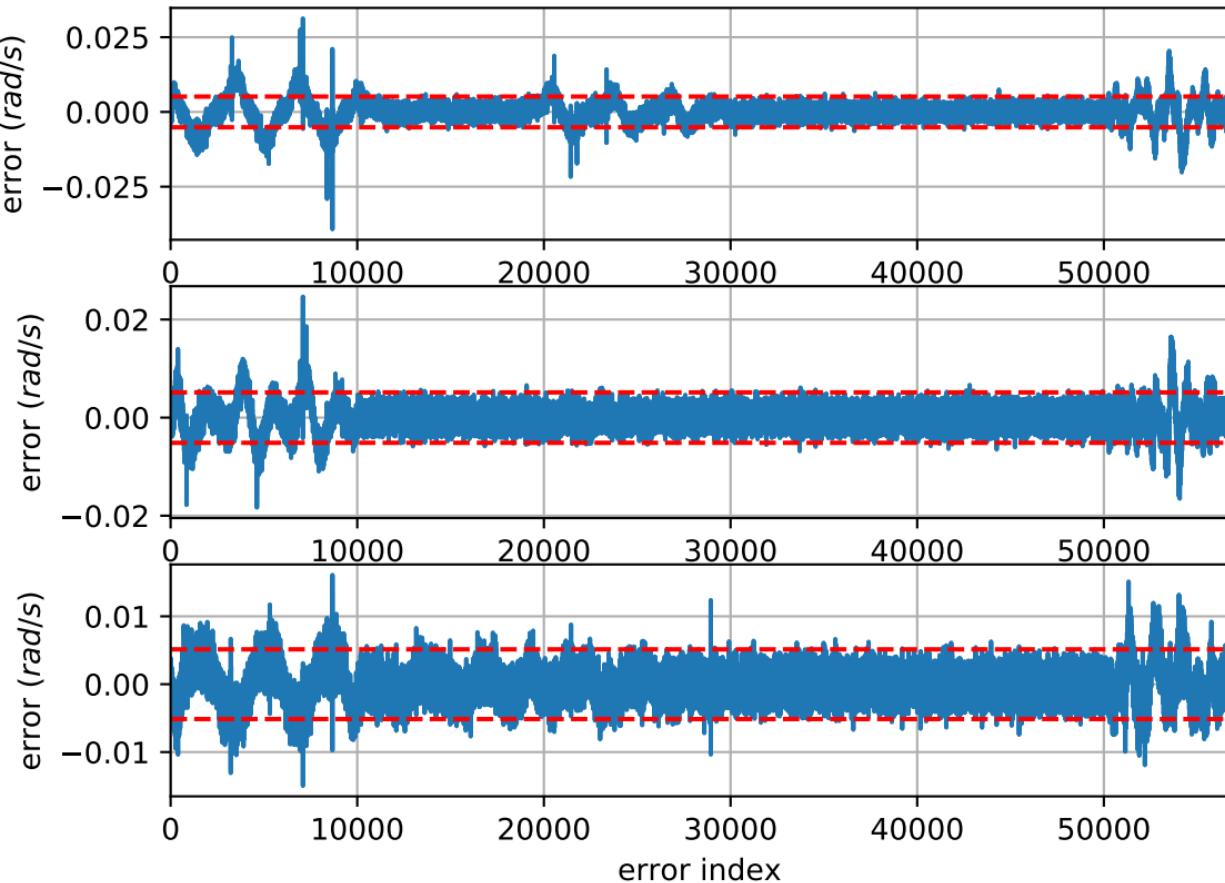
imu0: estimated accelerometer bias (imu frame)



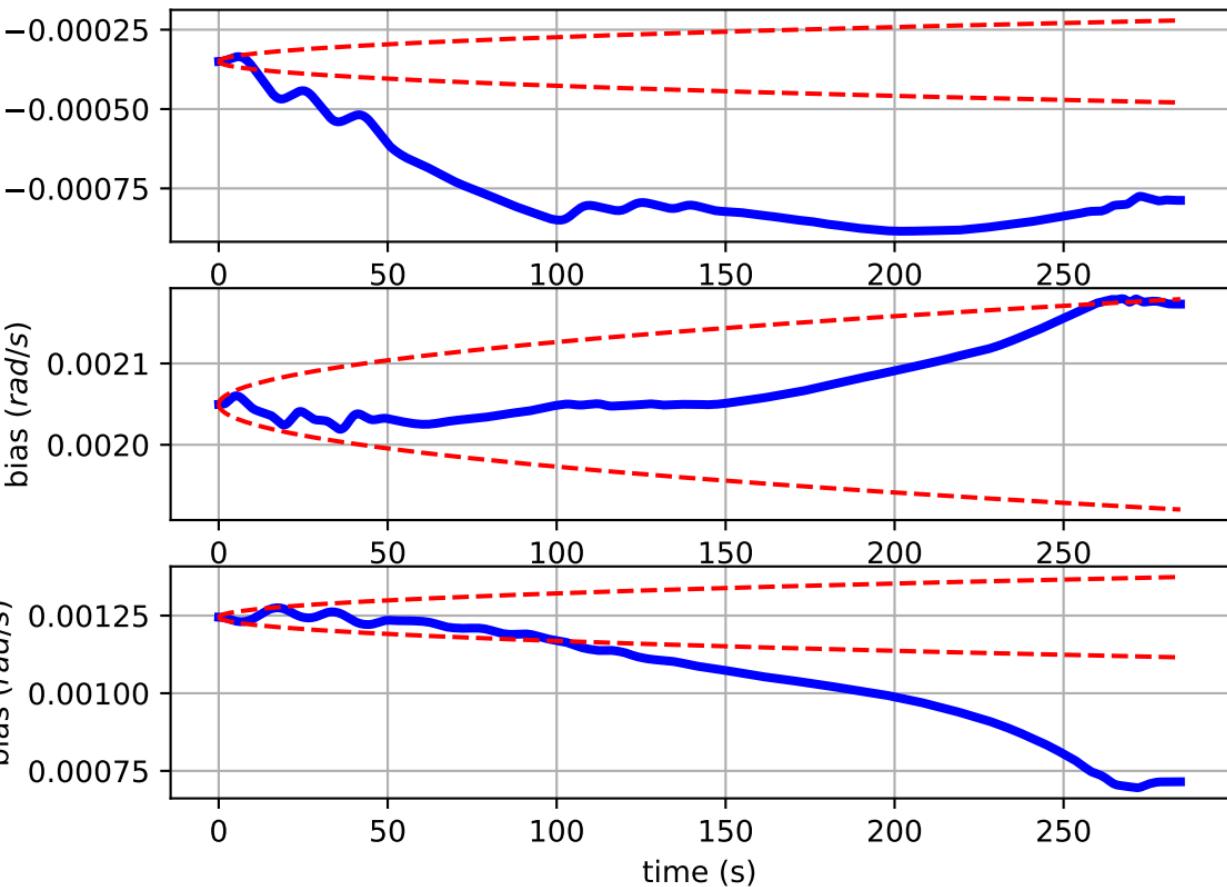
Comparison of predicted and measured angular velocities (body frame)



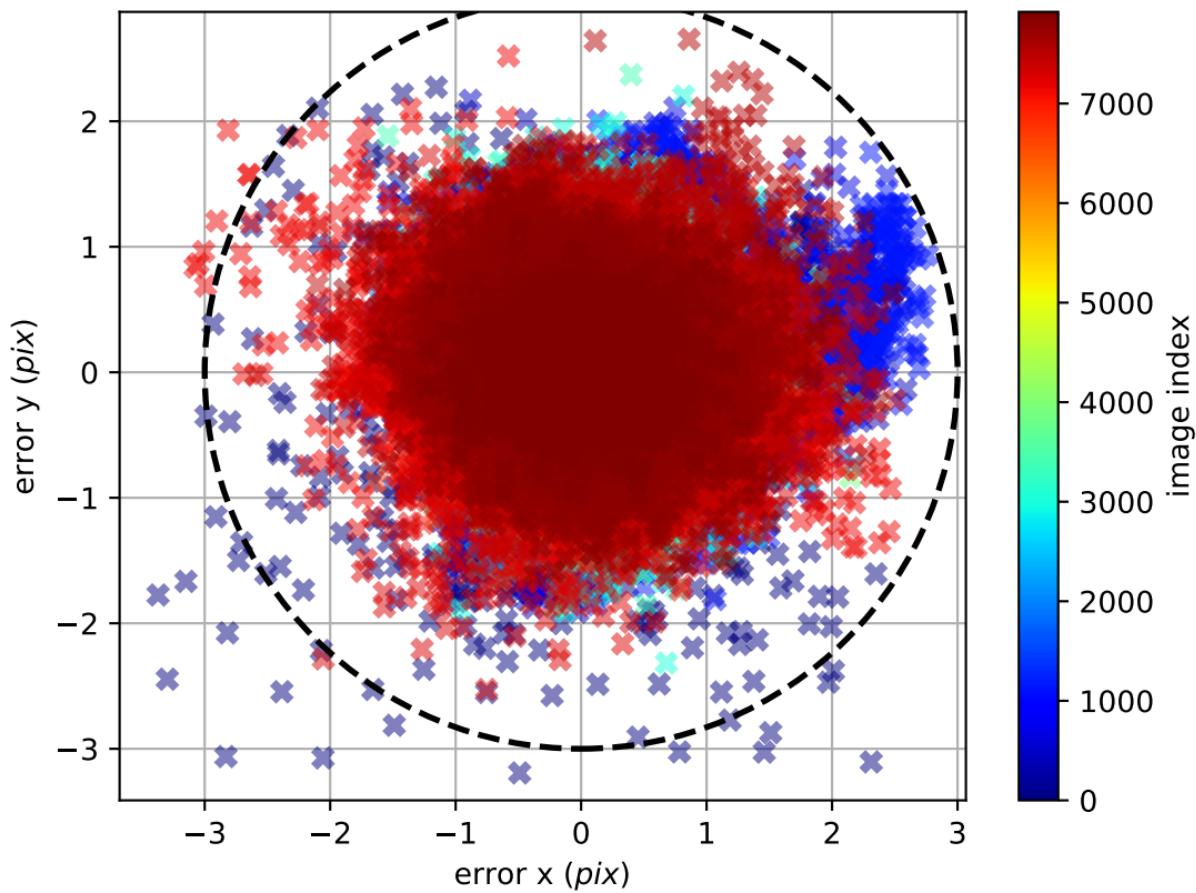
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

