

Calibration results

Normalized Residuals

Reprojection error (cam0): mean 0.340842898774, median 0.305470992306, std: 0.239165574467

Reprojection error (cam1): mean 0.344826745324, median 0.309847320849, std: 0.216143062649

Gyroscope error (imu0): mean 0.264032510376, median 0.154975108062, std: 0.247687757987

Accelerometer error (imu0): mean 0.142793765869, median 0.111583643031, std: 0.10277178497

Residuals

Reprojection error (cam0) [px]: mean 0.340842898774, median 0.305470992306, std: 0.239165574467

Reprojection error (cam1) [px]: mean 0.344826745324, median 0.309847320849, std: 0.216143062649

Gyroscope error (imu0) [rad/s]: mean 0.0434720368387, median 0.025516113895, std: 0.040780930062

Accelerometer error (imu0) [m/s^2]: mean 0.251291692697, median 0.196367413969, std: 0.180860107229

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.999387  0.00350297 -0.0348333  0.05832455]
 [-0.00363223  0.99998675 -0.00364837 -0.00221287]
 [ 0.03482005  0.00377265  0.99938648  0.04170972]
 [ 0.          0.          1.          ]]]
```

T_ic: (cam0 to imu0):

```
[[-0.999387 -0.00363223  0.03482005 -0.05974917]
 [ 0.00350297  0.99998675  0.00377265  0.00185117]
 [-0.0348333 -0.00364837  0.99938648 -0.03966057]
 [ 0.          0.          1.          ]]]
```

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

-0.00168273801648

Transformation (cam1):

T_ci: (imu0 to cam1):
[[0.99948974 -0.01983884 0.02503357 -0.0164242]
[0.02015602 0.99971893 -0.01248194 -0.00183668]
[-0.02477891 0.01298015 0.99960868 0.04135036]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[0.99948974 0.02015602 -0.02477891 0.01747746]
[-0.01983884 0.99971893 0.01298015 0.00097359]
[0.02503357 -0.01248194 0.99960868 -0.04094595]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
-0.0018048248959

Baselines:

Baseline (cam0 to cam1):
[[0.99793555 -0.02356029 0.05974565 -0.07717246]
[0.02408043 0.99967801 -0.00800086 -0.00069529]
[-0.05953791 0.00942304 0.99818157 0.00320986]
[0. 0. 0. 1.]]
baseline norm: 0.0772423101697 [m]

Gravity vector in target coords: [m/s^2]
[-9.80489361 0.11155701 0.14155969]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [307.9002278362586, 309.7871889559134]
Principal point: [312.0968388711455, 199.4575377560036]
Distortion model: radtan
Distortion coefficients: [-0.2554219208293354, 0.051007759649731525, -0.0005570137397746864, 0.0005840296330395519]
Type: aprilgrid
Tags:
Rows: 6
Cols: 6
Size: 0.0312 [m]
Spacing 0.00959999976 [m]

cam1

=====

Camera model: pinhole
Focal length: [305.54555501362415, 308.99666264269047]
Principal point: [295.44171439641065, 200.19607631404787]
Distortion model: radtan
Distortion coefficients: [-0.25163850950428573, 0.04999516575400219, -0.000468941317236058, 0.0031938031659153885]
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.]

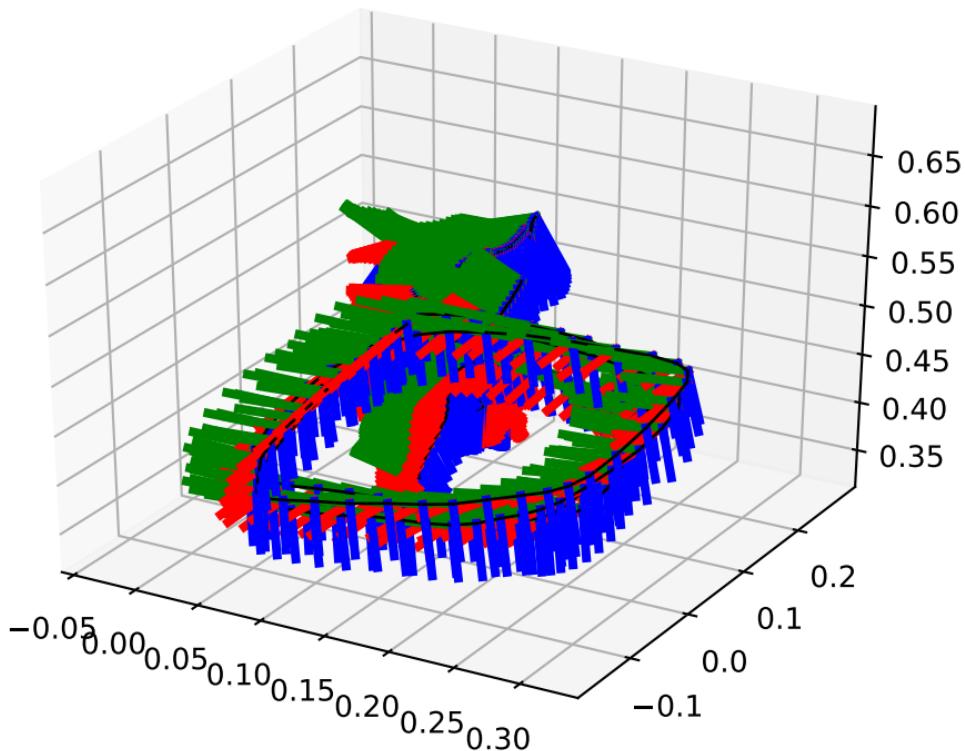
 [0. 1. 0. 0.]

 [0. 0. 1. 0.]

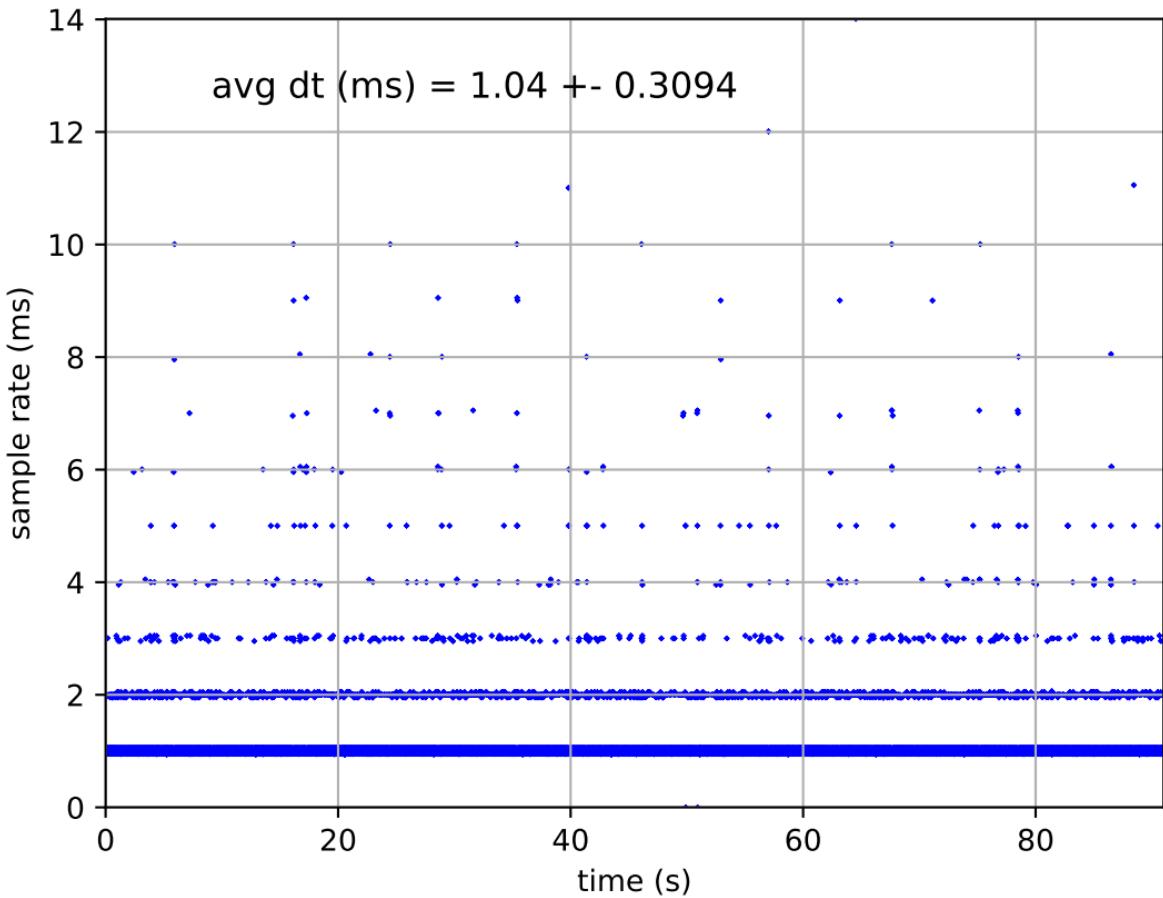
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

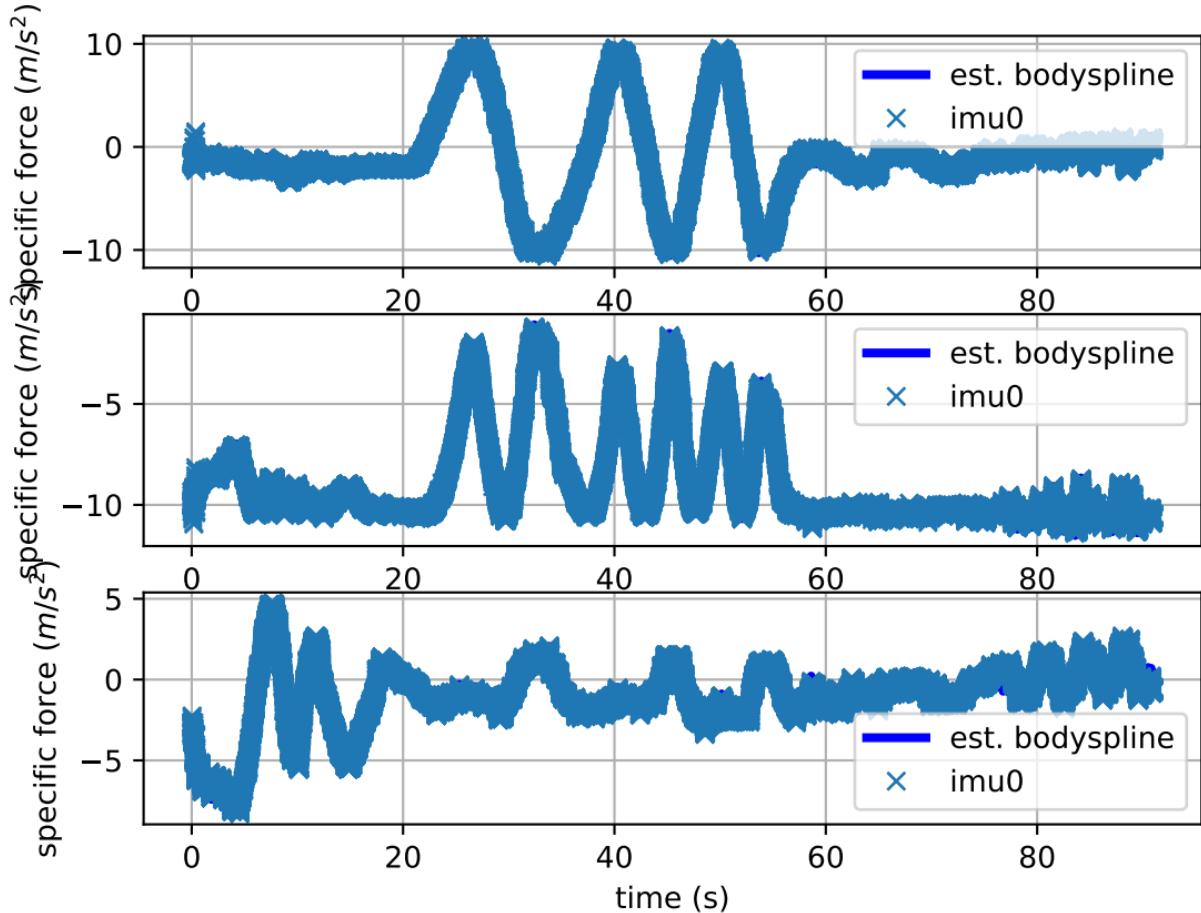
imu0: estimated poses



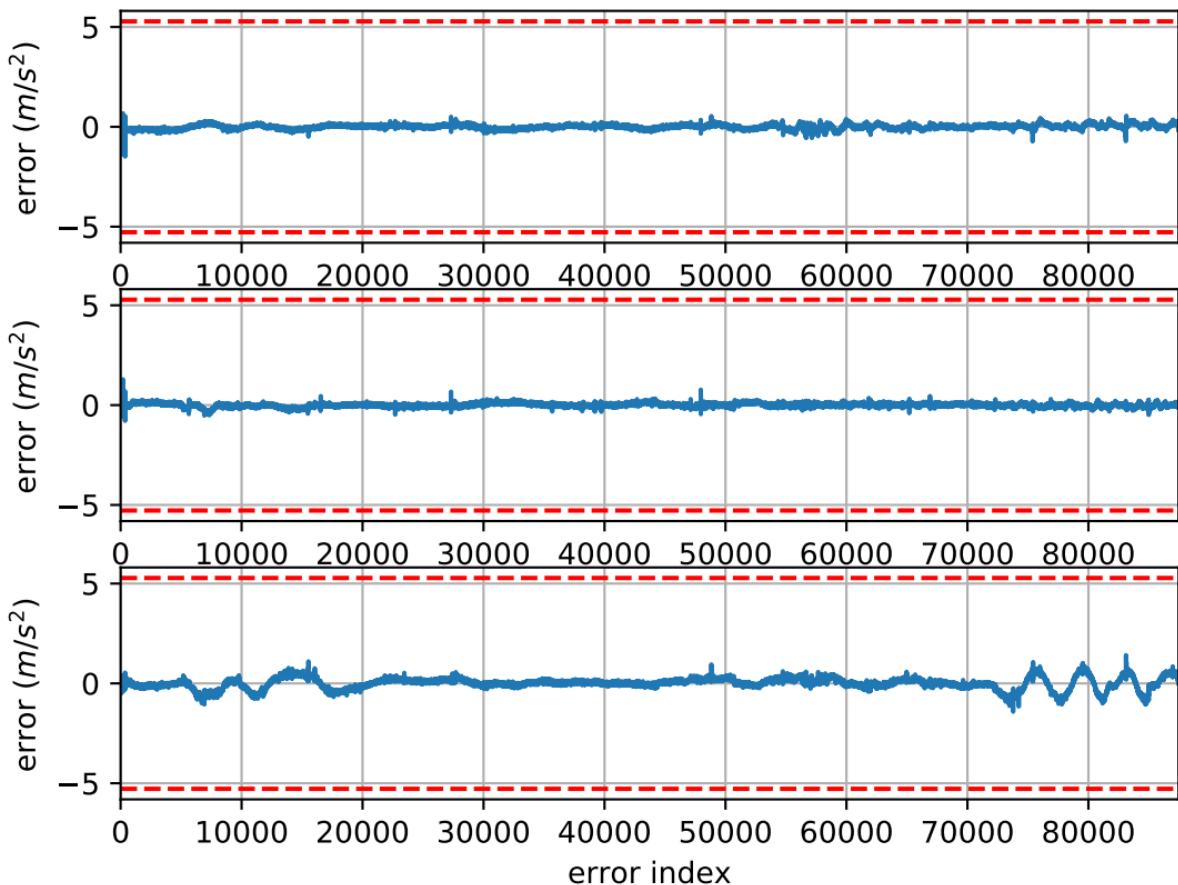
imu0: sample inertial rate



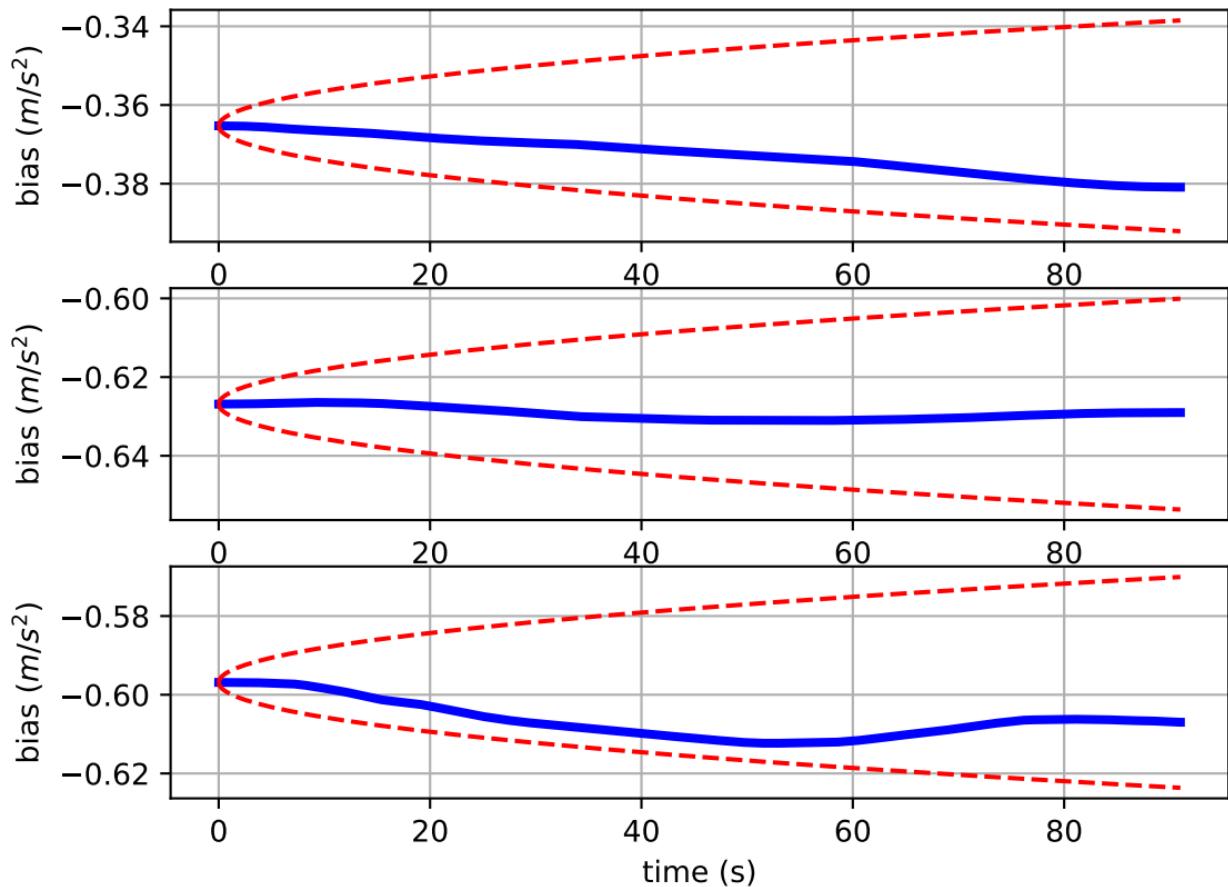
Comparison of predicted and measured specific force (imu0 frame)



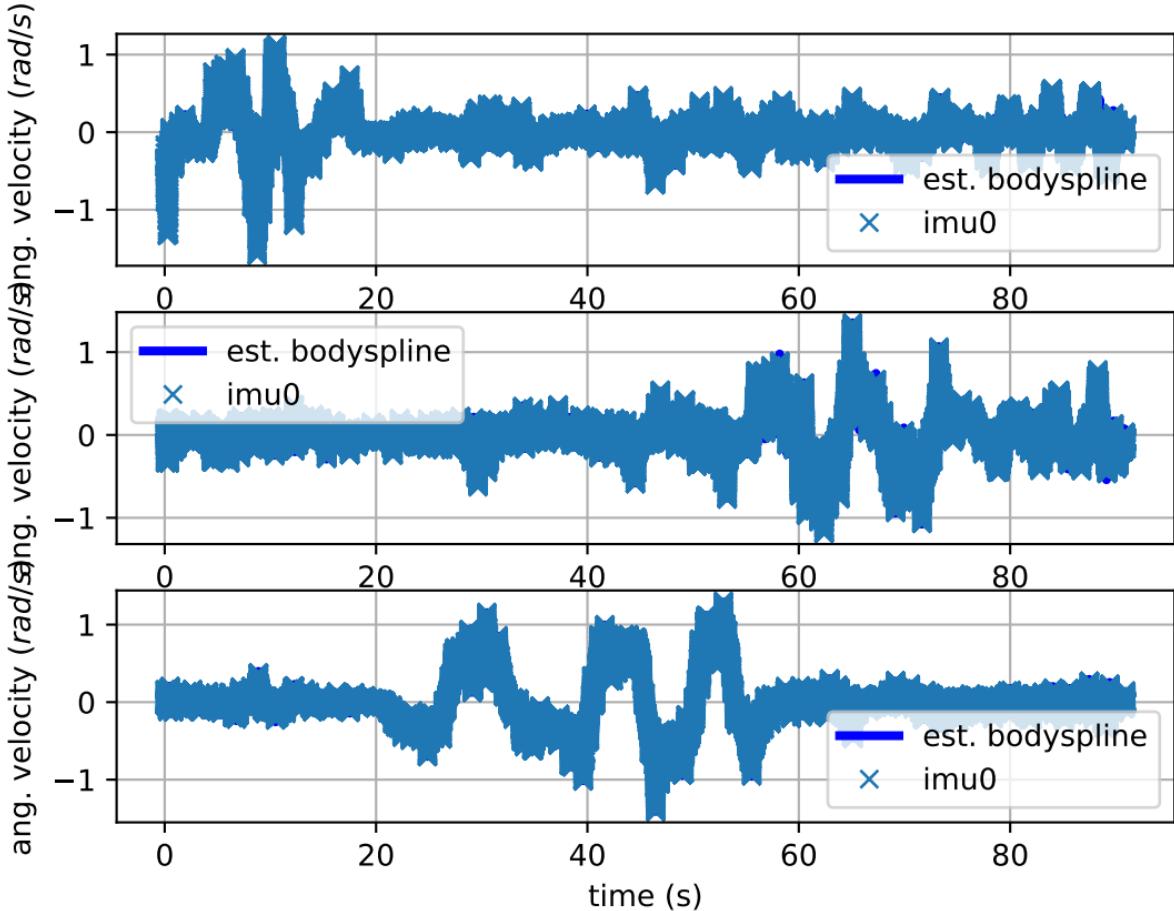
imu0: acceleration error



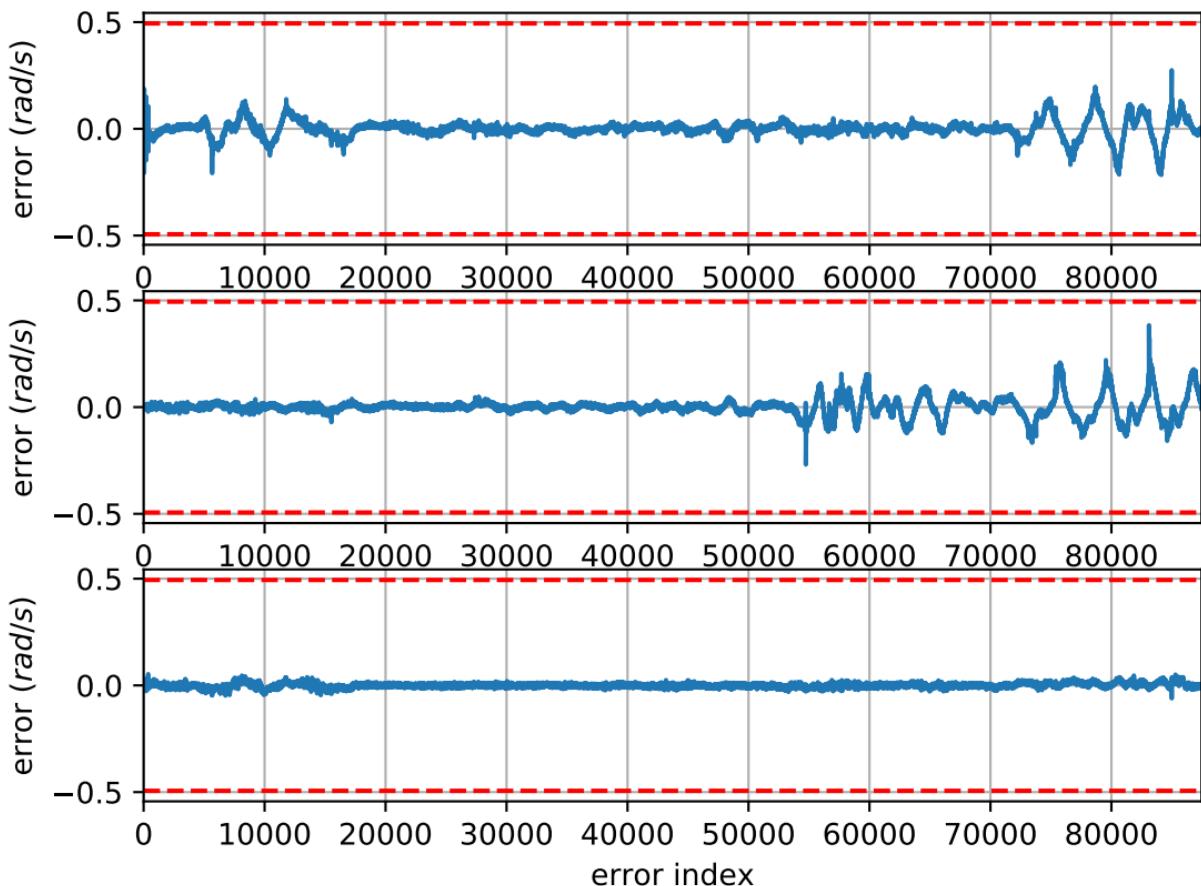
imu0: estimated accelerometer bias (imu frame)



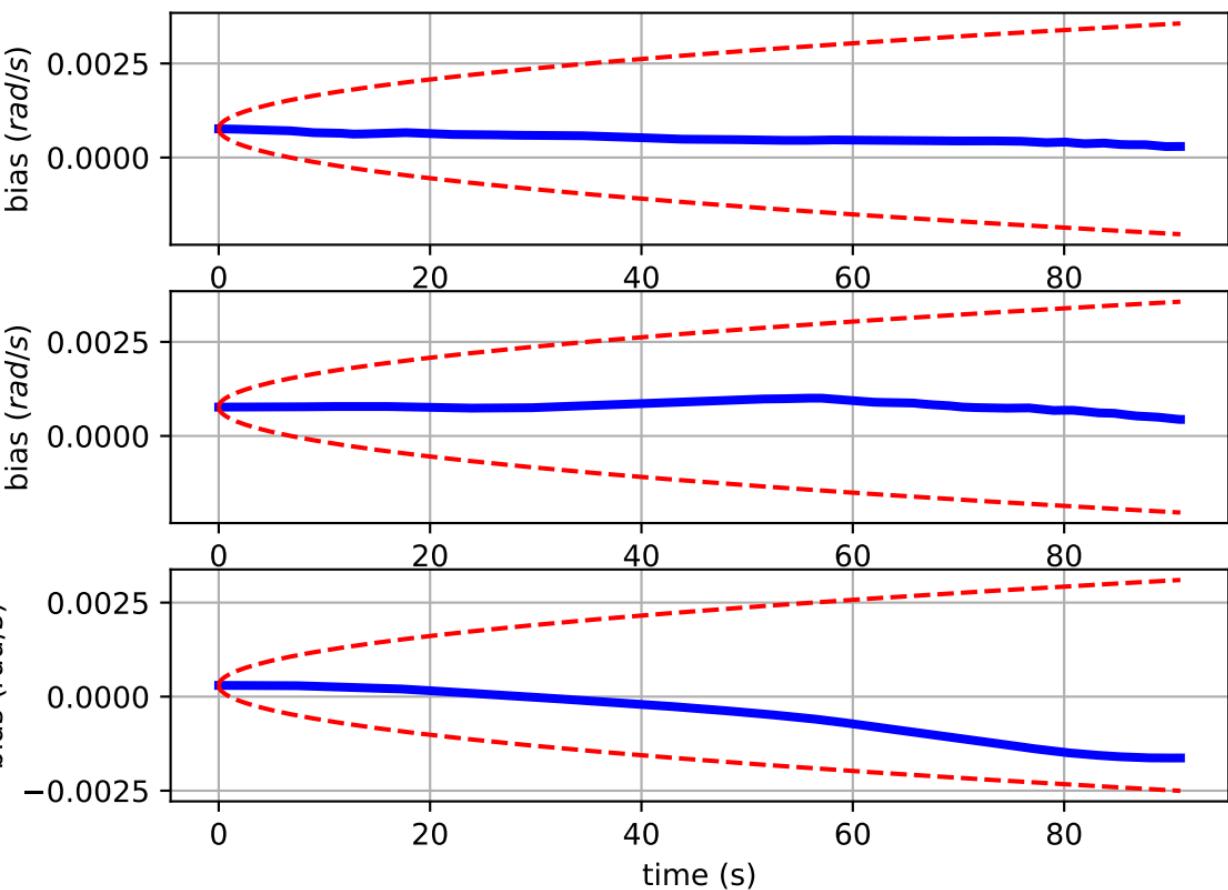
Comparison of predicted and measured angular velocities (body frame)



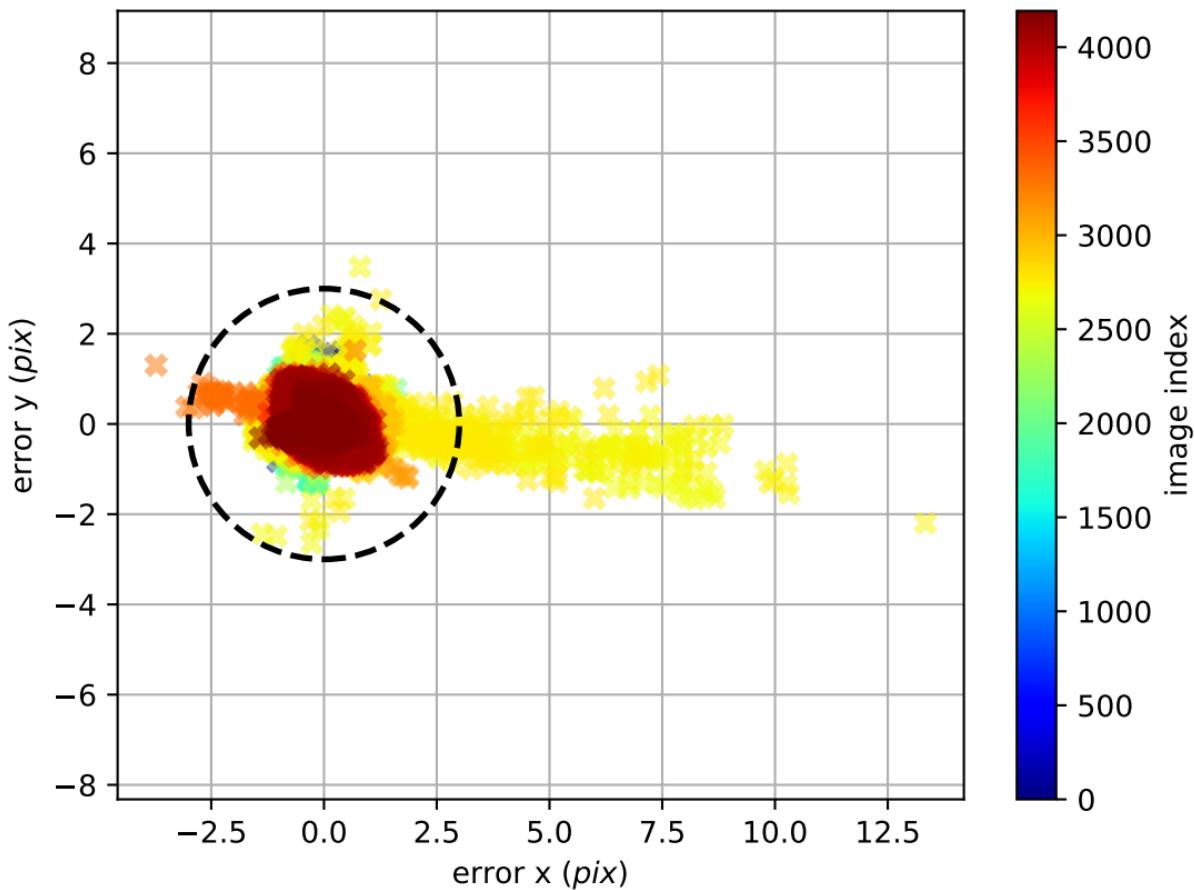
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

