

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.39811531956144514, median 0.24531355878517855, std: 0.5604642192198973
Gyroscope error (imu0): mean 0.582918944712623, median 0.5001877325916576, std: 0.4216343419886617
Accelerometer error (imu0): mean 0.5055788145062788, median 0.37984218433361094, std: 0.3895605094252936

Residuals

Reprojection error (cam0) [px]: mean 0.39811531956144514, median 0.24531355878517855, std: 0.5604642192198973
Gyroscope error (imu0) [rad/s]: mean 0.013257206967941545, median 0.011375667841885139, std: 0.009589144060657067
Accelerometer error (imu0) [m/s²]: mean 0.04699546644411102, median 0.035307770254060664, std: 0.03621112539402067

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[-0.00828599 -0.99952651 -0.02963256 0.00666647]
 [ 0.61845795 0.01816364 -0.78560795 -0.03409632]
 [ 0.78577421 -0.02483603 0.61801461 -0.09190375]
 [ 0.      0.      0.      1.      ]]
```

T_ic: (cam0 to imu0):

```
[[-0.00828599 0.61845795 0.78577421 0.09335798]
 [-0.99952651 0.01816364 -0.02483603 0.0050001 ]
 [-0.02963256 -0.78560795 0.61801461 0.03020907]
 [ 0.      0.      0.      1.      ]]
```

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)
-0.03027060138289362

Gravity vector in target coords: [m/s²]
[9.80124268 0.10467464 -0.30513614]

Calibration configuration

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cam0

Camera model: pinhole

Focal length: [285.56167930032643, 380.23989861543083]

Principal point: [313.3020502069531, 224.68331709560638]

Distortion model: equidistant

Distortion coefficients: [0.06222026337351996, -0.0700055629413933, 0.08568693902932024, -0.039046871979391724]

Type: checkerboard

Rows

Count: 6

Distance: 0.022 [m]

Cols

Count: 9

Distance: 0.022 [m]

IMU configuration

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IMU0:

Model: scale-misalignment

Update rate: 500.0

Accelerometer:

Noise density: 0.0041570198191932944

Noise density (discrete): 0.0929537889953009

Random walk: 0.00011696750986138807

Gyroscope:

Noise density: 0.0010170887819305845

Noise density (discrete): 0.022742796555492467

Random walk: 0.0005610798706458173

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]

Gyroscope:

M:

[[3.98364078 0. 0.]

[-0.04380587 4.04781269 0.]

[-0.03750916 -0.06081866 4.05609058]]

A [(rad/s)/(m/s²)]:

[[0.00162692 -0.00678326 -0.00201133]

[0.00149044 0.00026712 0.02453932]

[0.0023939 -0.01072886 -0.00433379]]

C_gyro_i:

[[0.9999016 -0.01027097 -0.00955487]

[0.01034033 0.99992034 0.007238]

[0.00947977 -0.00733609 0.99992816]]

Accelerometer:

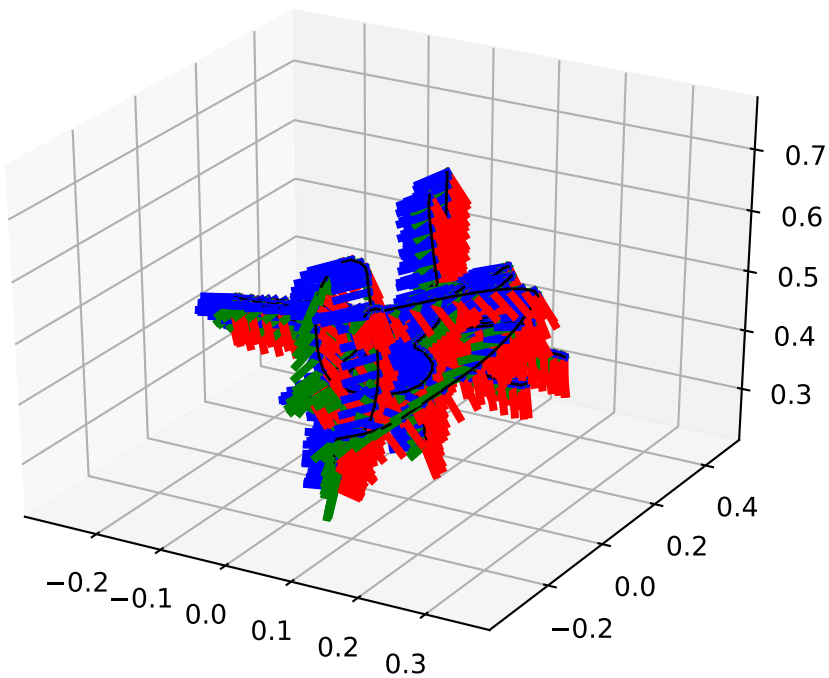
M:

[[1.01365288 0. 0.]

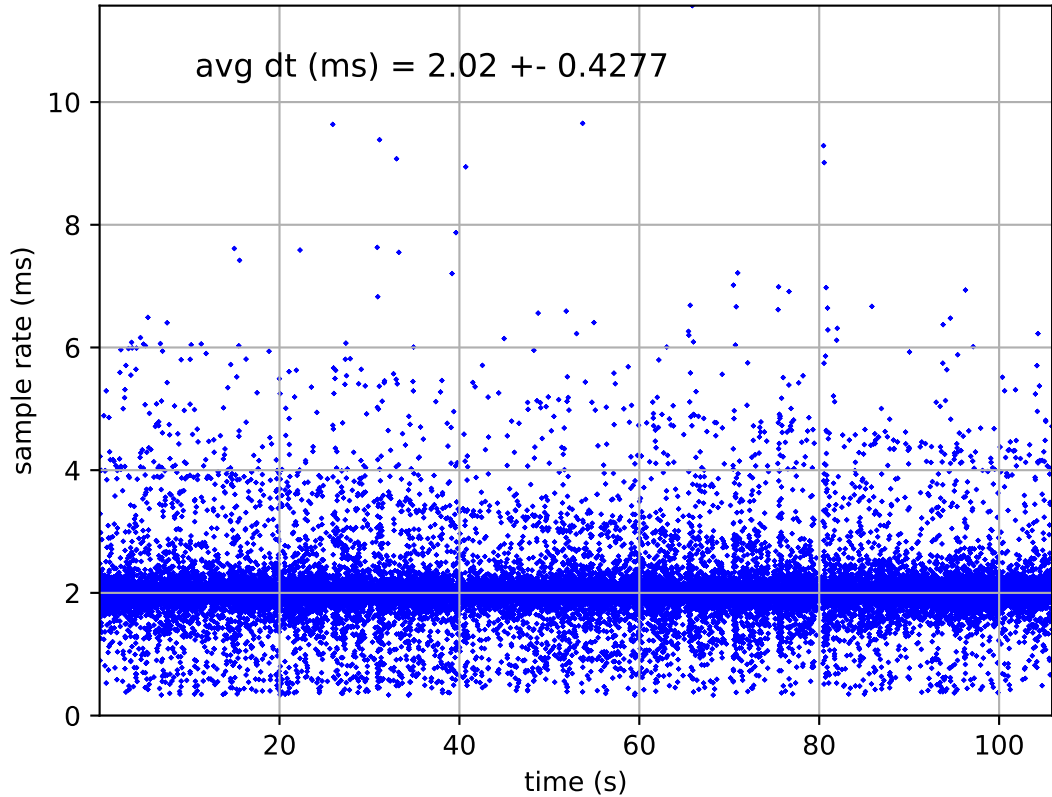
[0.01061112 1.00804332 0.]

[0.01051861 0.00345882 1.01328391]]

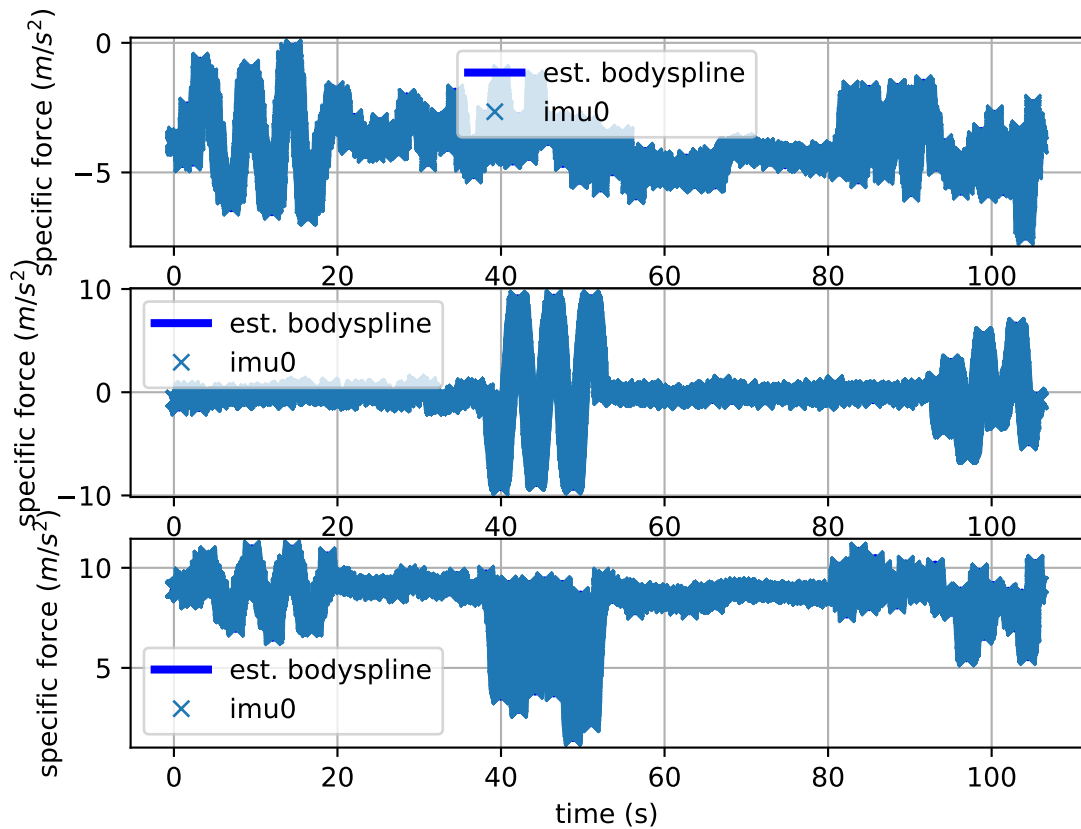
imu0: estimated poses



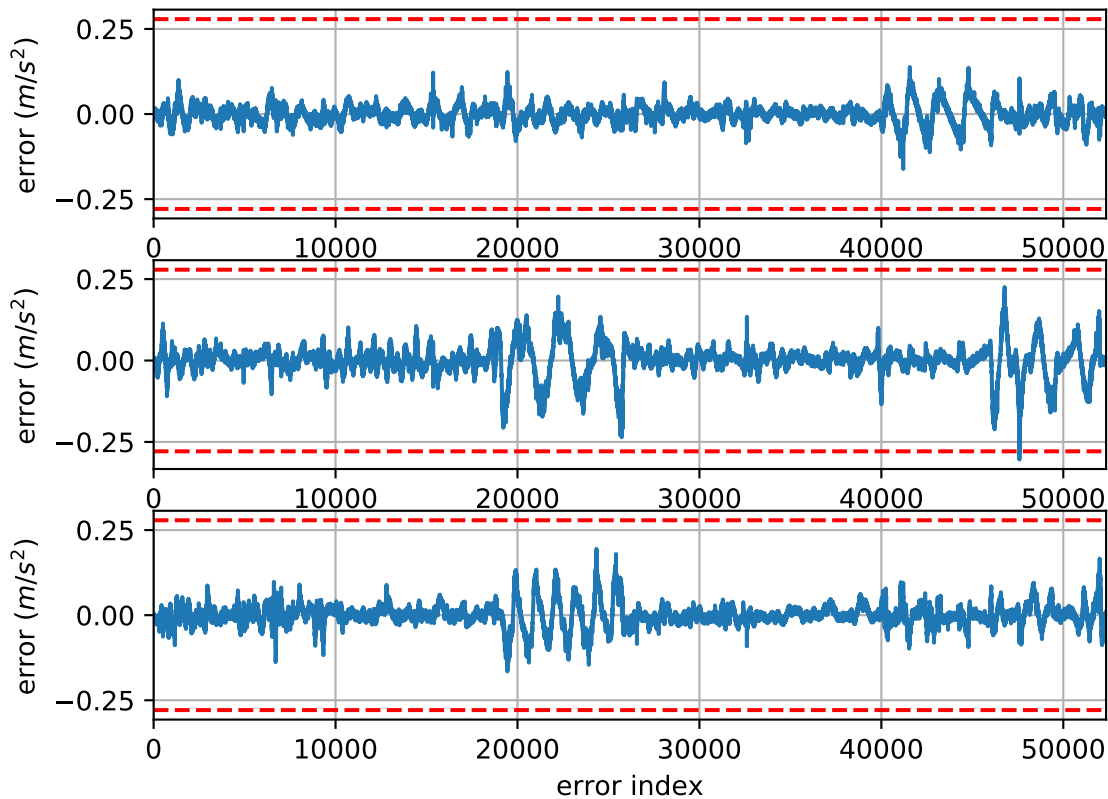
imu0: sample inertial rate



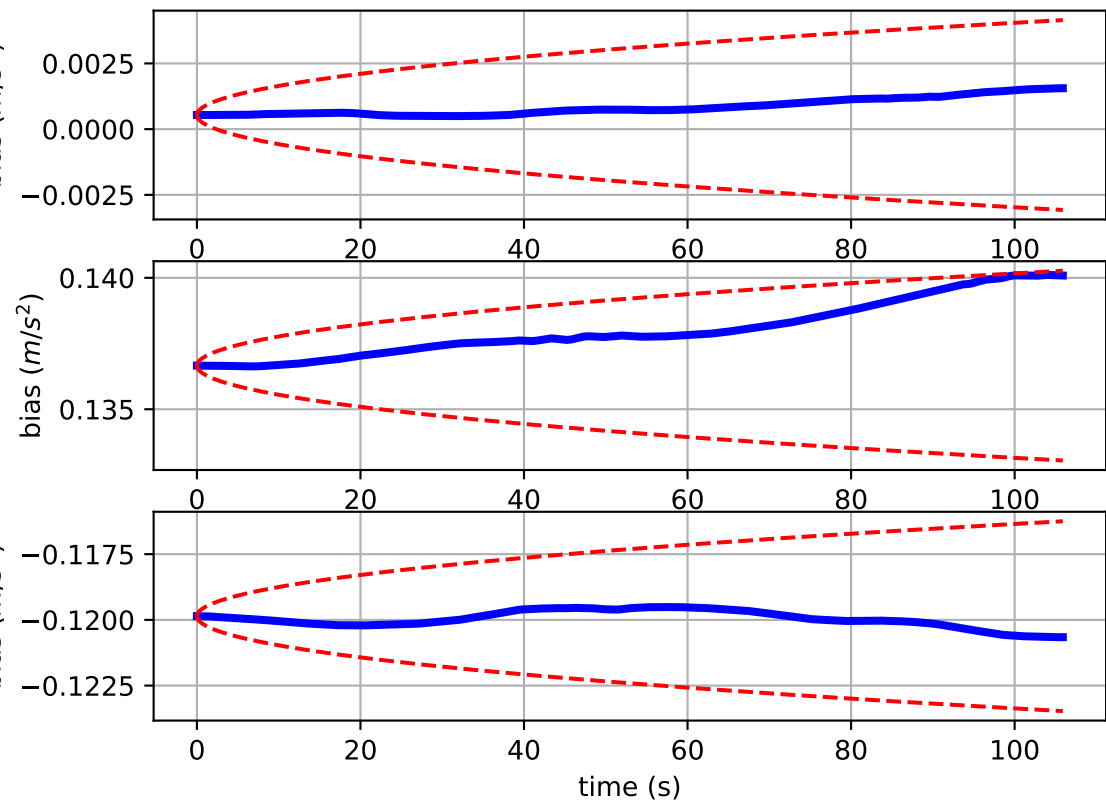
Comparison of predicted and measured specific force (imu0 frame)



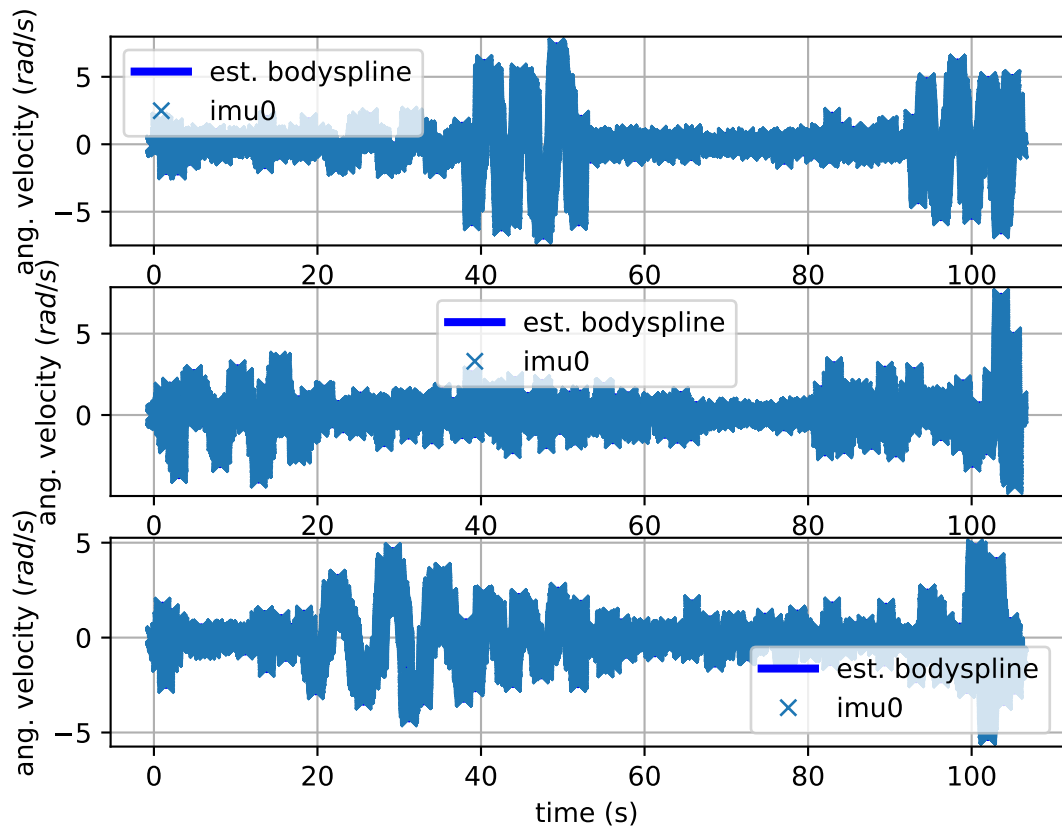
imu0: acceleration error



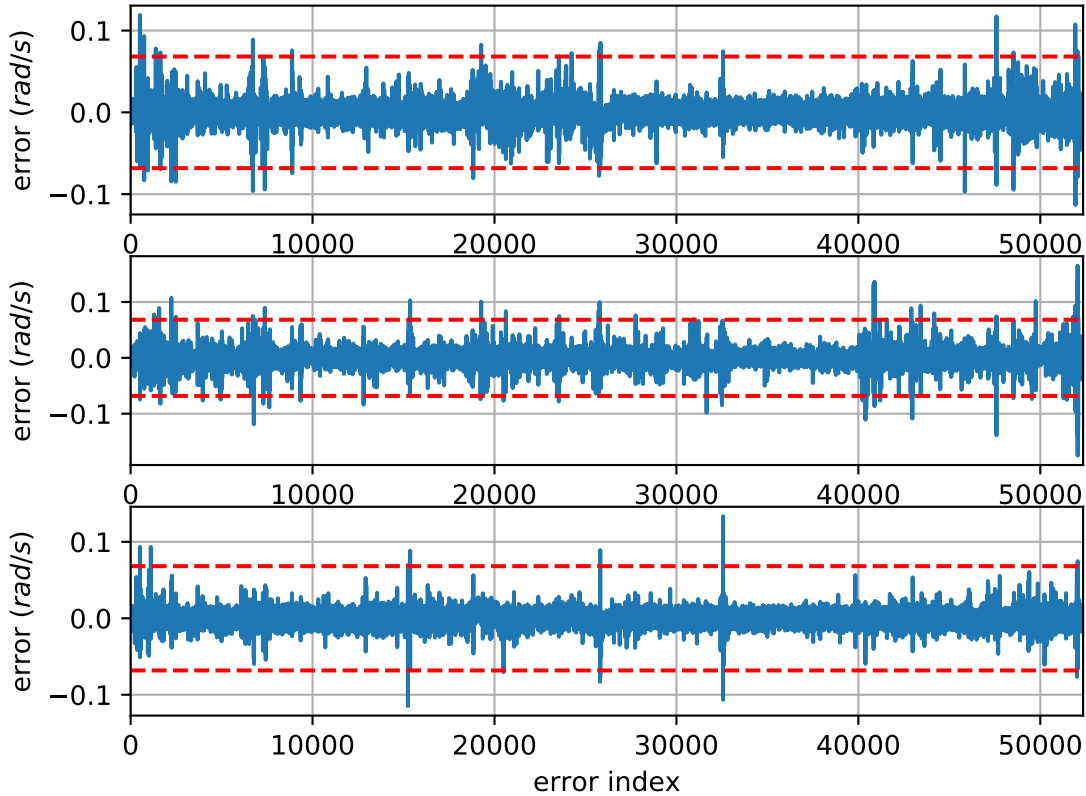
imu0: estimated accelerometer bias (imu frame)



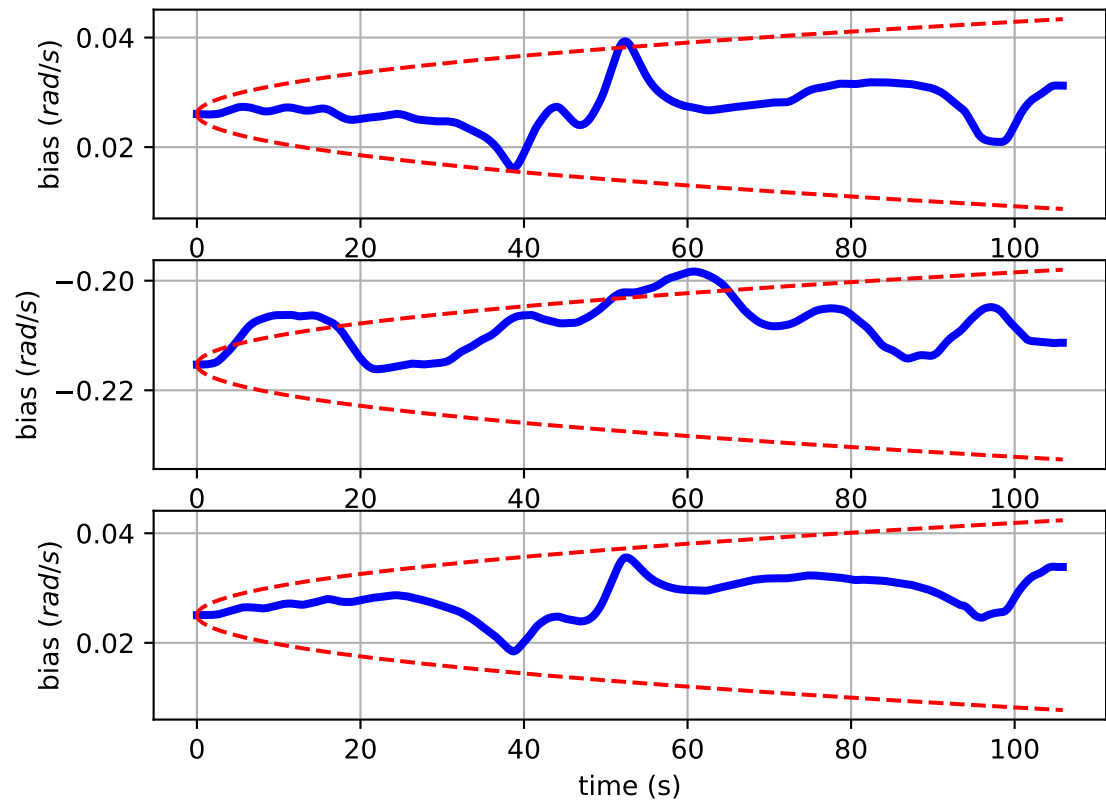
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

