

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.36687797205986705, median 0.2615654987110037, std: 0.3579146038772332
Gyroscope error (imu0): mean 0.42591049552855503, median 0.35891707202931483, std: 0.32312792386158595
Accelerometer error (imu0): mean 0.5196715997234713, median 0.3427816084123993, std: 0.4493392612355019

Residuals

Reprojection error (cam0) [px]: mean 0.36687797205986705, median 0.2615654987110037, std: 0.3579146038772332
Gyroscope error (imu0) [rad/s]: mean 0.01620844025152499, median 0.013658940031566816, std: 0.012296949012750245
Accelerometer error (imu0) [m/s²]: mean 0.0808304684983179, median 0.05331674468130412, std: 0.06989087535220419

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ -0.00638337 -0.99997863  0.0014083 -0.00234409]
 [  0.62520552 -0.00509013 -0.78044356 -0.04356391]
 [  0.78043406 -0.00410139  0.62522465 -0.08711234]
 [  0.          0.          0.          1.          ]]
```

T_ic: (cam0 to imu0):

```
[[ -0.00638337  0.62520552  0.78043406  0.09520687]
 [ -0.99997863 -0.00509013 -0.00410139 -0.00292307]
 [  0.0014083  -0.78044356  0.62522465  0.02046891]
 [  0.          0.          0.          1.          ]]
```

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

-0.020171945377499806

Gravity vector in target coords: [m/s²]

[9.80558029 0.13628505 -0.02108187]

Calibration configuration

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cam0

Camera model: pinhole

Focal length: [283.7852421130991, 377.61930754690724]

Principal point: [311.00920836431925, 222.4480704117788]

Distortion model: equidistant

Distortion coefficients: [0.048320967435456164, -0.007914870289096591, -0.000848095014511207, 0.00011459593784768335]

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: 1400.0

Accelerometer:

Noise density: 0.0041570198191932944

Noise density (discrete): 0.15554143913450263

Random walk: 0.00011696750986138807

Gyroscope:

Noise density: 0.0010170887819305845

Noise density (discrete): 0.038055977539154816

Random walk: 5.6107987064581725e-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]

Gyroscope:

M:

[[3.98578253 0. 0.]

[-0.03542372 4.06729803 0.]

[-0.06809843 0.02953371 4.08544134]]

A [(rad/s)/(m/s²):

[[-0.00036108 0.00162337 -0.00005065]

[-0.02913421 0.00222242 0.04152659]

[0.00487906 -0.02129304 -0.00064925]]

C_gyro_i:

[[0.99975035 -0.01386929 -0.01751811]

[0.01380819 0.99989817 -0.0036037]

[0.01756631 0.0033609 0.99984005]]

Accelerometer:

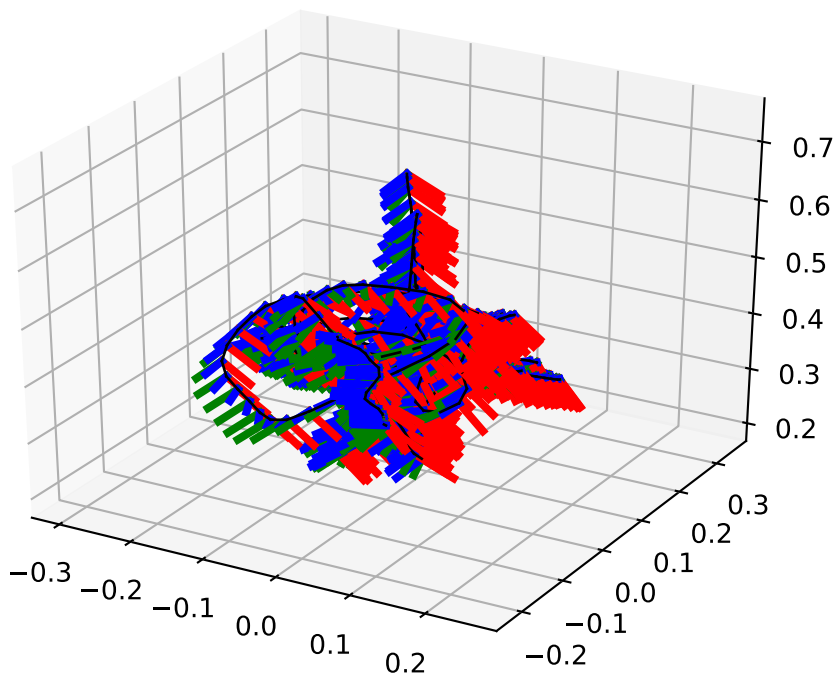
M:

[[1.01570647 0. 0.]

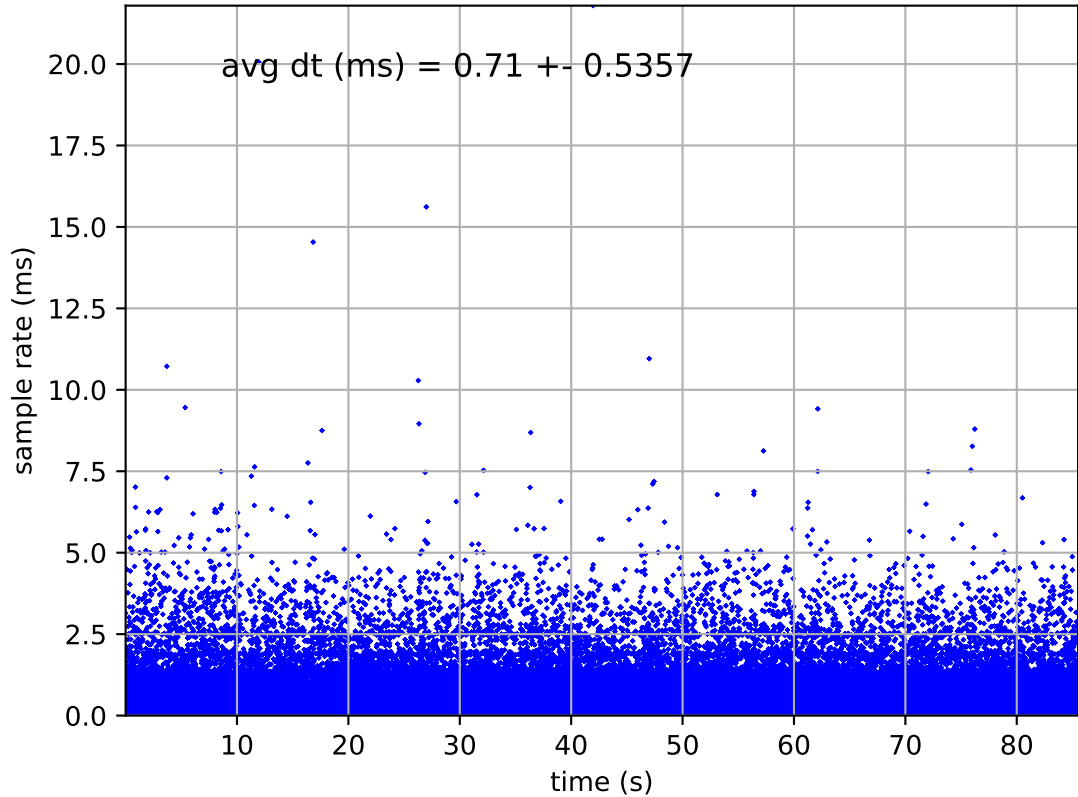
[-0.00628167 1.00534536 0.]

[0.00534468 0.00746457 1.01160694]]

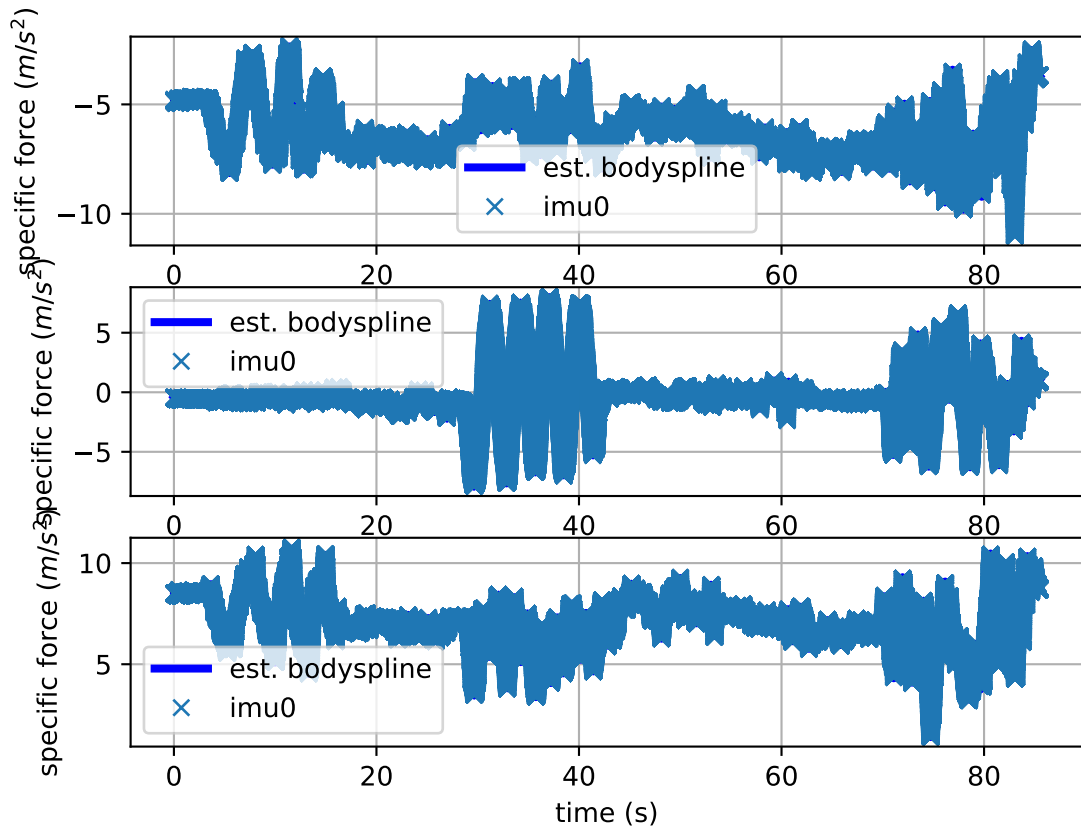
imu0: estimated poses



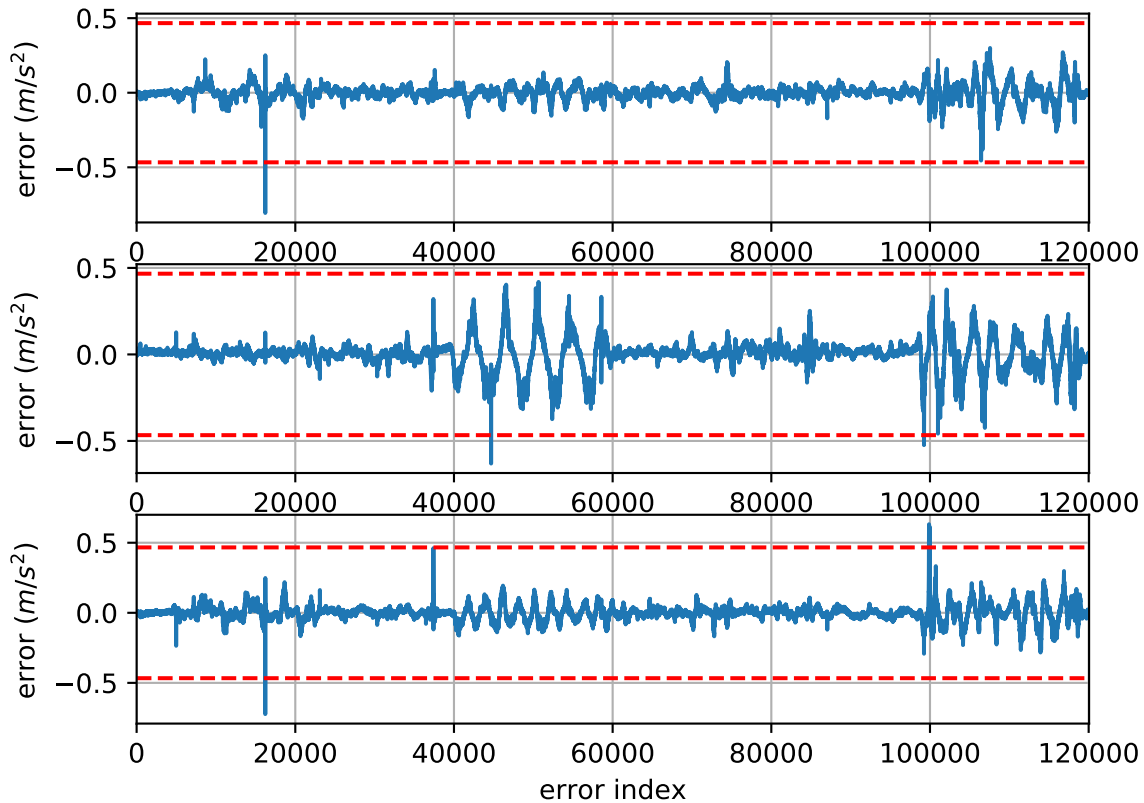
imu0: sample inertial rate



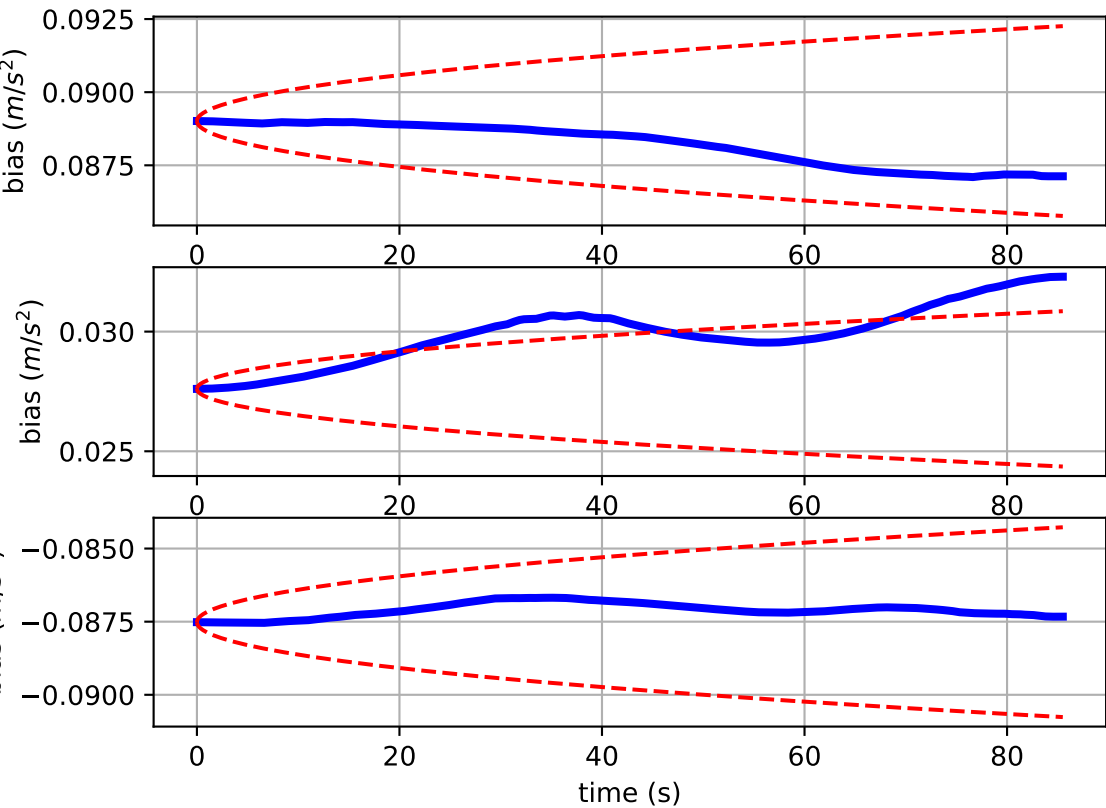
Comparison of predicted and measured specific force (imu0 frame)



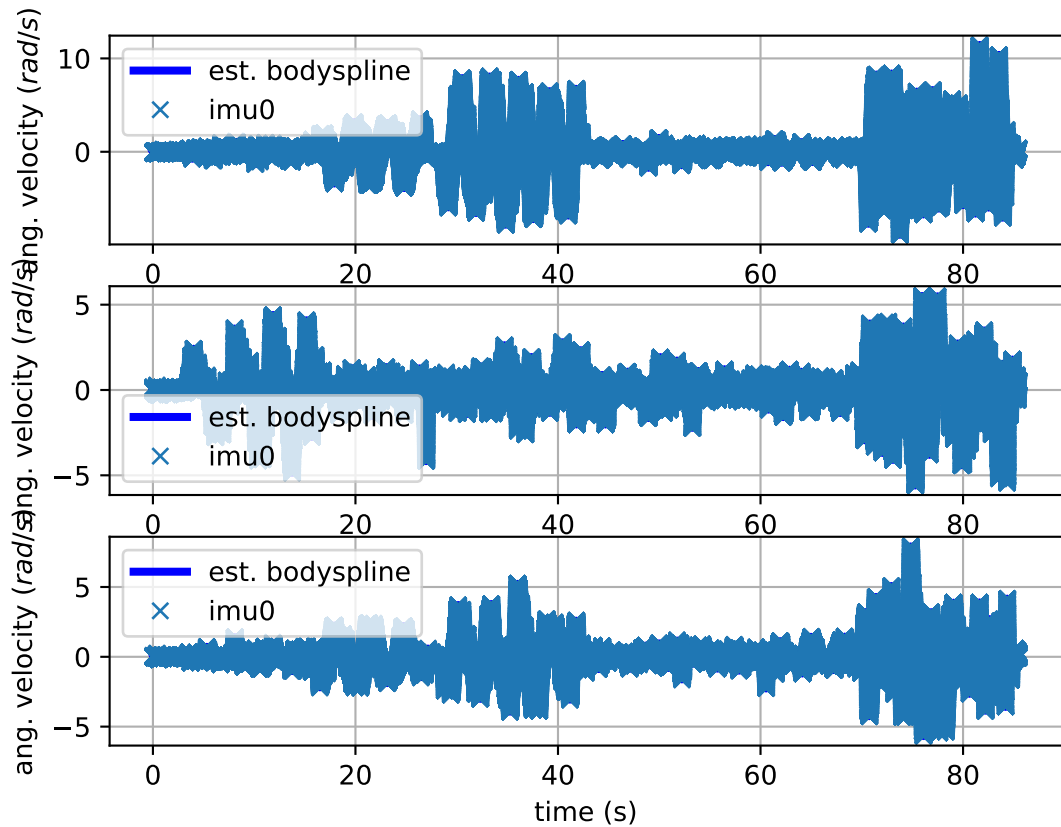
imu0: acceleration error



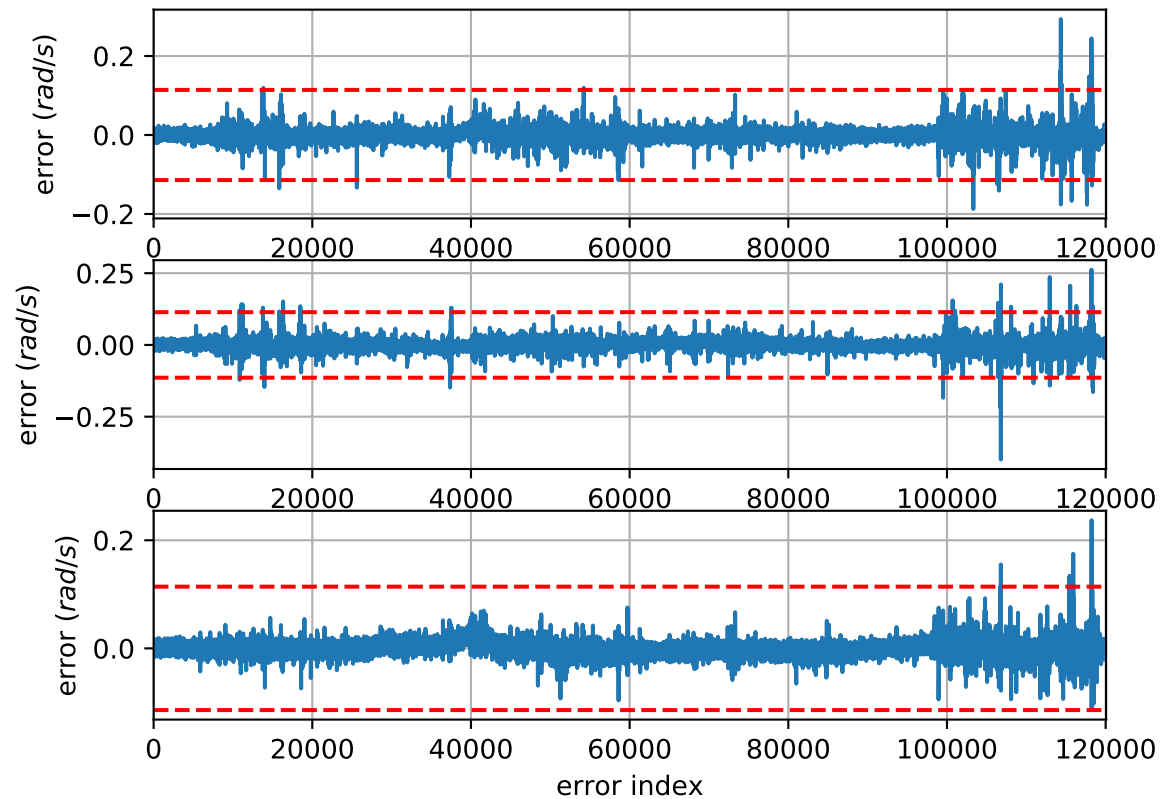
imu0: estimated accelerometer bias (imu frame)



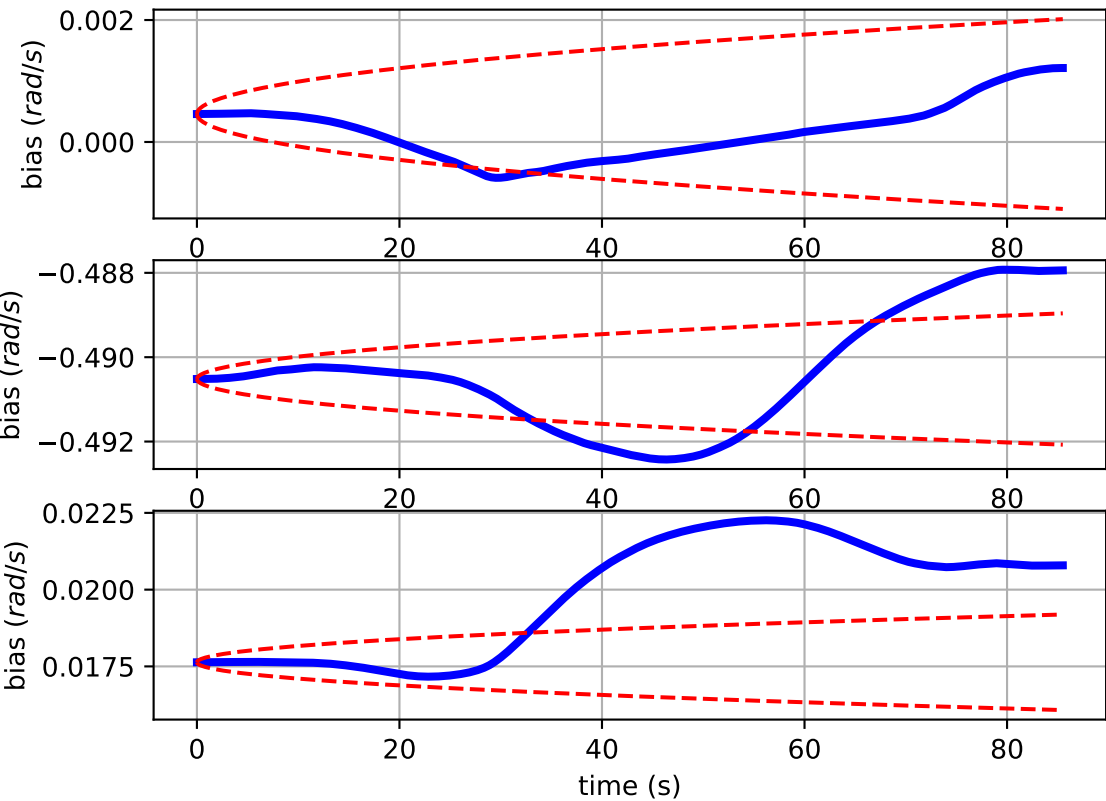
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

