

## Calibration results

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### Normalized Residuals

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Reprojection error (cam0): mean 0.3788706780911475, median 0.3035665875618689, std: 0.30352300405905946  
Gyroscope error (imu0): mean 0.7308160993892284, median 0.5796365084346425, std: 0.6196247261534545  
Accelerometer error (imu0): mean 0.8916502023896112, median 0.7042065035989292, std: 0.7130867837808312

### Residuals

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Reprojection error (cam0) [px]: mean 0.3788706780911475, median 0.3035665875618689, std: 0.30352300405905946  
Gyroscope error (imu0) [rad/s]: mean 0.00315100679156933, median 0.0024991767097707865, std: 0.002671591008963204  
Accelerometer error (imu0) [m/s^2]: mean 0.24153977565660986, median 0.19076301495739195, std: 0.1931686005526804

### Transformation (cam0):

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T\_ci: (imu0 to cam0):

[[ 0.99998976 0.00239619 0.00383925 0.05625127]  
[ 0.0038787 -0.01668228 -0.99985332 -0.03413685]  
[-0.00233179 0.99985797 -0.0166914 -0.06563 ]  
[ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):

[[ 0.99998976 0.0038787 -0.00233179 -0.05627132]  
[ 0.00239619 -0.01668228 0.99985797 0.06491641]  
[ 0.00383925 -0.99985332 -0.0166914 -0.03544326]  
[ 0. 0. 0. 1. ]]

timeshift cam0 to imu0: [s] ( $t_{imu} = t_{cam} + \text{shift}$ )  
-0.004707443362743934

Gravity vector in target coords: [m/s^2]

[-0.00992066 -9.72876957 -1.23262615]

## Calibration configuration

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cam0

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Camera model: pinhole

Focal length: [398.02035665096423, 397.364686315368]

Principal point: [326.0266084072755, 240.65282243901888]

Distortion model: radtan

Distortion coefficients: [-0.3433580927578972, 0.10337515080245259, -0.0006314563810616071, 0.0004674376102527941]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.088 [m]

Spacing 0.02639999999999996 [m]

## IMU configuration

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IMU0:

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Model: calibrated

Update rate: 100

Accelerometer:

Noise density: 0.02708907316

Noise density (discrete): 0.2708907316

Random walk: 0.00264054372

Gyroscope:

Noise density: 0.00043116275

Noise density (discrete): 0.0043116275

Random walk: 5.597187e-05

T\_ib (imu0 to imu0)

[[1. 0. 0. 0.]

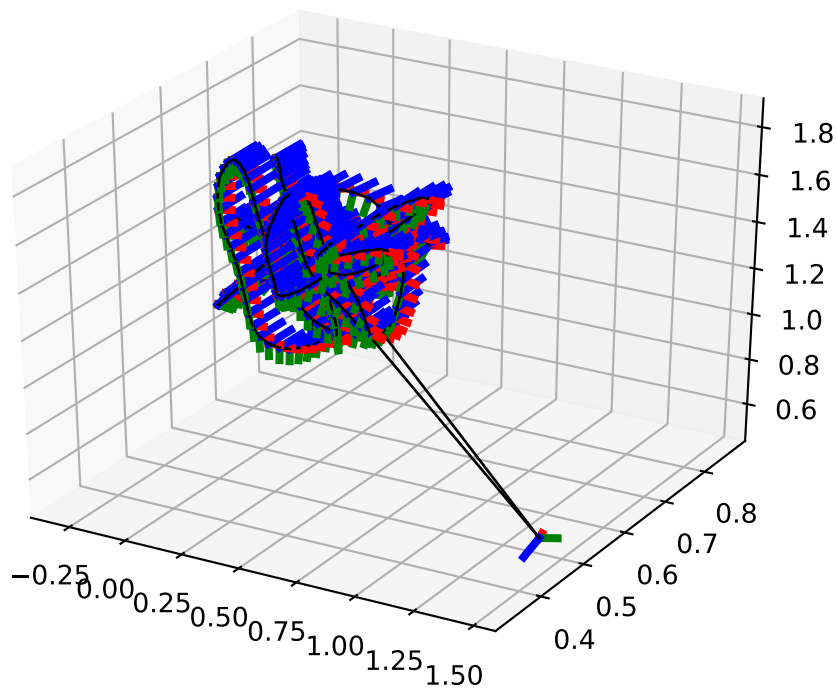
[0. 1. 0. 0.]

[0. 0. 1. 0.]

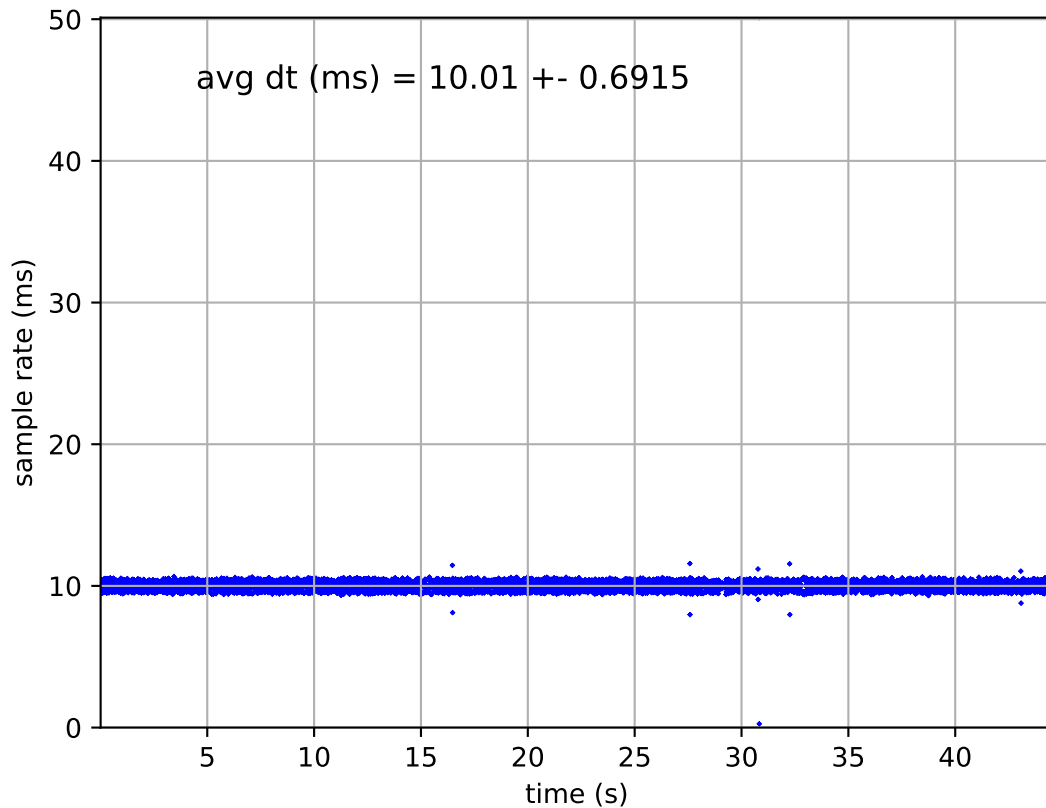
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

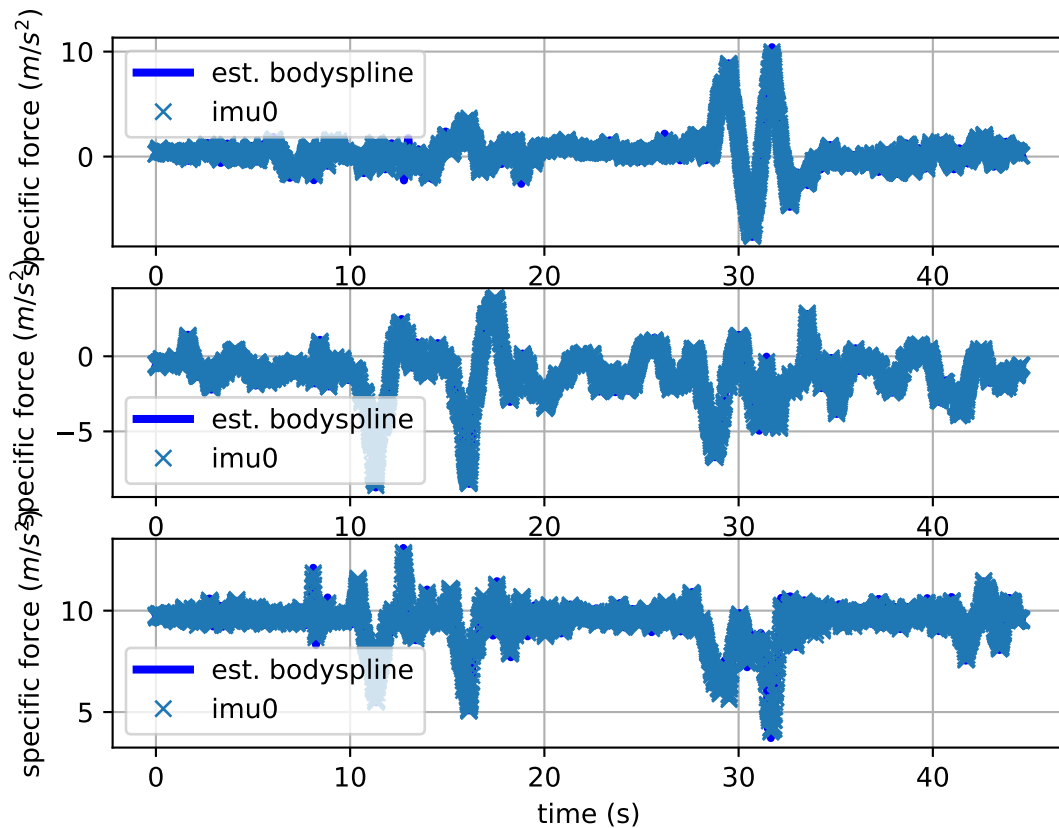
imu0: estimated poses



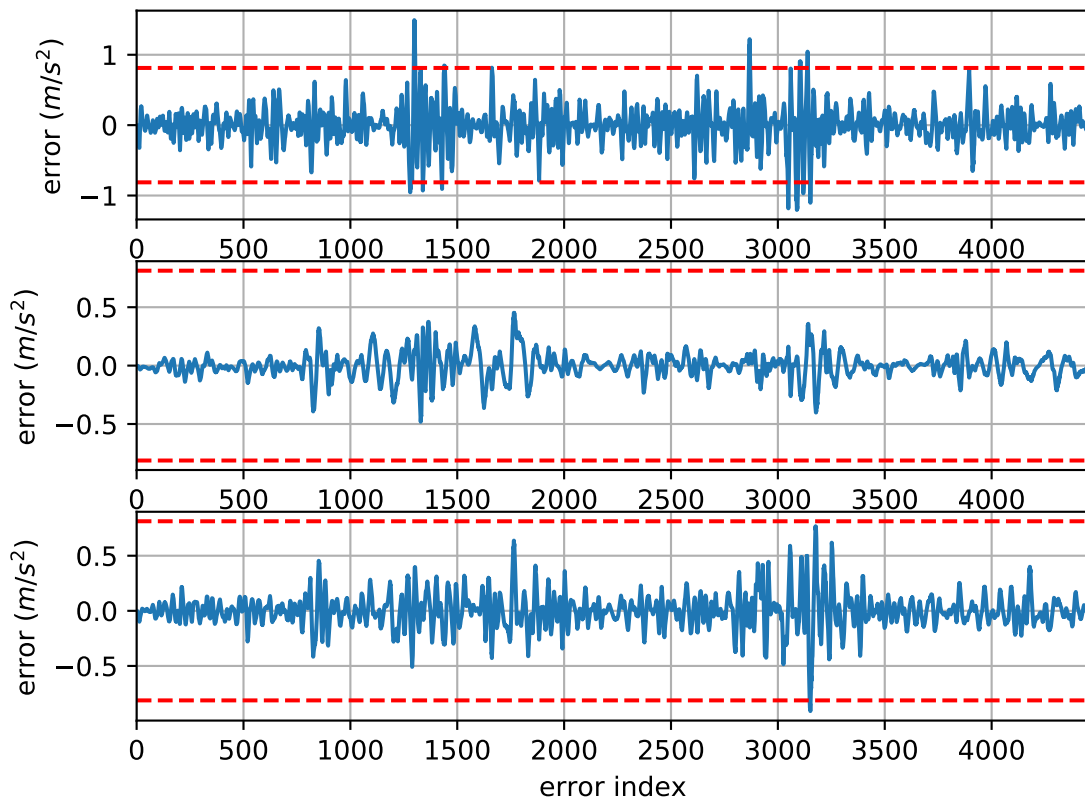
imu0: sample inertial rate



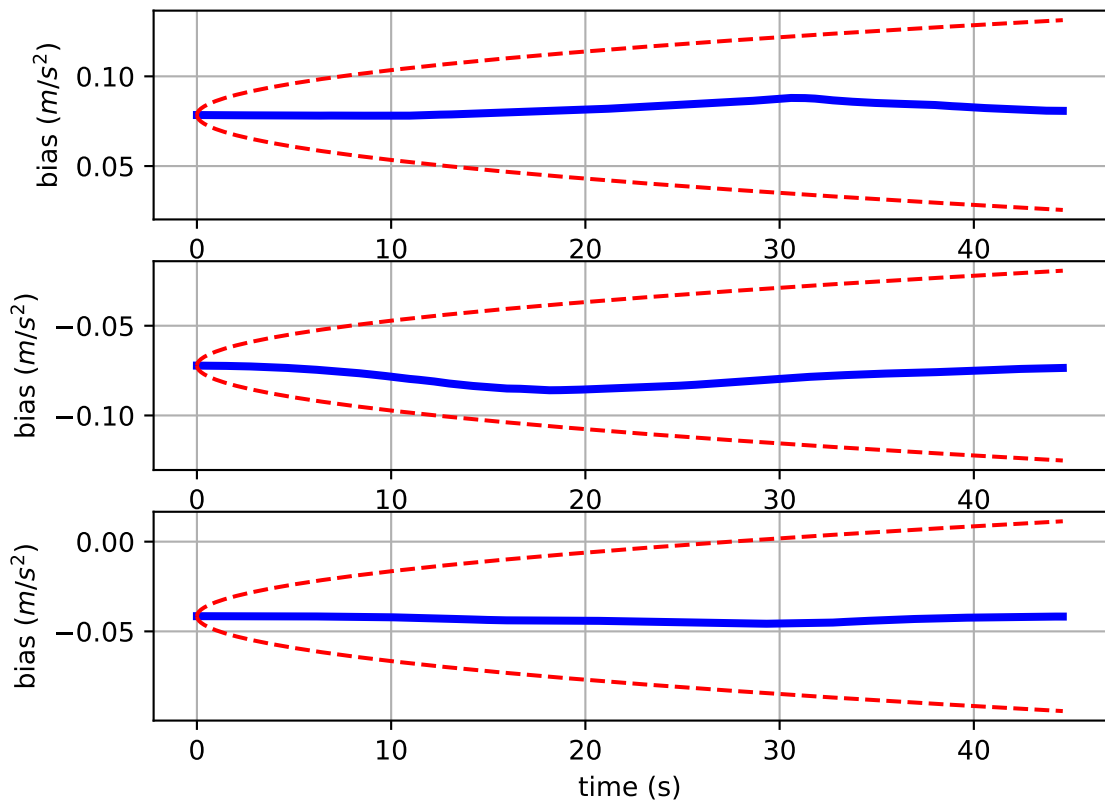
# Comparison of predicted and measured specific force (imu0 frame)



imu0: acceleration error

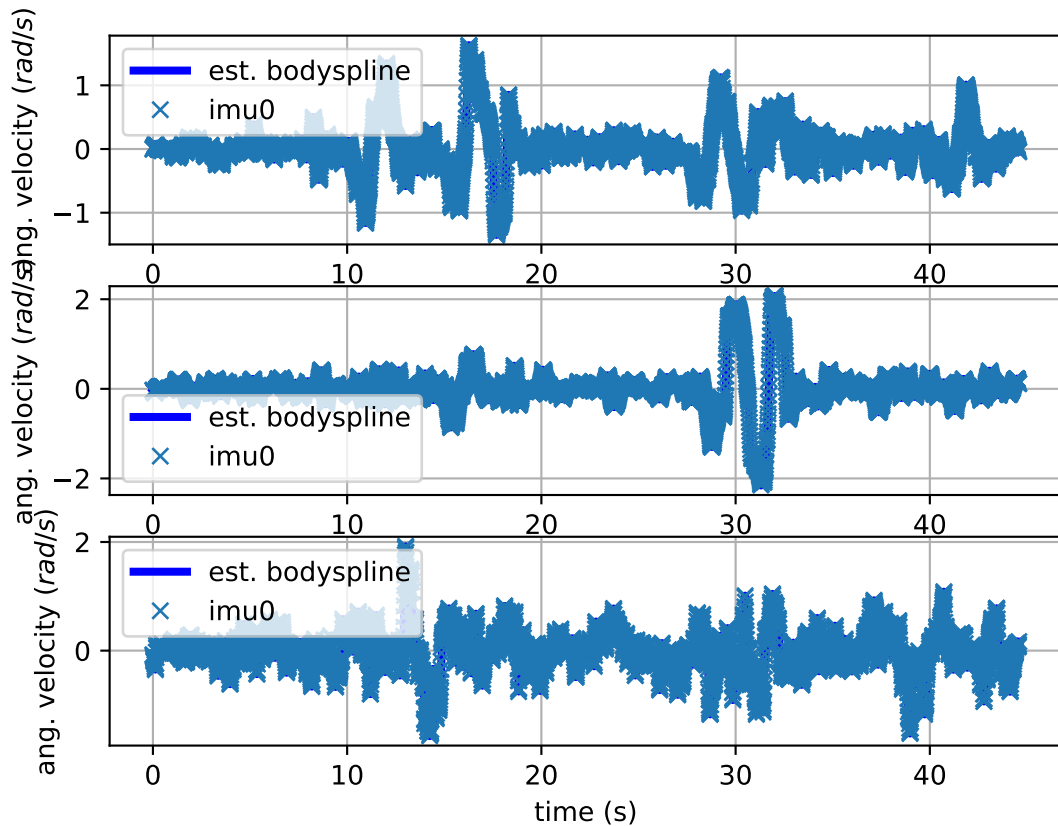


imu0: estimated accelerometer bias (imu frame)

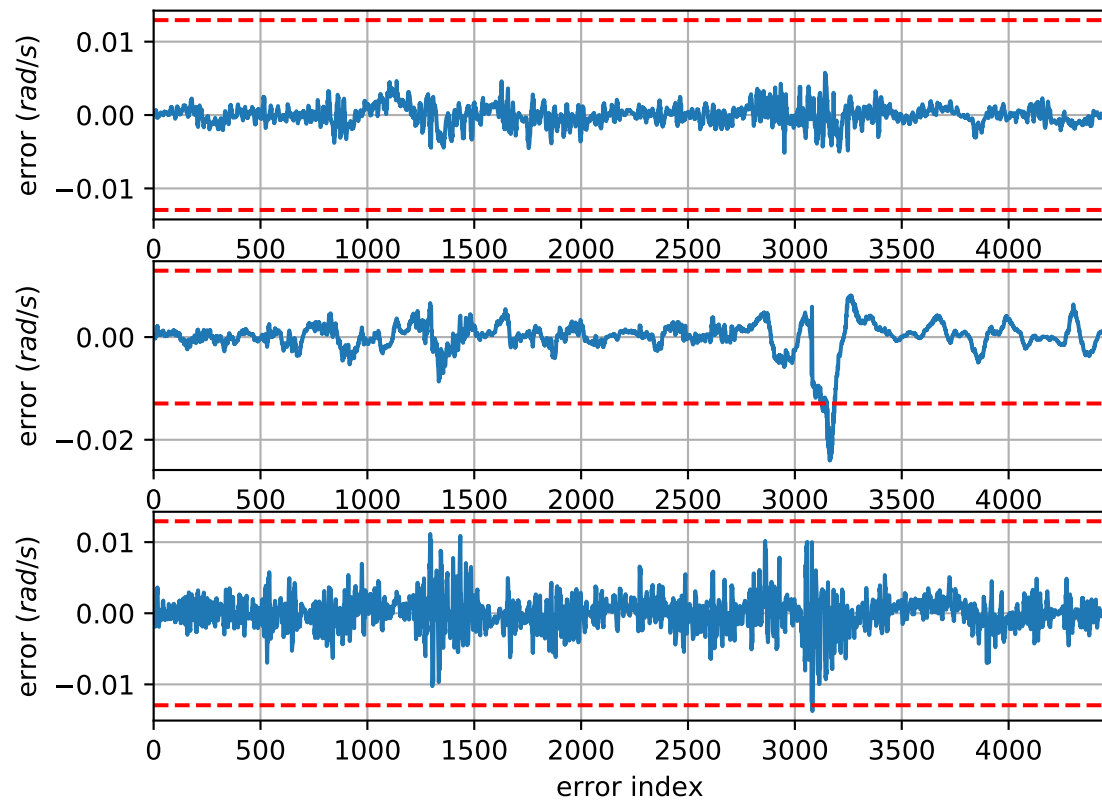




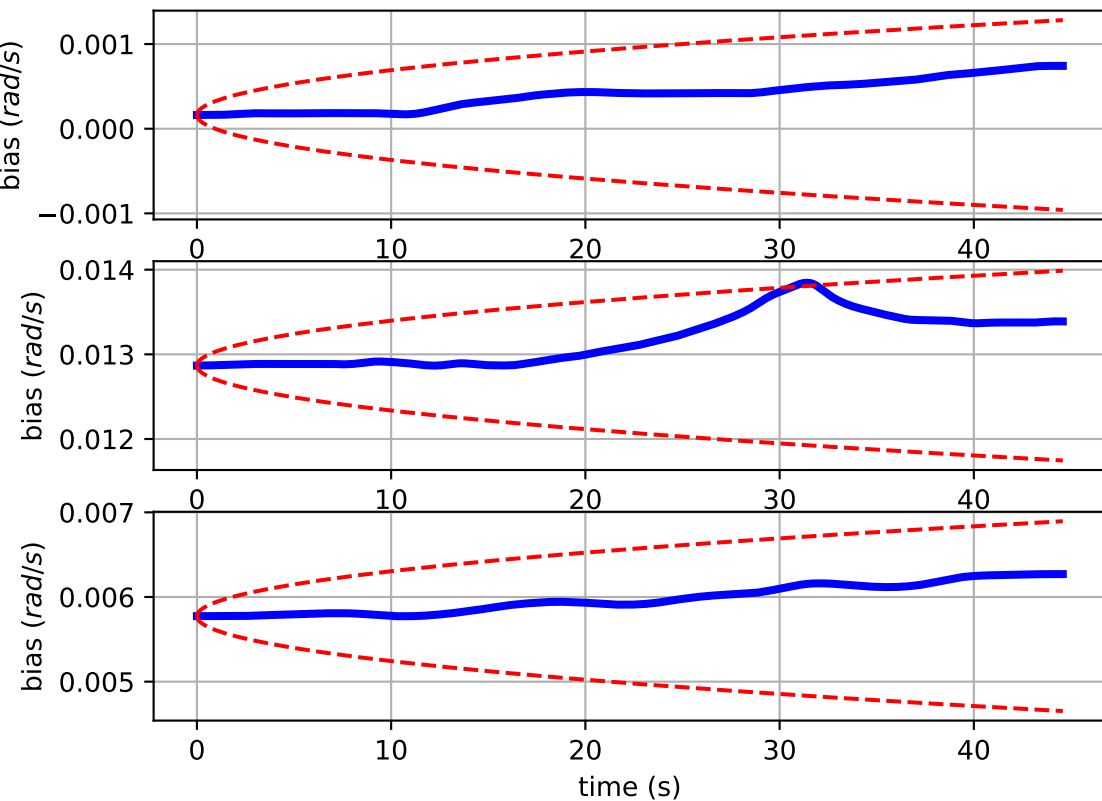
# Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

