

## Calibration results

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### Normalized Residuals

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Reprojection error (cam0): mean 0.301064067824, median 0.292093212612, std: 0.146046528159

Gyroscope error (imu0): mean 0.174665346712, median 0.104449900036, std: 0.17523796231

Accelerometer error (imu0): mean 0.195522698416, median 0.157219524987, std: 0.140639174587

### Residuals

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Reprojection error (cam0) [px]: mean 0.301064067824, median 0.292093212612, std: 0.146046528159

Gyroscope error (imu0) [rad/s]: mean 0.00089866679029, median 0.000537402857399, std: 0.000901612942065

Accelerometer error (imu0) [m/s<sup>2</sup>]: mean 0.0118218337747, median 0.00950591980156, std: 0.00850342675118

### Transformation (cam0):

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T\_ci: (imu0 to cam0):

[ [ 0.00665775 -0.99990666 -0.01193067 -0.31302409]

[ 0.02223236 0.012076 -0.99967989 0.15991158]

[ 0.99973066 0.00639037 0.02231069 -0.46545314]

[ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):

[ [ 0.00665775 0.02223236 0.99973066 0.46385661]

[ -0.99990666 0.012076 0.00639037 -0.31195155]

[ -0.01193067 -0.99967989 0.02231069 0.16651039]

[ 0. 0. 0. 1. ]]

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)

0.00595802104811

Gravity vector in target coords: [m/s<sup>2</sup>]

[ 0.02624373 -9.80651119 0.00851034]

## Calibration configuration

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cam0

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Camera model: pinhole

Focal length: [637.0102235086177, 636.5671950687336]

Principal point: [653.6378859316724, 362.8854879948024]

Distortion model: radtan

Distortion coefficients: [-0.044682744054906895, 0.024952434249305173, -6.46507710571878e-05, 0.001005164472103523]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.0352 [m]

Spacing 0.01056 [m]

## IMU configuration

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IMU0:

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Model: calibrated

Update rate: 100.0

Accelerometer:

Noise density: 0.00604627179884

Noise density (discrete): 0.0604627179884

Random walk: 0.000170413289485

Gyroscope:

Noise density: 0.000514507775702

Noise density (discrete): 0.00514507775702

Random walk: 1.41213835334e-05

T\_ib (imu0 to imu0)

[[ 1. 0. 0. 0.]

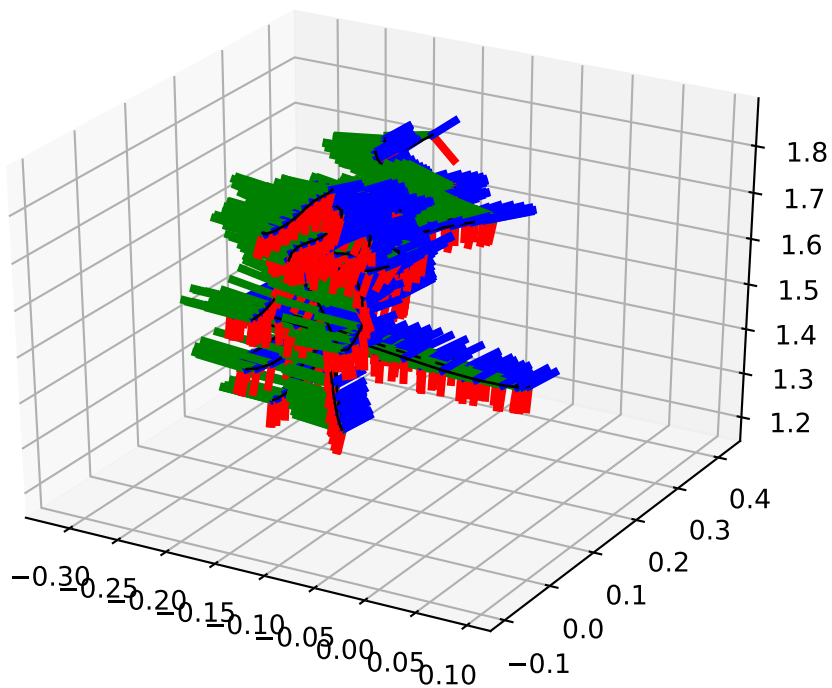
[ 0. 1. 0. 0.]

[ 0. 0. 1. 0.]

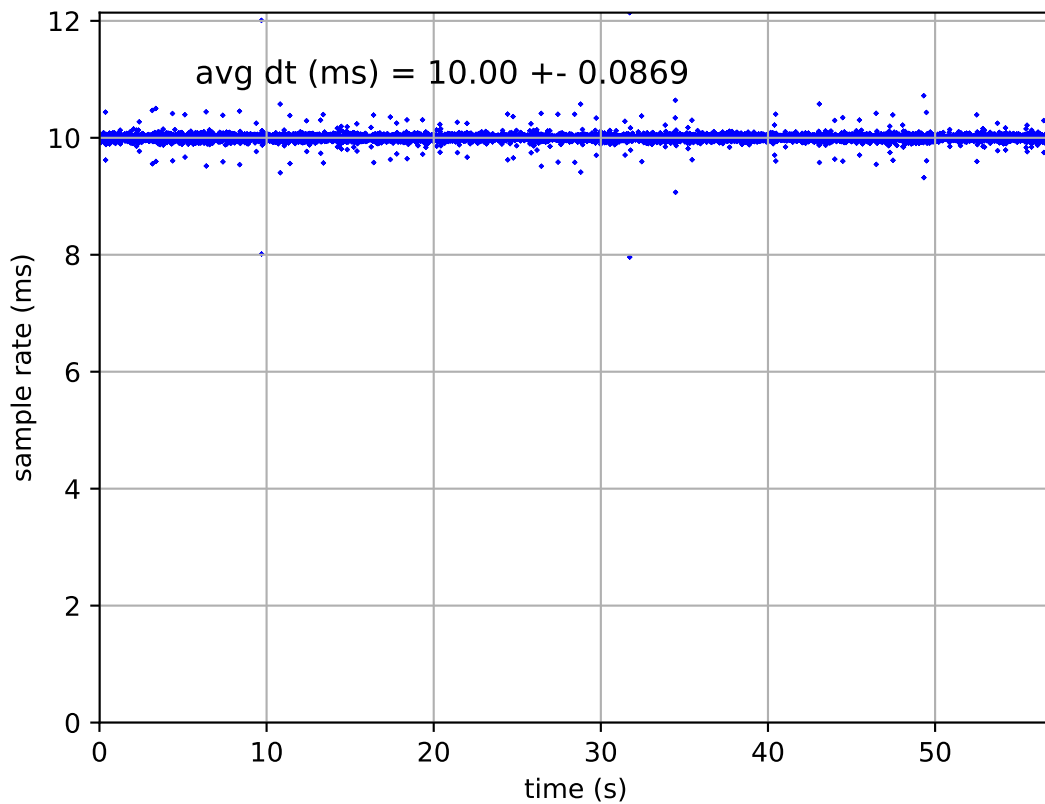
[ 0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

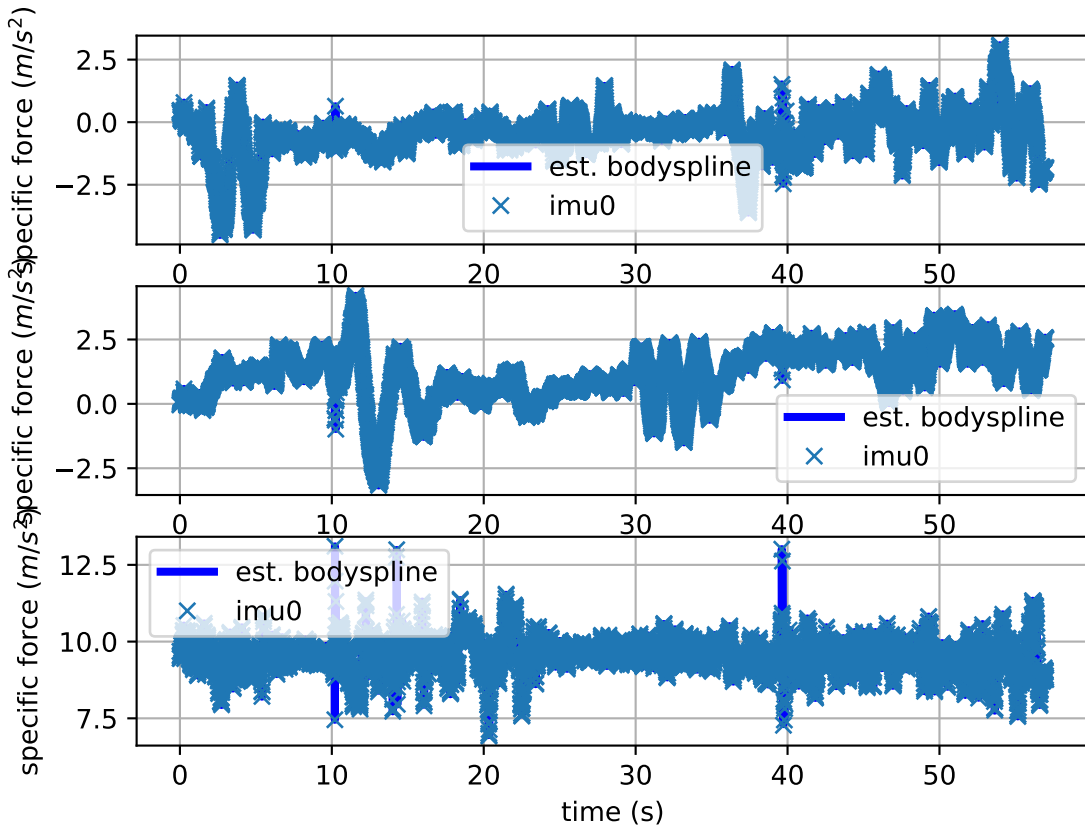
imu0: estimated poses



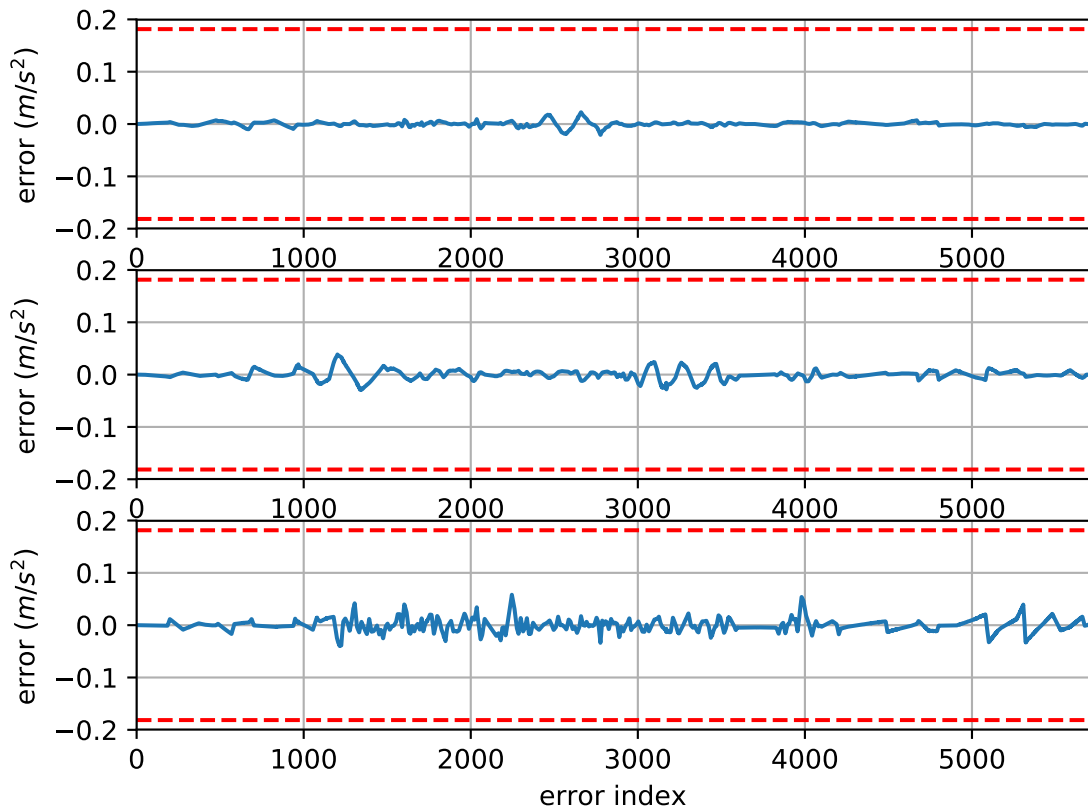
imu0: sample inertial rate



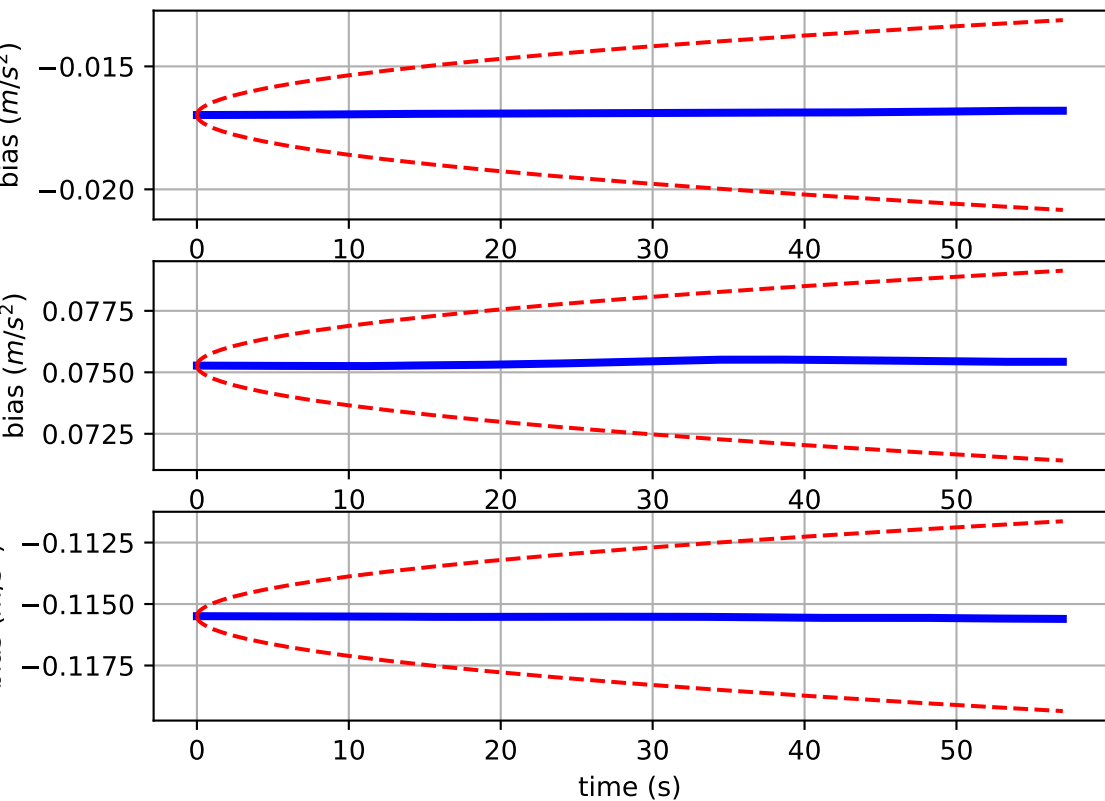
Comparison of predicted and measured specific force (imu0 frame)



imu0: acceleration error

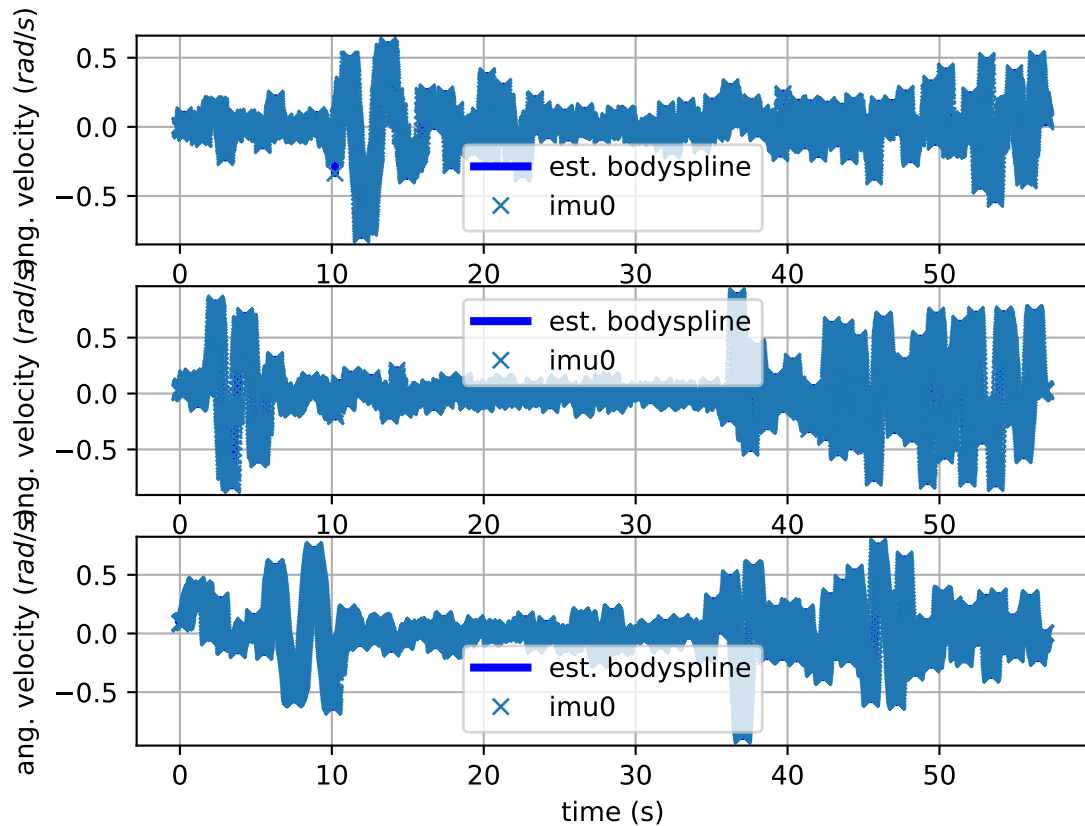


imu0: estimated accelerometer bias (imu frame)

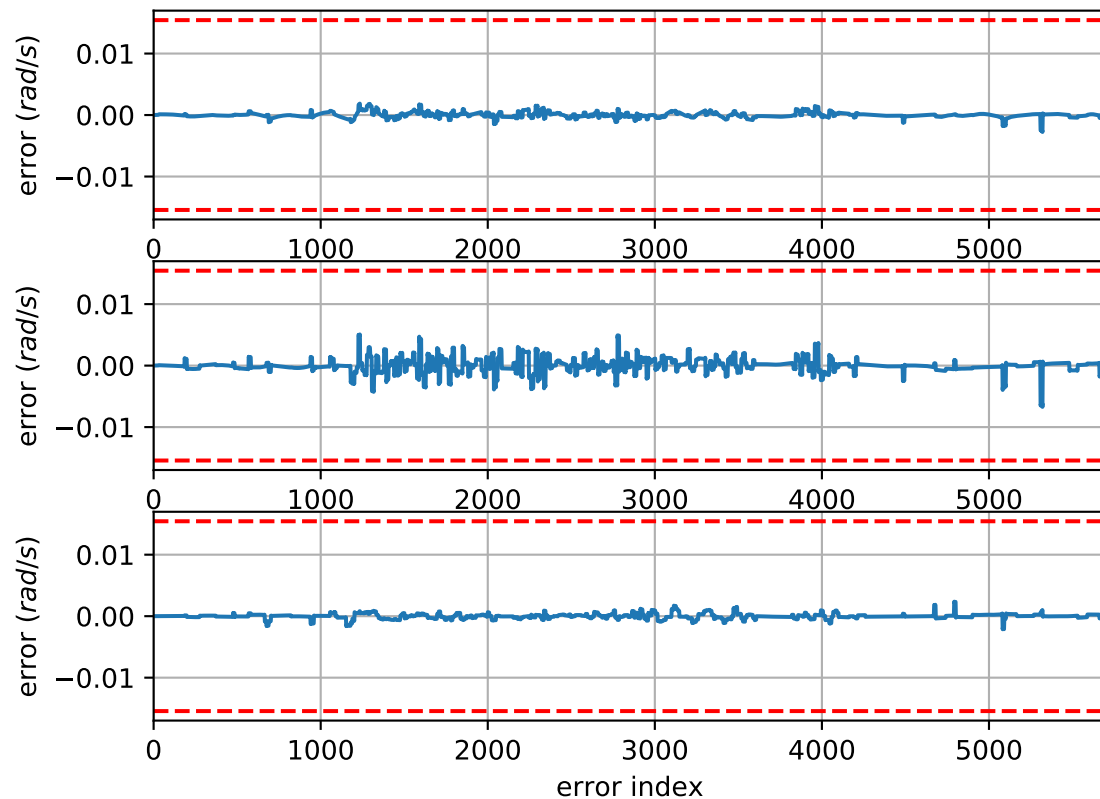




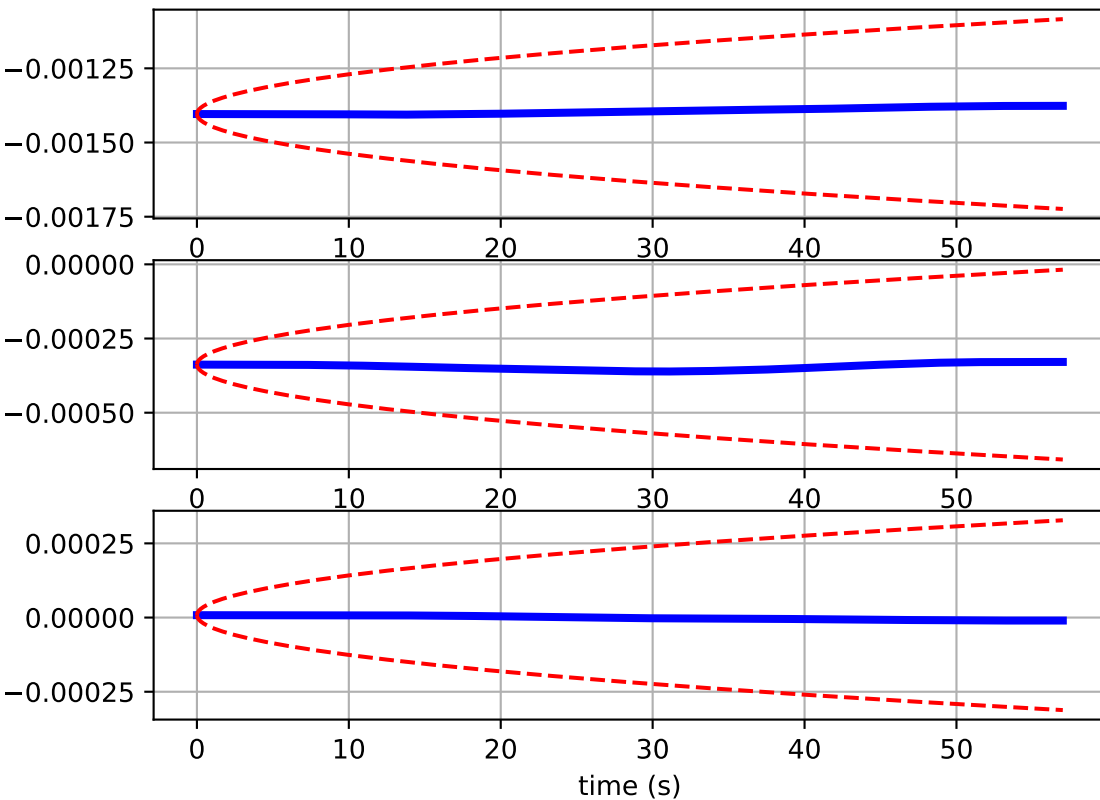
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

