

## Calibration results

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### Normalized Residuals

Reprojection error (cam0): mean 4.389178270980999, median 3.4851612083506827, std: 3.546836339123121  
Gyroscope error (imu0): mean 4.987582349959954, median 2.840098285394952, std: 5.739188841909919  
Accelerometer error (imu0): mean 5.648619958147809, median 4.5686257632248255, std: 3.9259018299971866

### Residuals

Reprojection error (cam0) [px]: mean 4.389178270980999, median 3.4851612083506827, std: 3.546836339123121  
Gyroscope error (imu0) [rad/s]: mean 0.04001092025534412, median 0.02278357288981692, std: 0.046040388102236  
Accelerometer error (imu0) [m/s<sup>2</sup>]: mean 0.7112548280396047, median 0.5752656676632362, std: 0.49433607707441224

### Transformation (cam0):

T\_ci: (imu0 to cam0):  
[[ 0.92757641 -0.27752758 0.25016086 -0.05011873]  
 [ 0.30536953 0.94890312 -0.07957594 0.01329463]  
 [-0.2152939 0.15020427 0.96492861 0.33276062]  
 [ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):  
[[ 0.92757641 0.30536953 -0.2152939 0.11407051]  
 [-0.27752758 0.94890312 0.15020427 -0.07650671]  
 [ 0.25016086 -0.07957594 0.96492861 -0.30749456]  
 [ 0. 0. 0. 1. ]]

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)  
-7.978506571910605

Gravity vector in target coords: [m/s<sup>2</sup>]  
[-0.1185964 0.31407217 9.80080183]

## Calibration configuration

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cam0

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Camera model: pinhole

Focal length: [287.5931203196147, 318.44992107782025]

Principal point: [381.33348613478404, 245.2892815651306]

Distortion model: radtan

Distortion coefficients: [0.014059, -0.021049, 0.001291, 0.003152]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.021 [m]

Spacing 0.005999999999994 [m]

## IMU configuration

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IMU0:

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Model: calibrated

Update rate: 100.0

Accelerometer:

Noise density: 0.01259165660479

Noise density (discrete): 0.1259165660479

Random walk: 0.000426938443672722

Gyroscope:

Noise density: 0.000802210719501511

Noise density (discrete): 0.00802210719501511

Random walk: 2.82325427421011e-05

T\_ib (imu0 to imu0)

[[1. 0. 0. 0.]

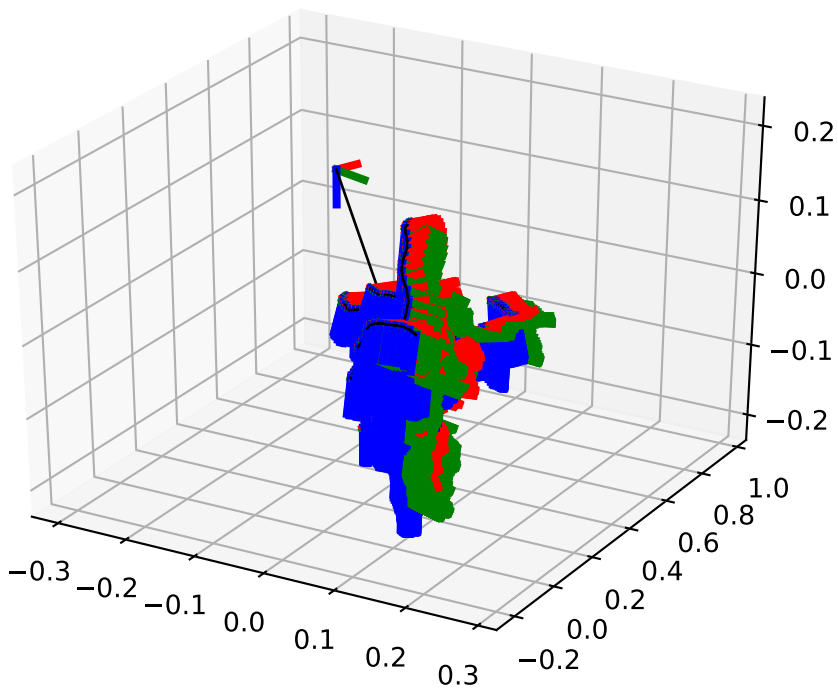
[0. 1. 0. 0.]

[0. 0. 1. 0.]

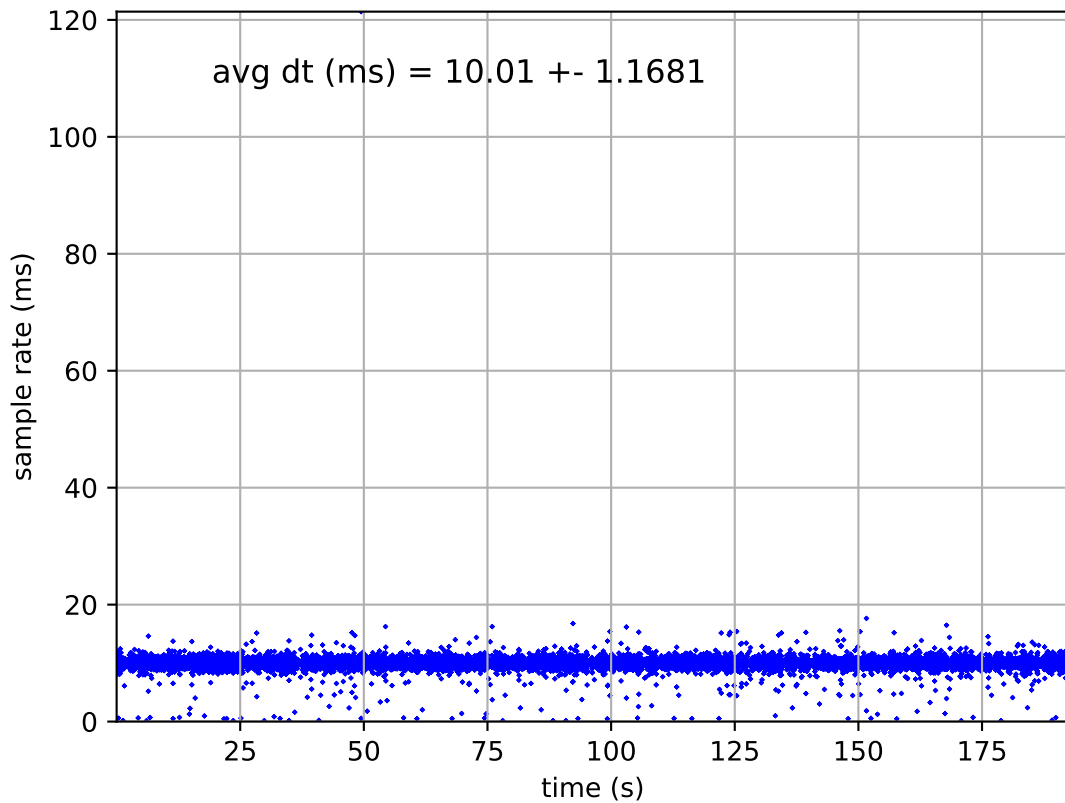
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

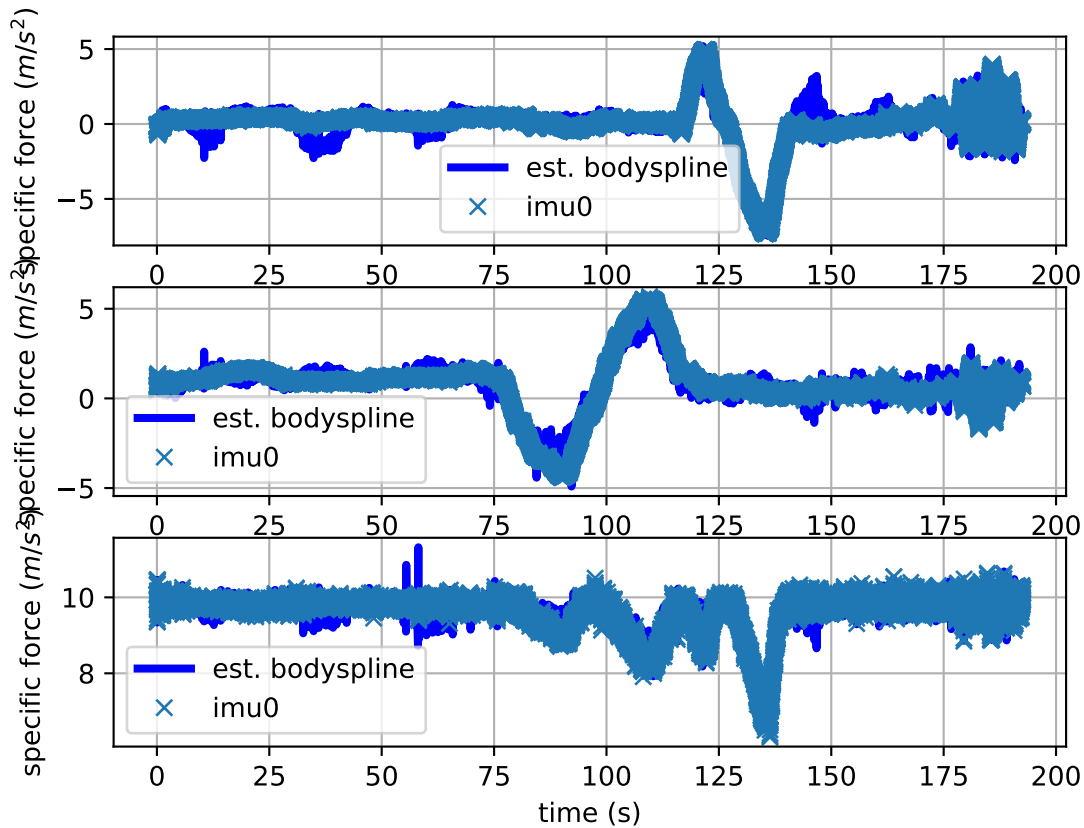
imu0: estimated poses



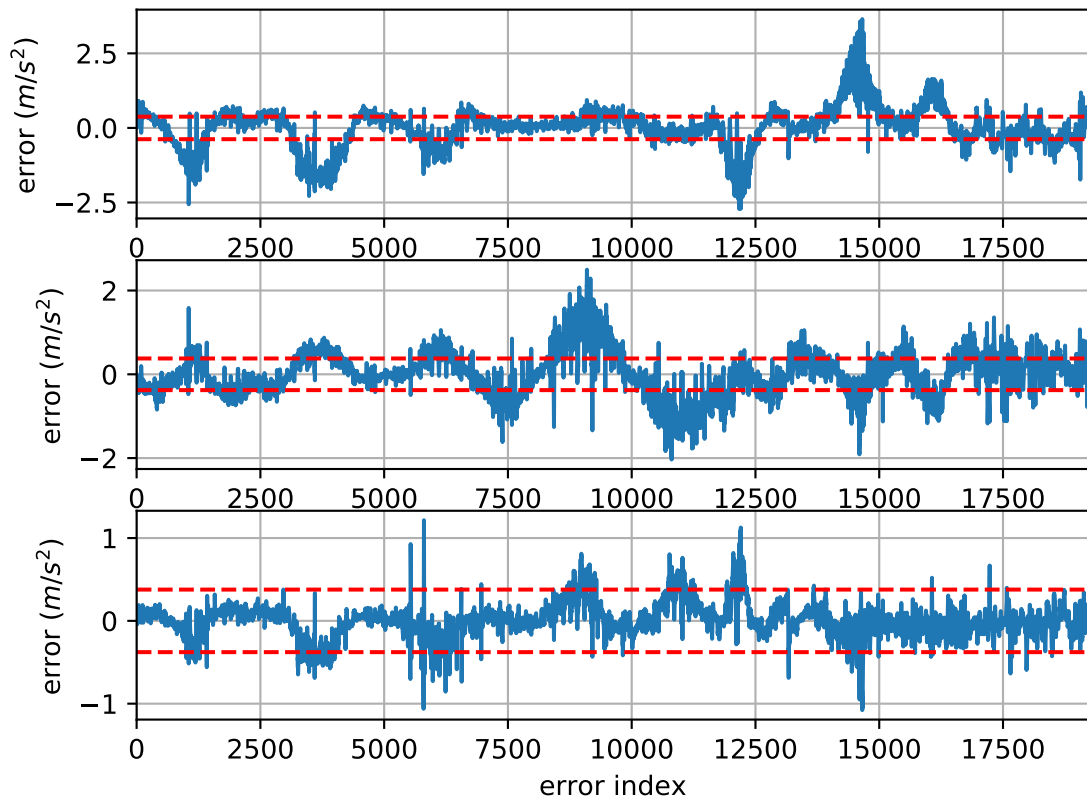
# imu0: sample inertial rate



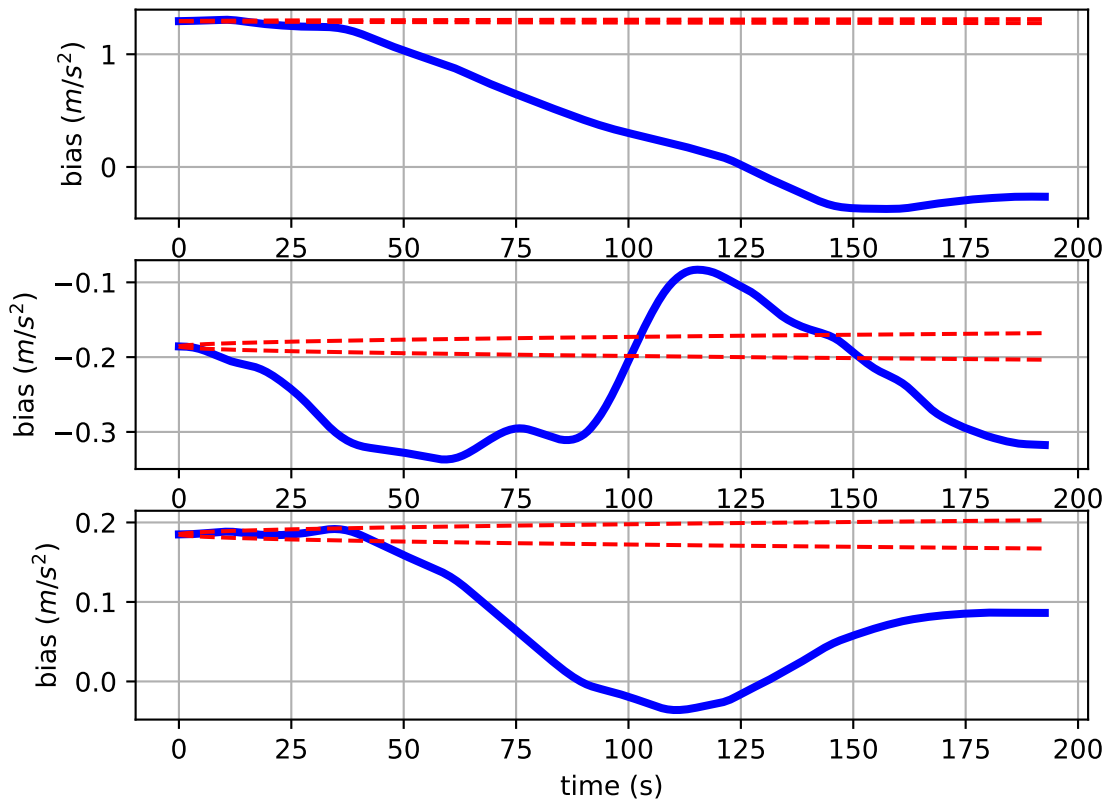
# Comparison of predicted and measured specific force (imu0 frame)



imu0: acceleration error

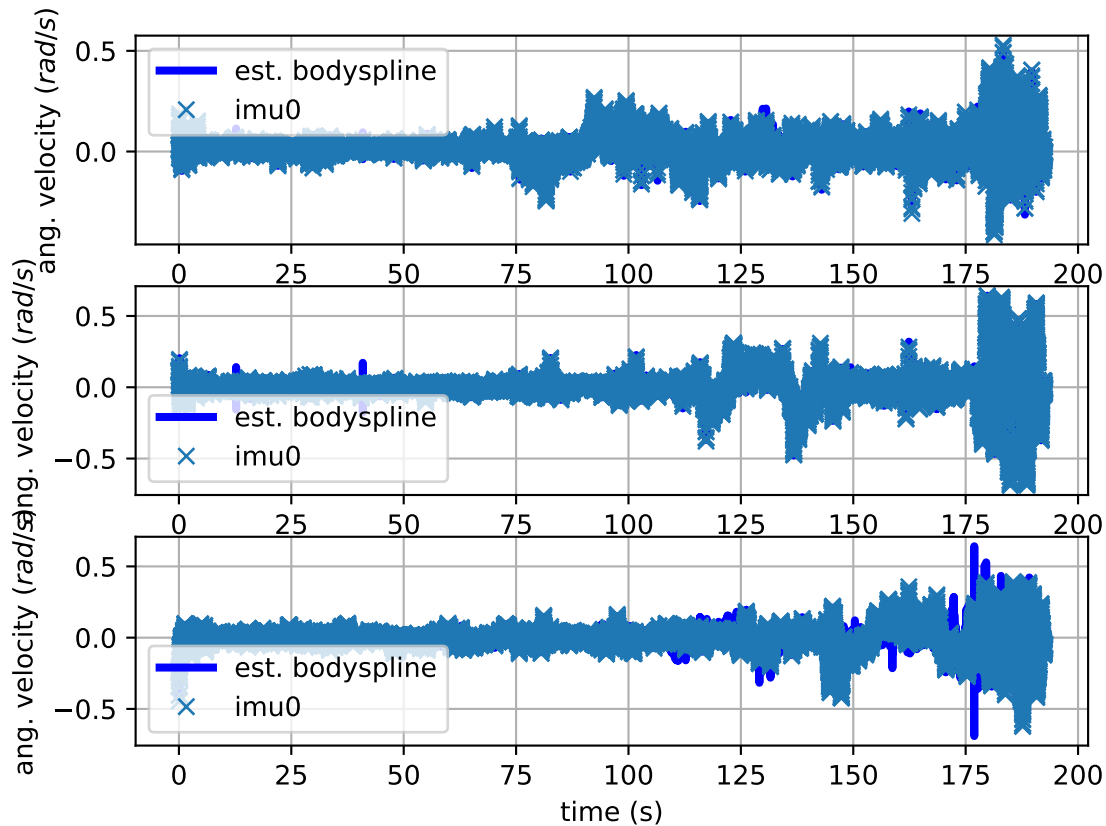


imu0: estimated accelerometer bias (imu frame)

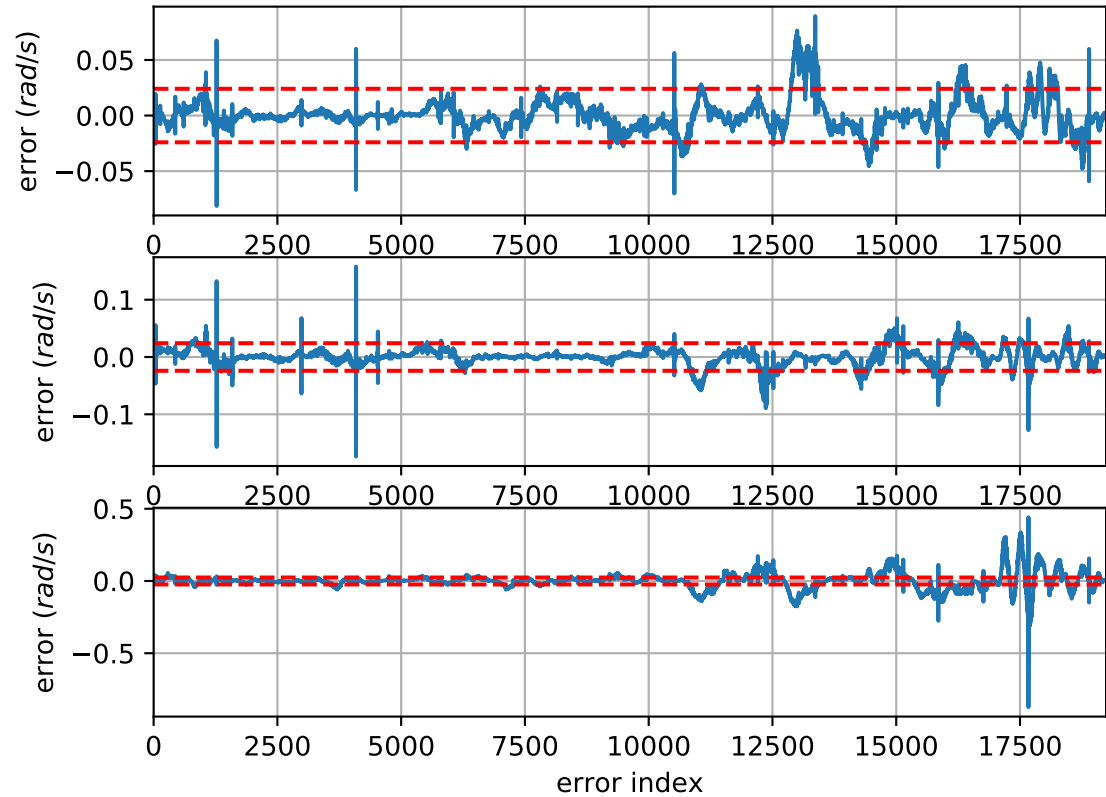




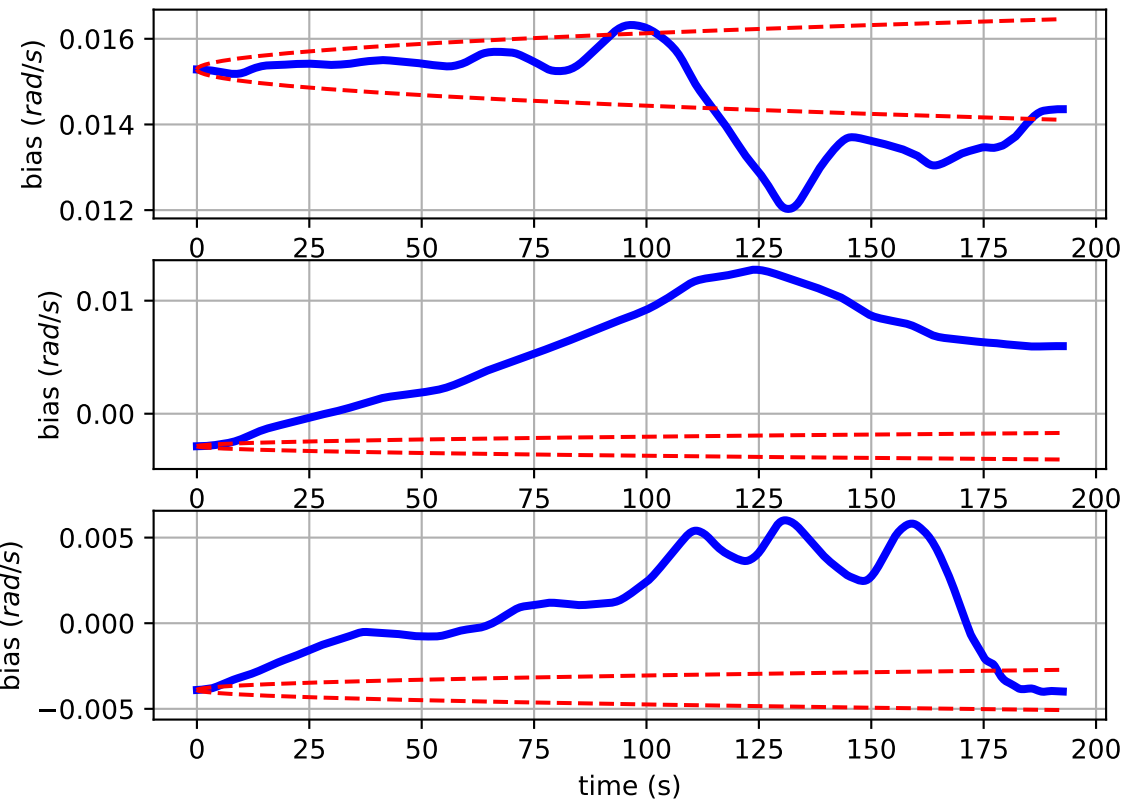
# Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

