

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.570680233874, median 0.373898843251, std: 0.719725428881

Gyroscope error (imu0): mean 2.62076306058, median 0.669143686567, std: 5.85425360522

Accelerometer error (imu0): mean 1.16640518869, median 0.198695488678, std: 2.87404367775

Residuals

Reprojection error (cam0) [px]: mean 0.570680233874, median 0.373898843251, std: 0.719725428881

Gyroscope error (imu0) [rad/s]: mean 0.0942844665405, median 0.0240730863755, std: 0.210612392423

Accelerometer error (imu0) [m/s^2]: mean 0.474315086385, median 0.0807989100104, std: 1.16872103151

Transformation (cam0):

T_ci: (imu0 to cam0):

[[-0.09927374 -0.03247479 -0.9945301 -0.08233423]
[-0.02411106 0.99925236 -0.03022223 0.01526476]
[0.994768 0.0209789 -0.09998252 0.42206554]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[-0.09927374 -0.02411106 0.994768 -0.42766287]
[-0.03247479 0.99925236 0.0209789 -0.0267816]
[-0.9945301 -0.03022223 -0.09998252 -0.03922336]
[0. 0. 0. 1.]]

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

-3.81336947025

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

[9.63032763 1.45114916 1.14864211]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [530.00468109, 521.86027041]
Principal point: [428.96714026, 248.36783979]
Distortion model: equidistant
Distortion coefficients: [0.31205856, 0.23307093, -0.13151944, 0.12435412]
Type: aprilgrid
Tags:
 Rows: 6
 Cols: 6
 Size: 0.072 [m]
 Spacing 0.0216 [m]

IMU configuration

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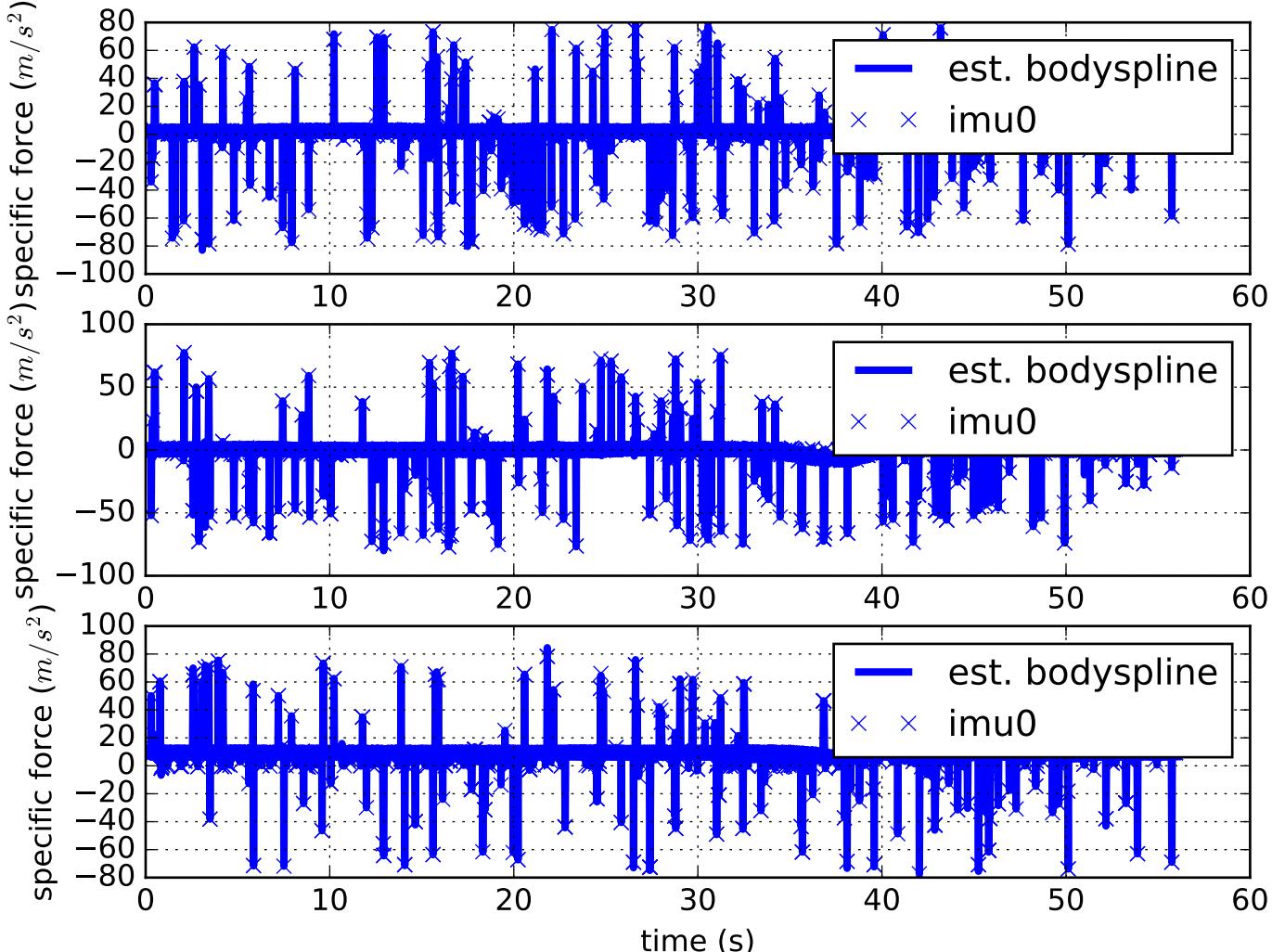
IMU0:

 Model: calibrated
 Update rate: 100.0
 Accelerometer:
 Noise density: 0.0406646927658
 Noise density (discrete): 0.406646927658
 Random walk: 0.00311311645065
 Gyroscope:
 Noise density: 0.00359759598107
 Noise density (discrete): 0.0359759598107
 Random walk: 0.000114424620336

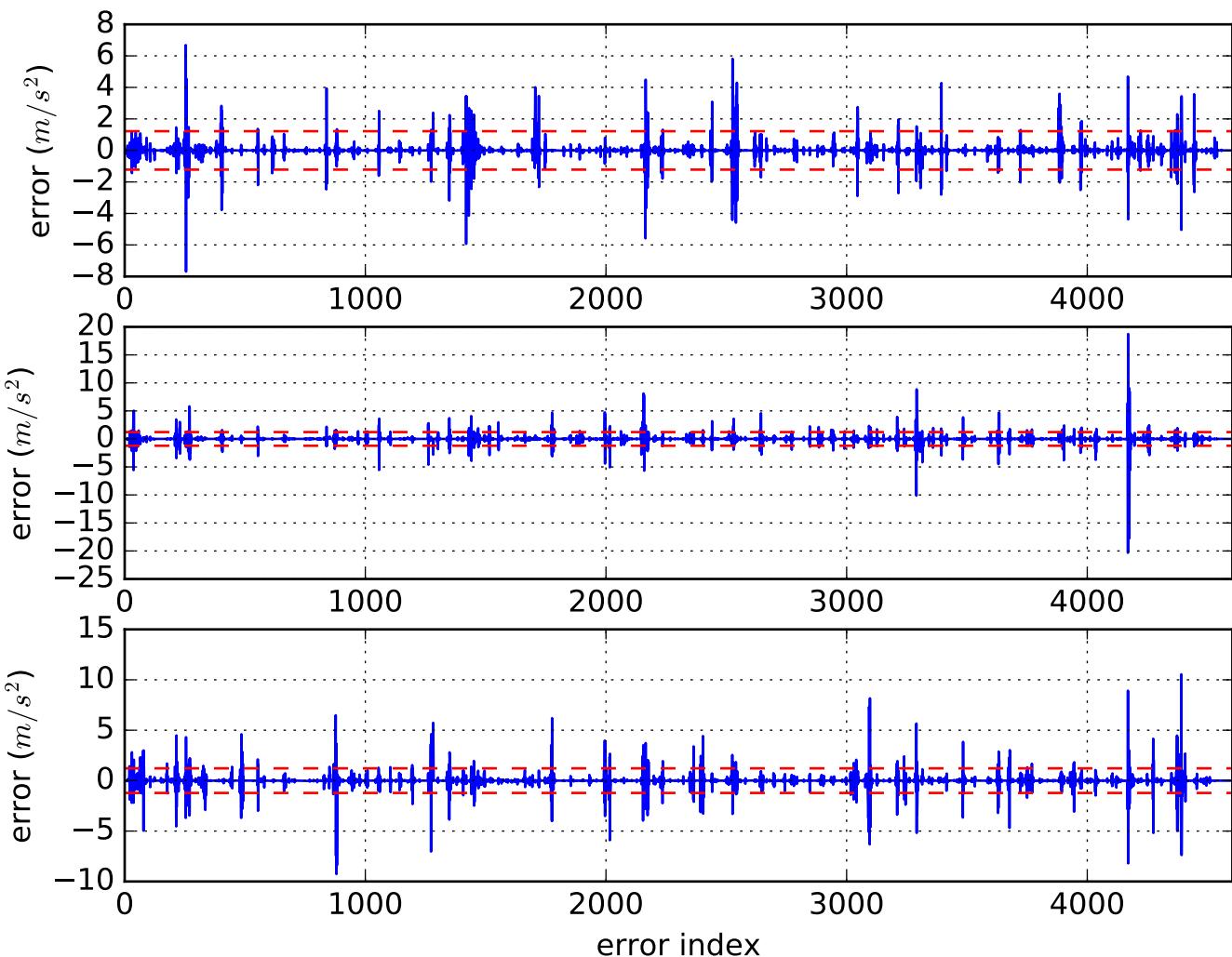
 T_i_b
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

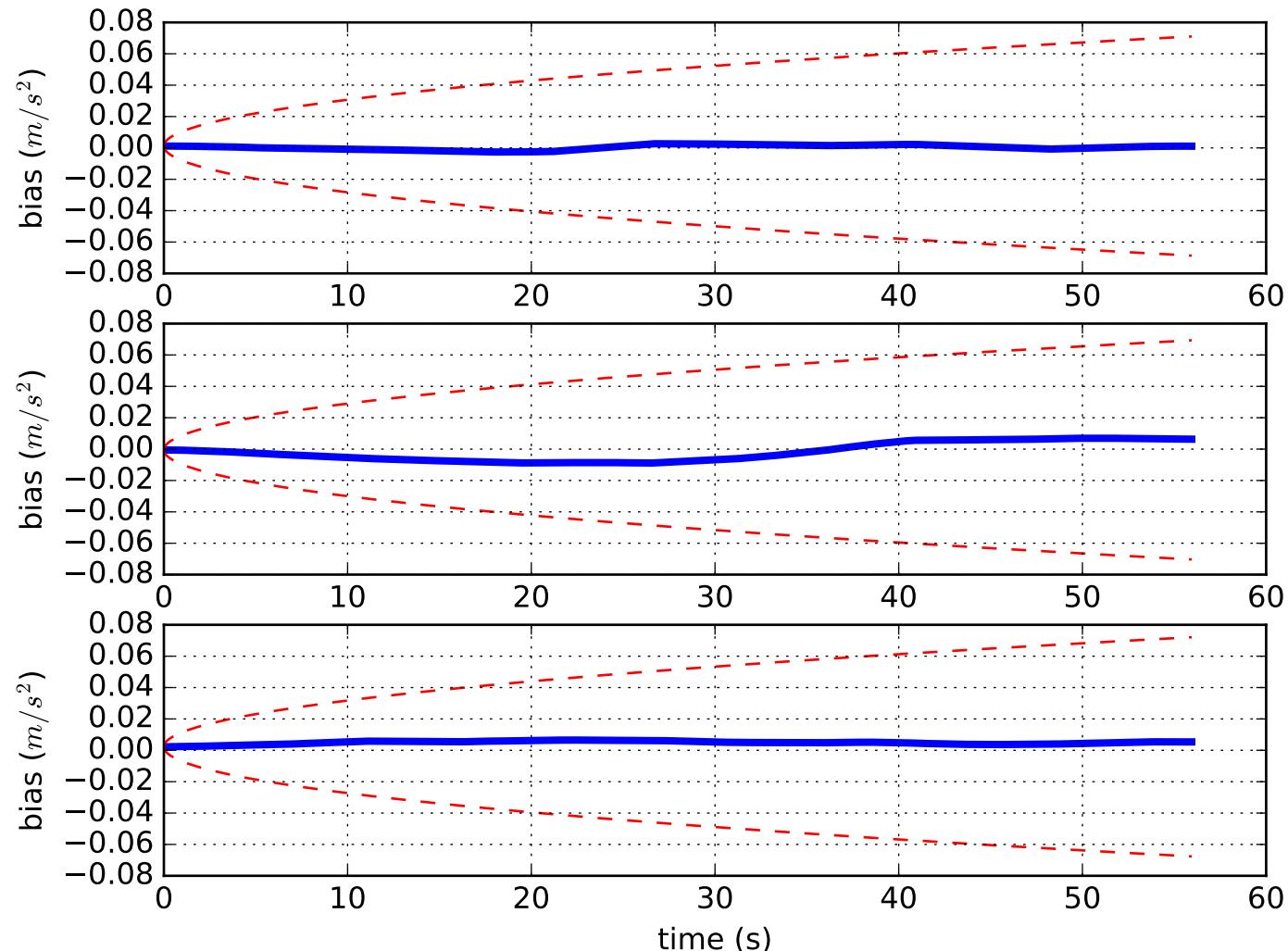
Comparison of predicted and measured specific force (imu0 frame)



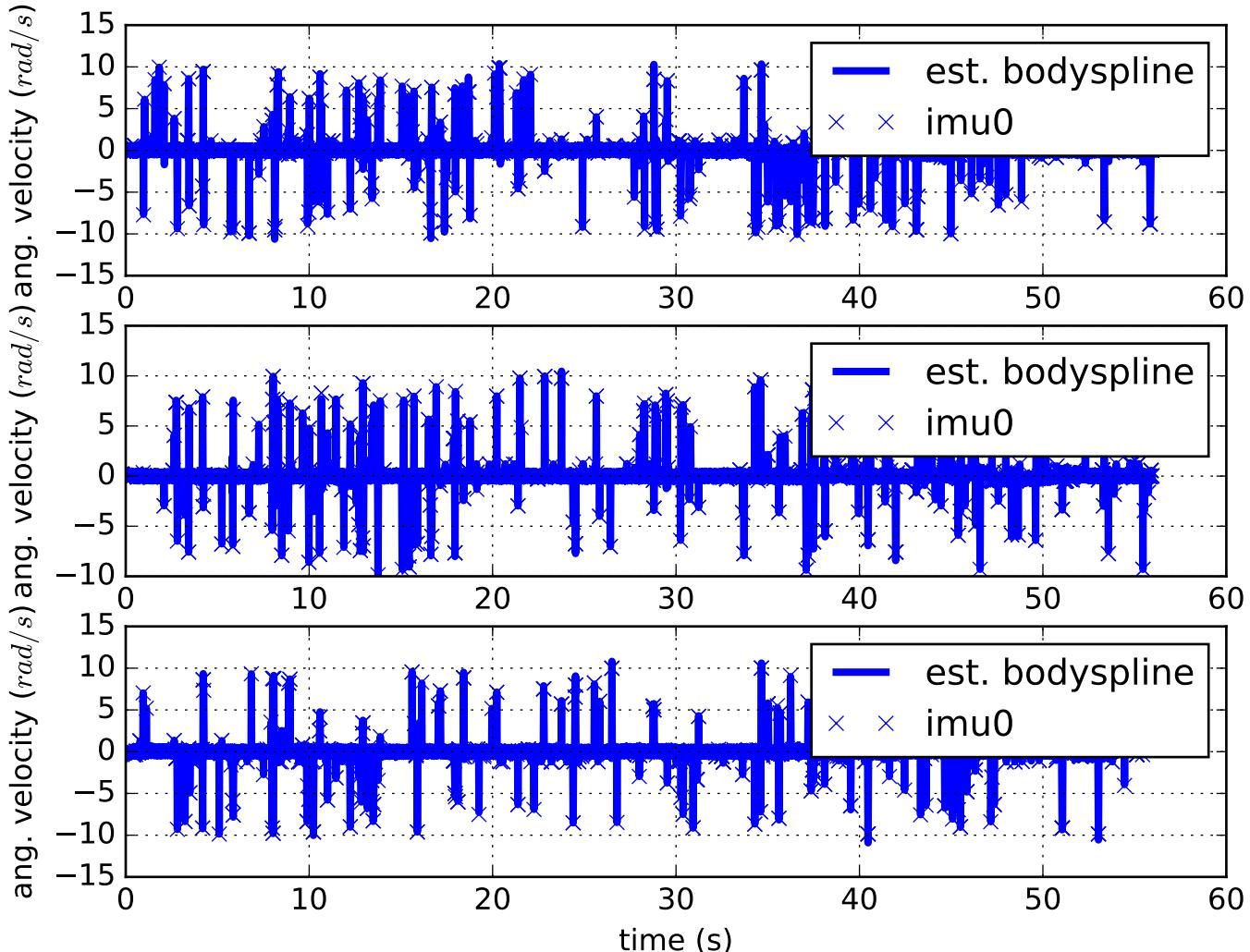
imu0: acceleration error



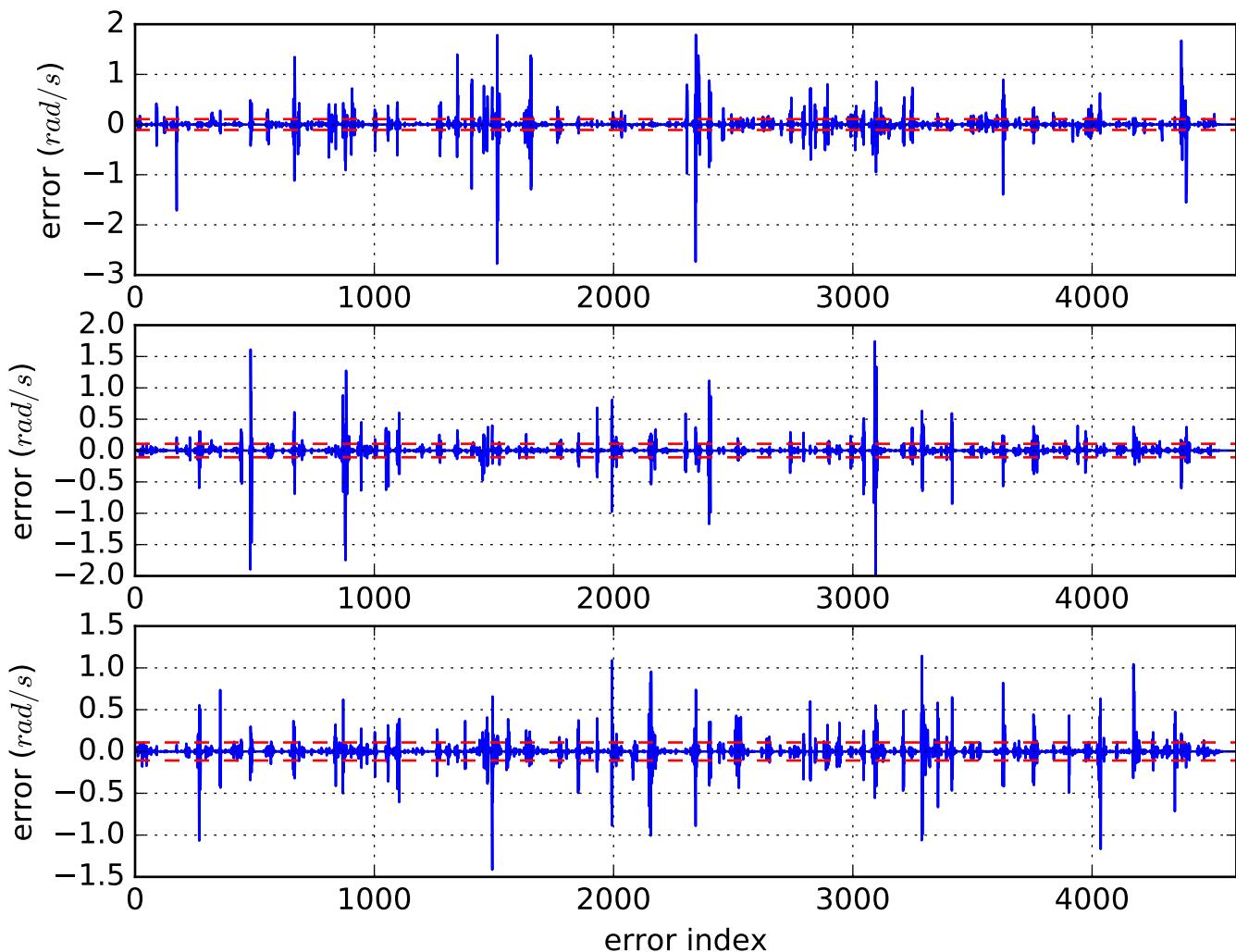
imu0: estimated accelerometer bias (imu frame)



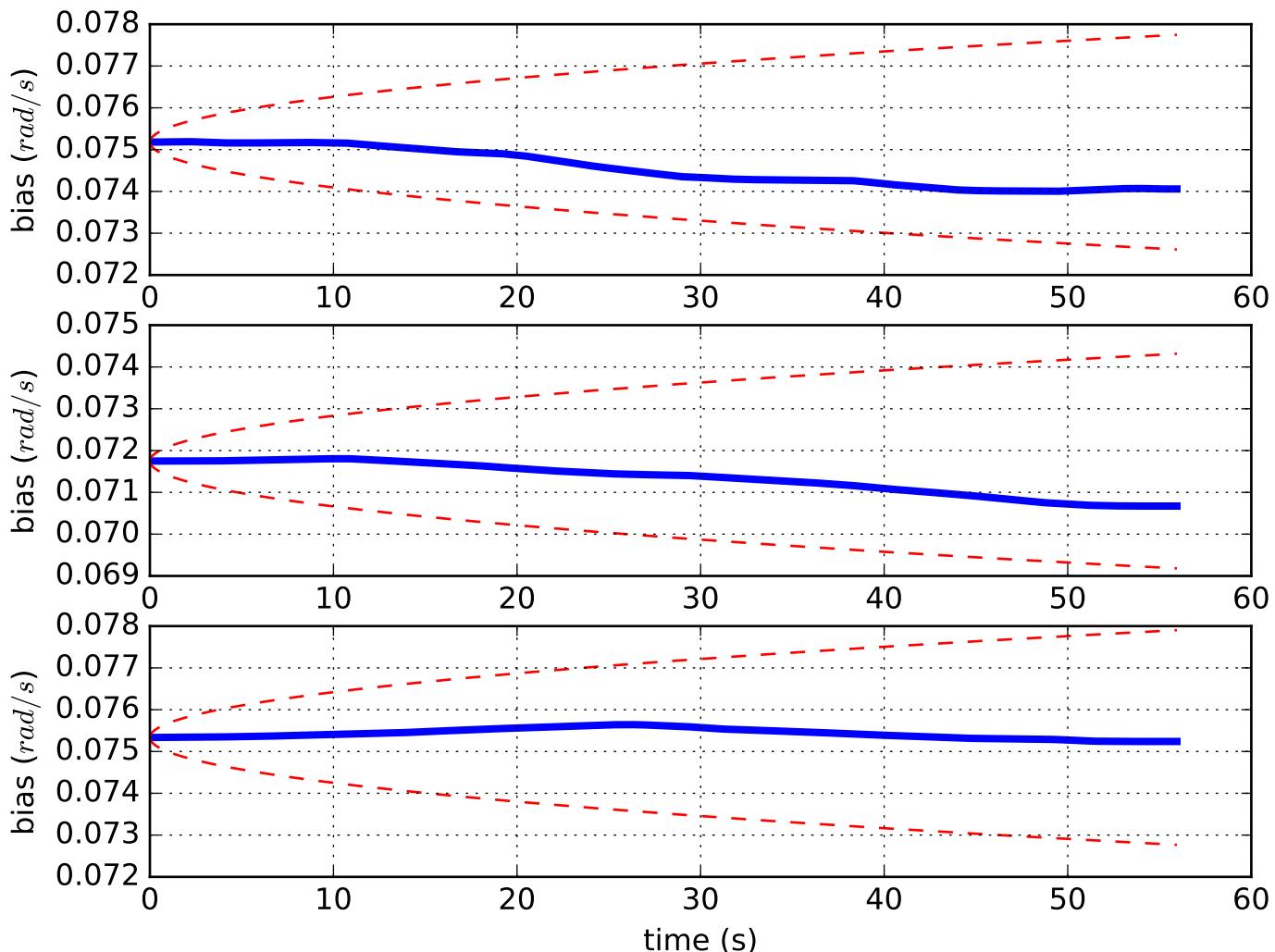
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

