

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.0452290160639, median 0.0414854020831, std: 0.0249229683156
Gyroscope error (imu0): mean 0.0753450551294, median 0.0524895380101, std: 0.0701397842936
Accelerometer error (imu0): mean 1.14795384089, median 0.26101038624, std: 1.80719018186

Residuals

Reprojection error (cam0) [px]: mean 0.0452290160639, median 0.0414854020831, std: 0.0249229683156
Gyroscope error (imu0) [rad/s]: mean 0.00532769994108, median 0.00371157082683, std: 0.0049596317
Accelerometer error (imu0) [m/s²]: mean 0.162345189076, median 0.036912442814, std: 0.25557528649

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.99997473 0.00110957 0.00702158 -0.04262972]
[-0.00104784 0.99996083 -0.00878848 -0.0063405]
[-0.00703106 0.0087809 0.99993673 -0.01062962]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.99997473 -0.00104784 -0.00703106 0.04254726]
[0.00110957 0.99996083 0.0087809 0.00648089]
[0.00702158 -0.00878848 0.99993673 0.01087256]
[0. 0. 0. 1.]]

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)
0.001242265201125741

Gravity vector in target coords: [m/s²]

[9.80416599 -0.20934799 0.05408847]

Calibration configuration

Camera model: pinhole
Focal length: [468.2527687453535, 468.3265694180005]
Principal point: [364.91196913276707, 215.81303741968622]
Distortion model: equidistant
Distortion coefficients: [0.011135829319036753, -0.05338166866546771, 0.15329931633590166, -0.1346
Type: checkerboard
Rows
 Count: 7
 Distance: 0.07 [m]
Cols
 Count: 6
 Distance: 0.07 [m]

IMU configuration

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IMU0:

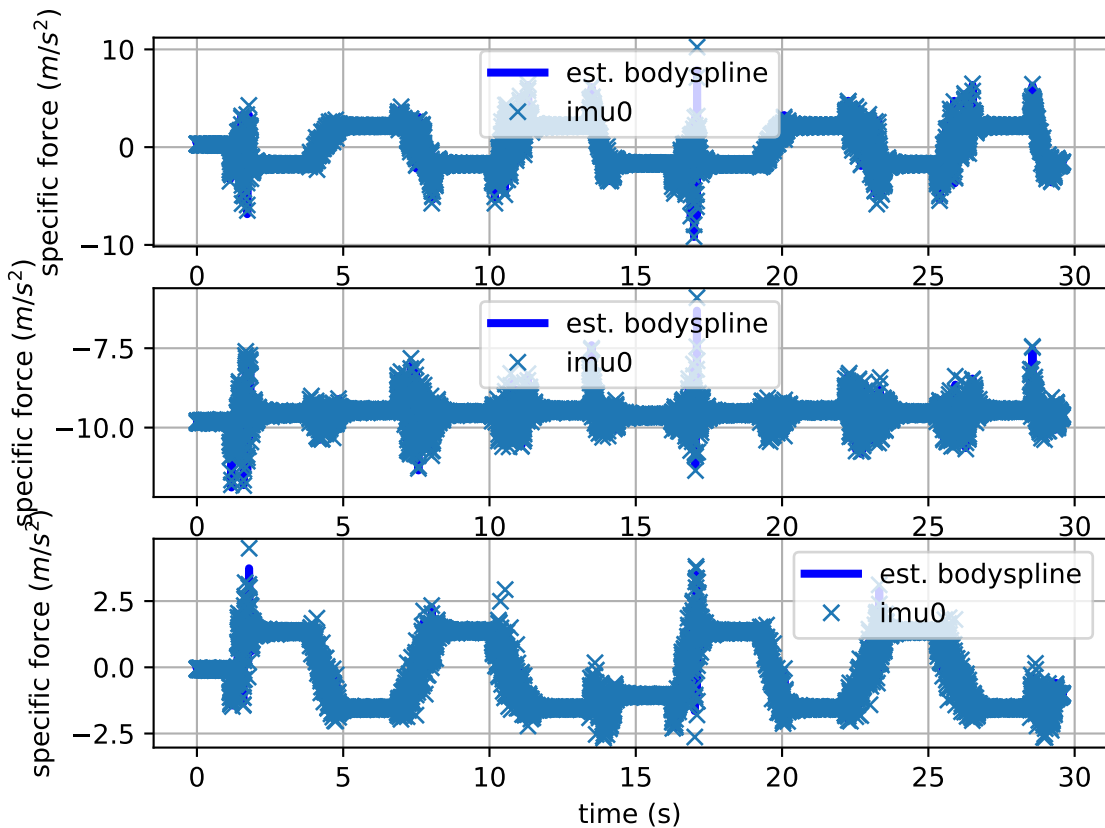
Model: calibrated
Update rate: 200.0
Accelerometer:
 Noise density: 0.01
 Noise density (discrete): 0.141421356237
 Random walk: 0.0002
Gyroscope:
 Noise density: 0.005
 Noise density (discrete): 0.0707106781187
 Random walk: 4e-06

T_i_b

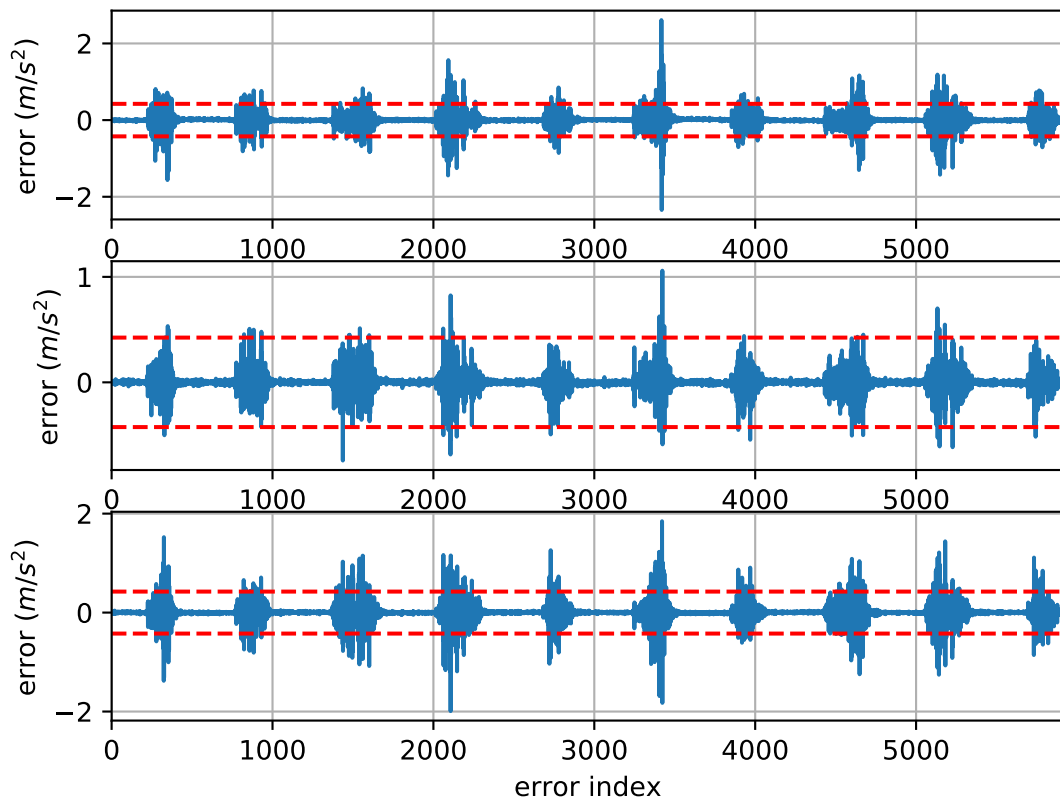
[[1. 0. 0. 0.]
[0. 1. 0. 0.]
[0. 0. 1. 0.]
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

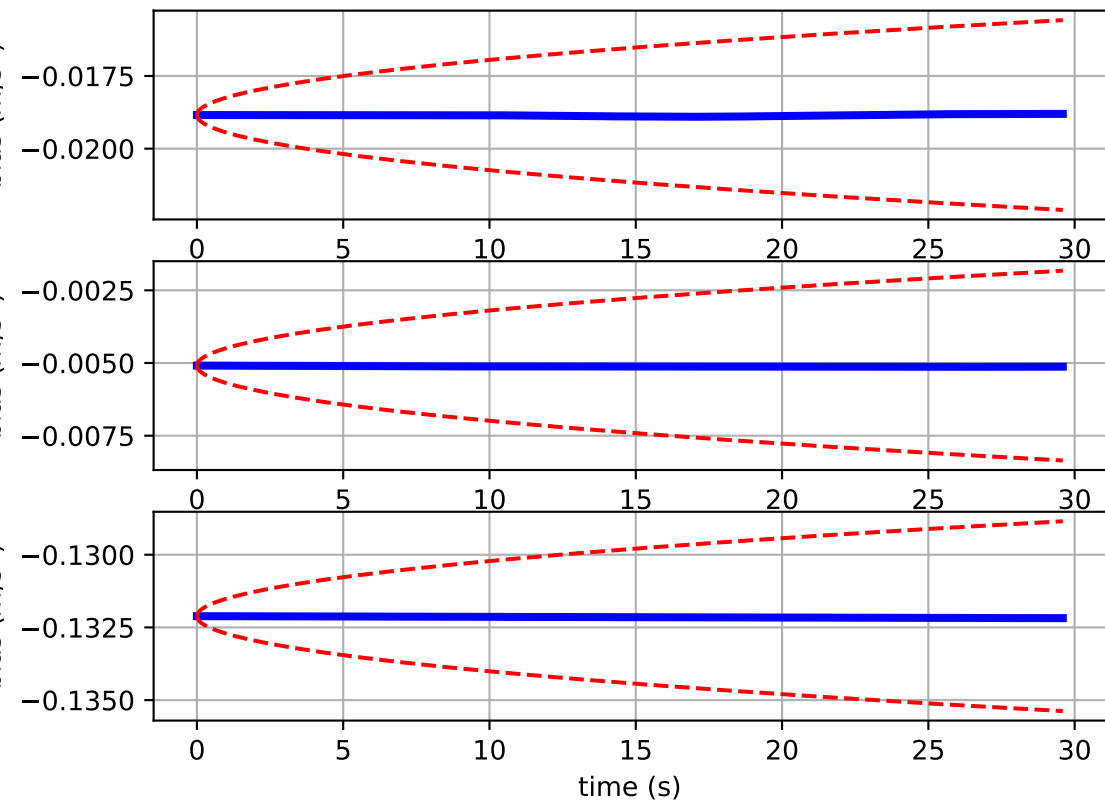
Comparison of predicted and measured specific force (imu0 frame)



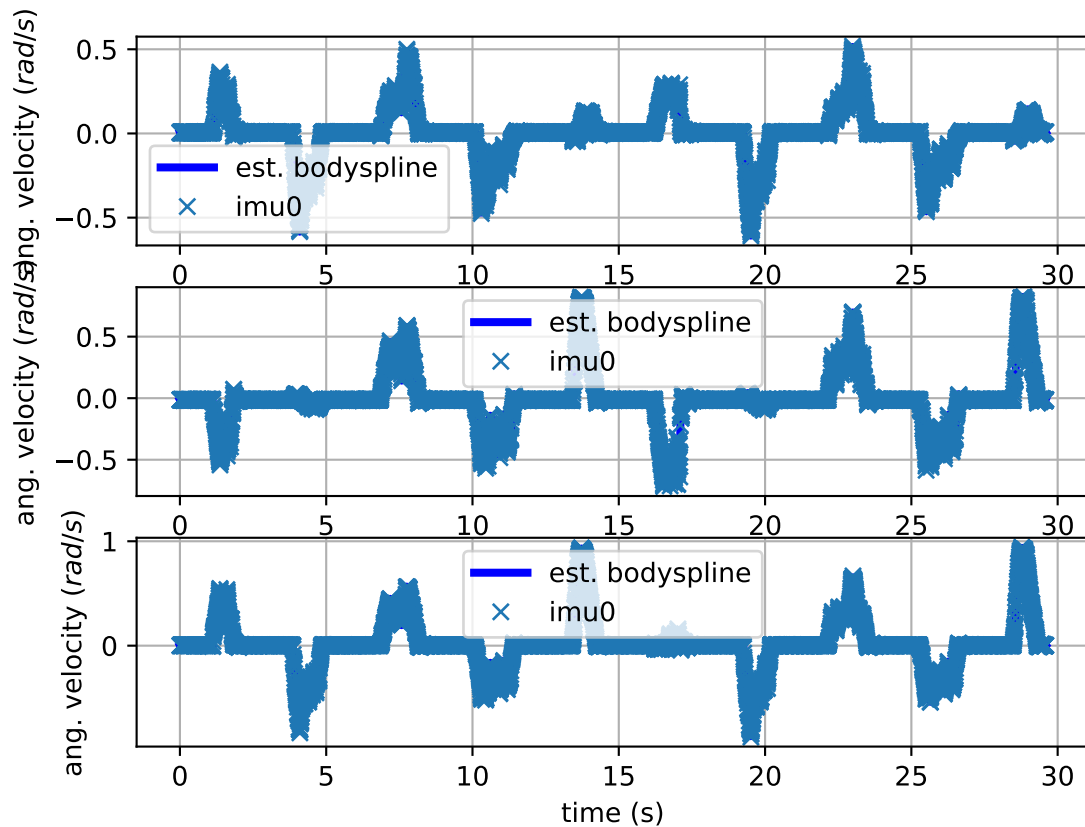
imu0: acceleration error



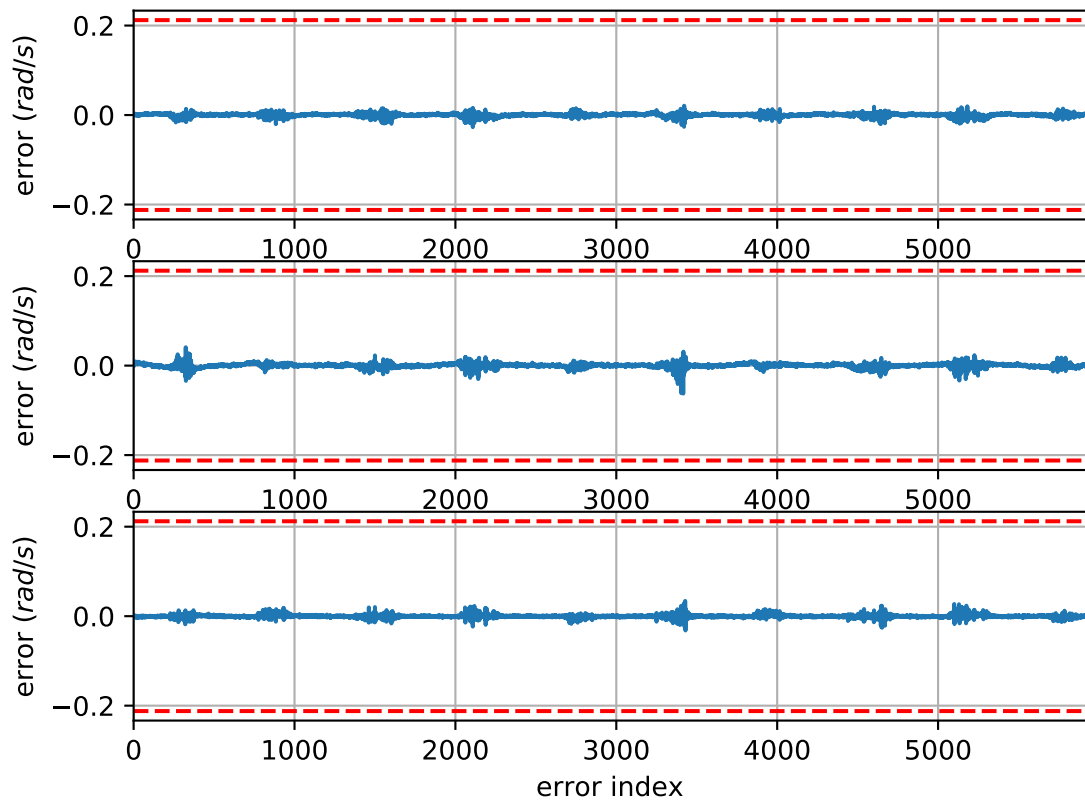
imu0: estimated accelerometer bias (imu frame)



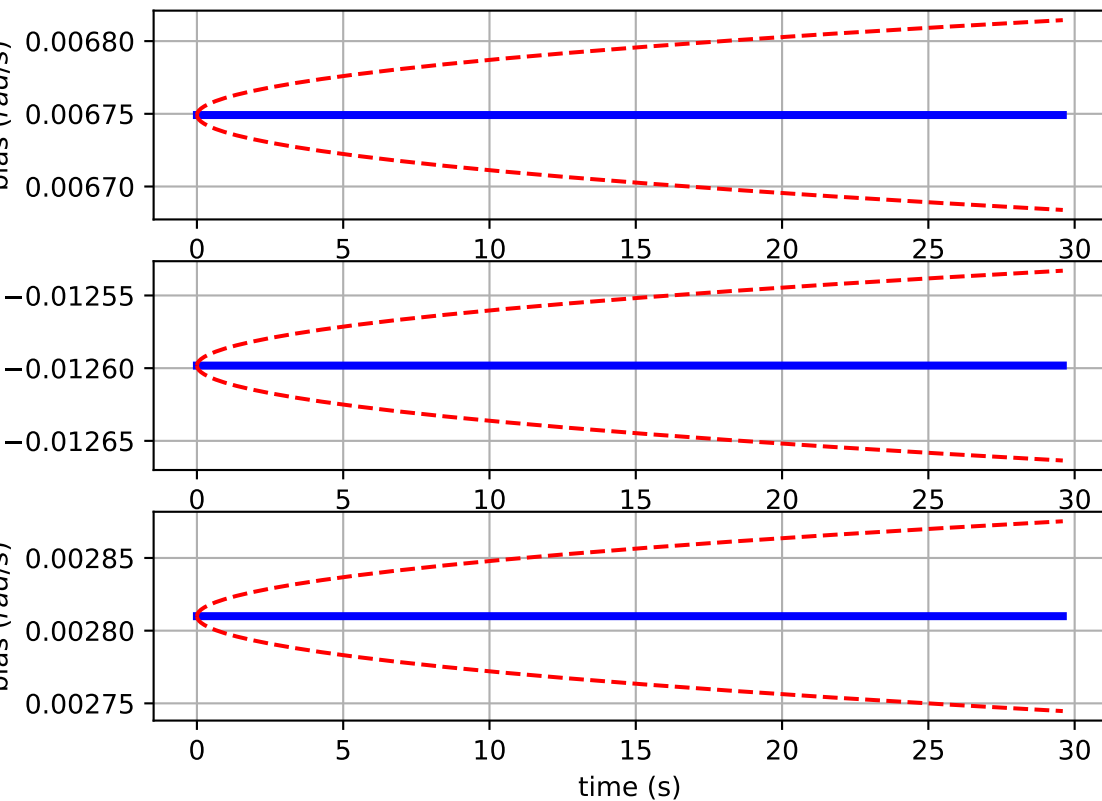
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

