

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.281310013404, median 0.277093498825, std: 0.130323420285

Gyroscope error (imu0): mean 0.251371783686, median 0.158399951402, std: 0.371379556586

Accelerometer error (imu0): mean 0.411134245396, median 0.204492214525, std: 1.67694087096

Residuals

Reprojection error (cam0) [px]: mean 0.281310013404, median 0.277093498825, std: 0.130323420285

Gyroscope error (imu0) [rad/s]: mean 0.00700601353561, median 0.00441478429794, std: 0.0103507647602

Accelerometer error (imu0) [m/s²]: mean 0.0573354257347, median 0.0285178097191, std: 0.233860642467

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.00060115 -0.99970357 -0.02433964 -0.00172517]

[0.03939356 0.02434443 -0.99892717 0.00306169]

[0.99922359 -0.00035832 0.03939652 -0.00410217]

[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.00060115 0.03939356 0.99922359 0.00397941]

[-0.99970357 0.02434443 -0.00035832 -0.00180066]

[-0.02433964 -0.99892717 0.03939652 0.00317803]

[0. 0. 0. 1.]]

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

0.0155880876361

Gravity vector in target coords: [m/s²]

[0.51693748 -9.79176444 0.15015909]

Calibration configuration

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cam0

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:

Model: calibrated

Update rate: 200.0

Accelerometer:

Noise density: 0.00986107793092

Noise density (discrete): 0.139456701495

Random walk: 7.56931671061e-05

Gyroscope:

Noise density: 0.00197078590424

Noise density (discrete): 0.0278711215431

Random walk: 3.17837776123e-05

T_ib (imu0 to imu0)

[[1. 0. 0. 0.]

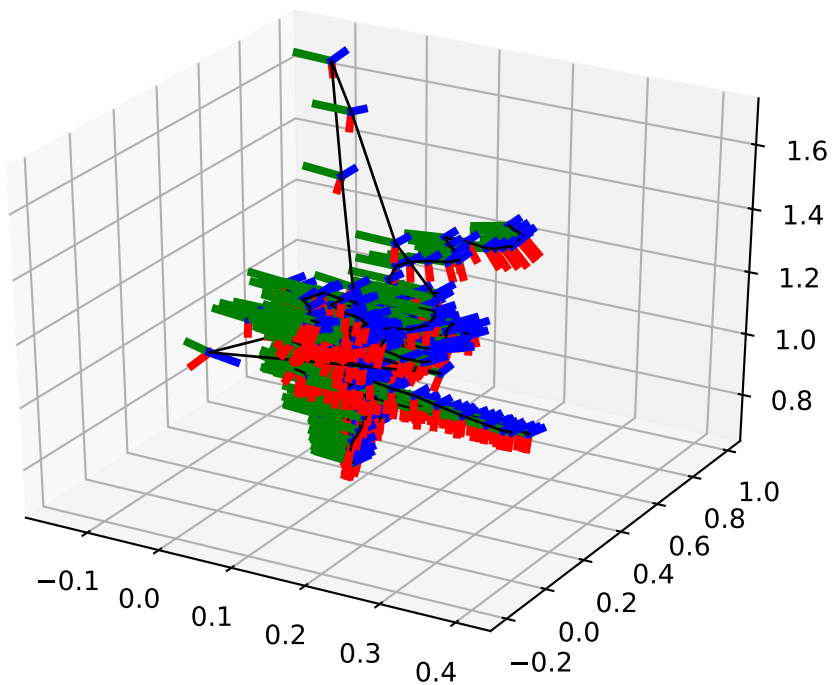
[0. 1. 0. 0.]

[0. 0. 1. 0.]

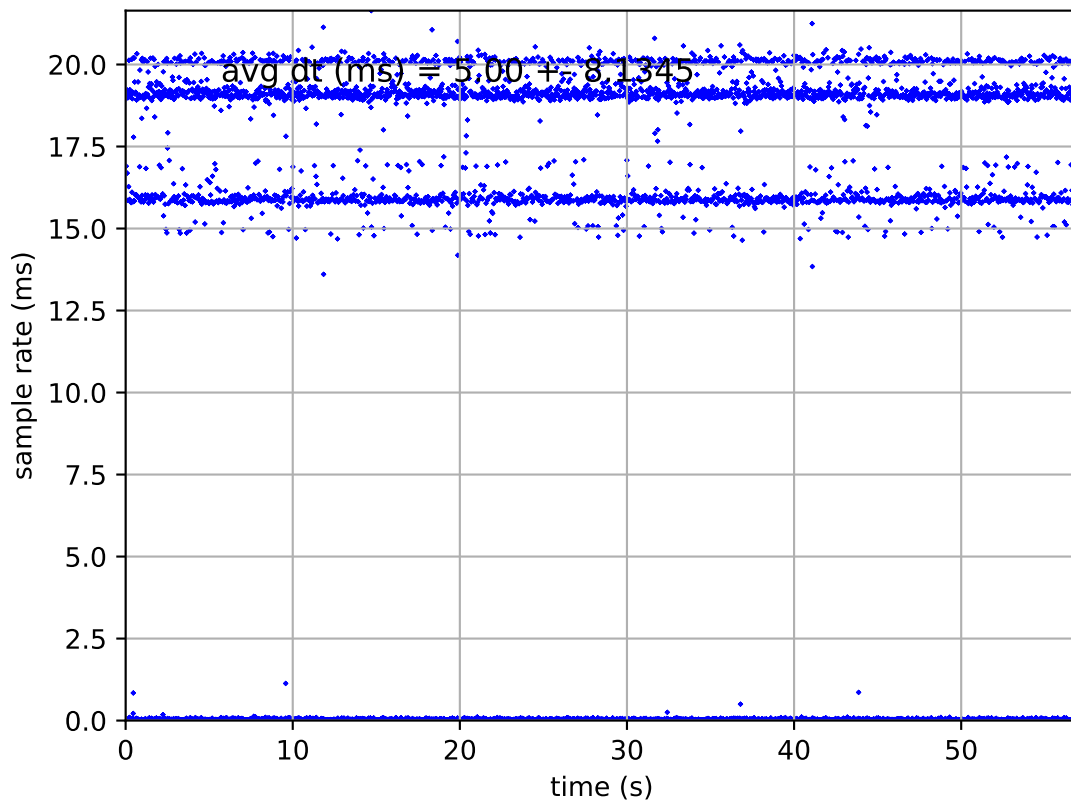
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

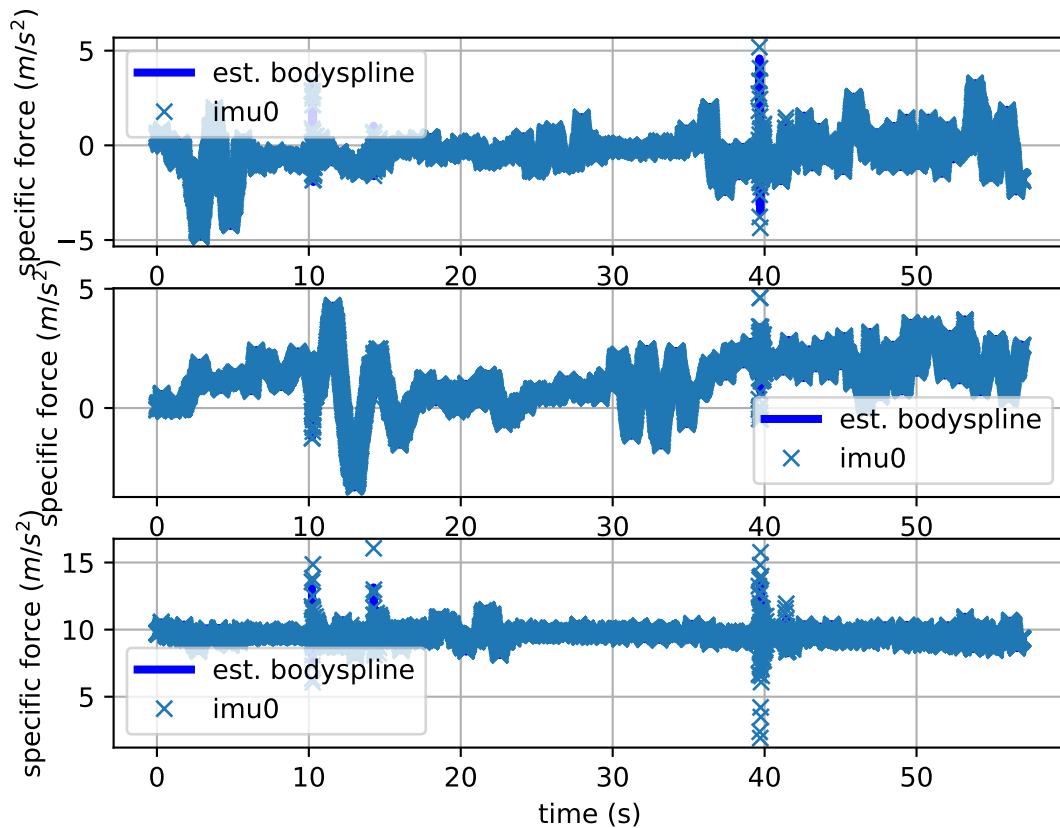
imu0: estimated poses



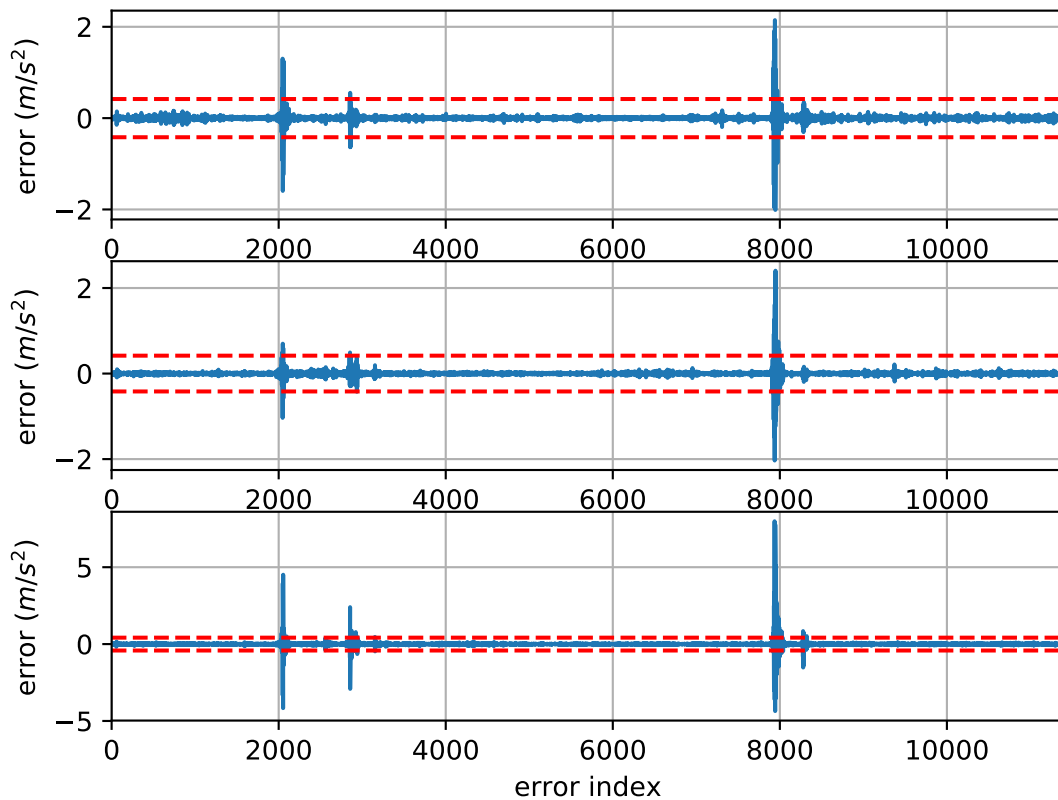
imu0: sample inertial rate



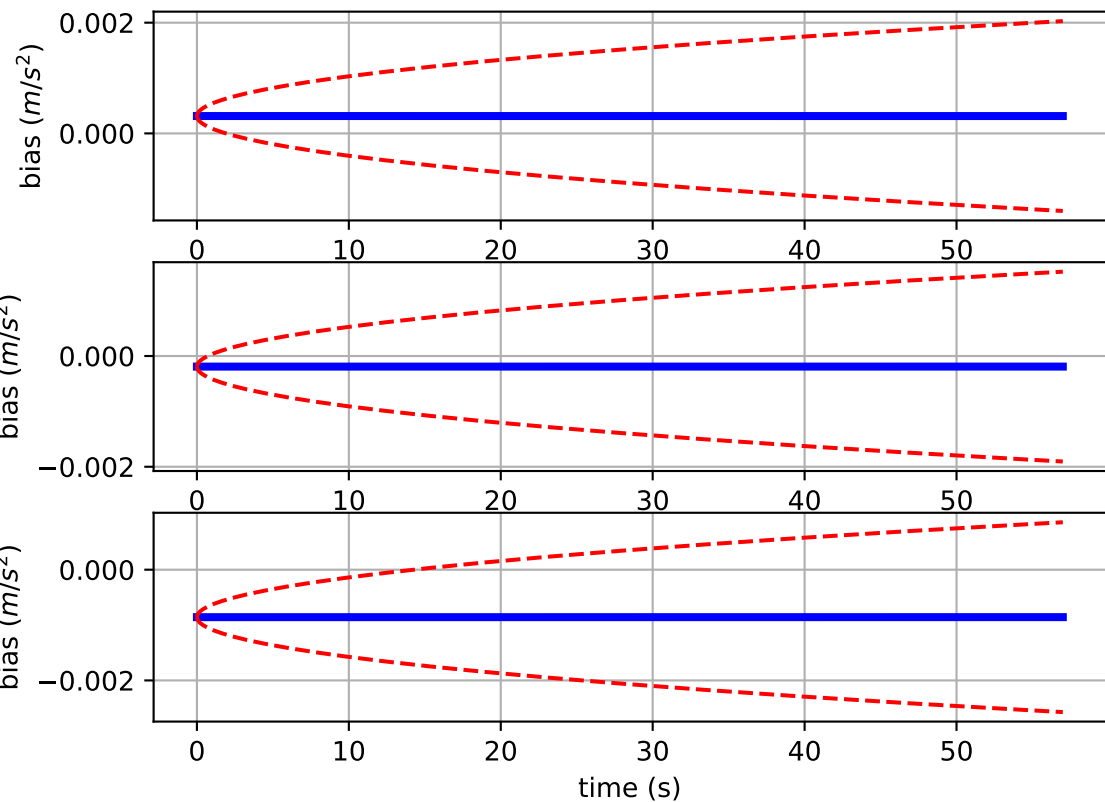
Comparison of predicted and measured specific force (imu0 frame)



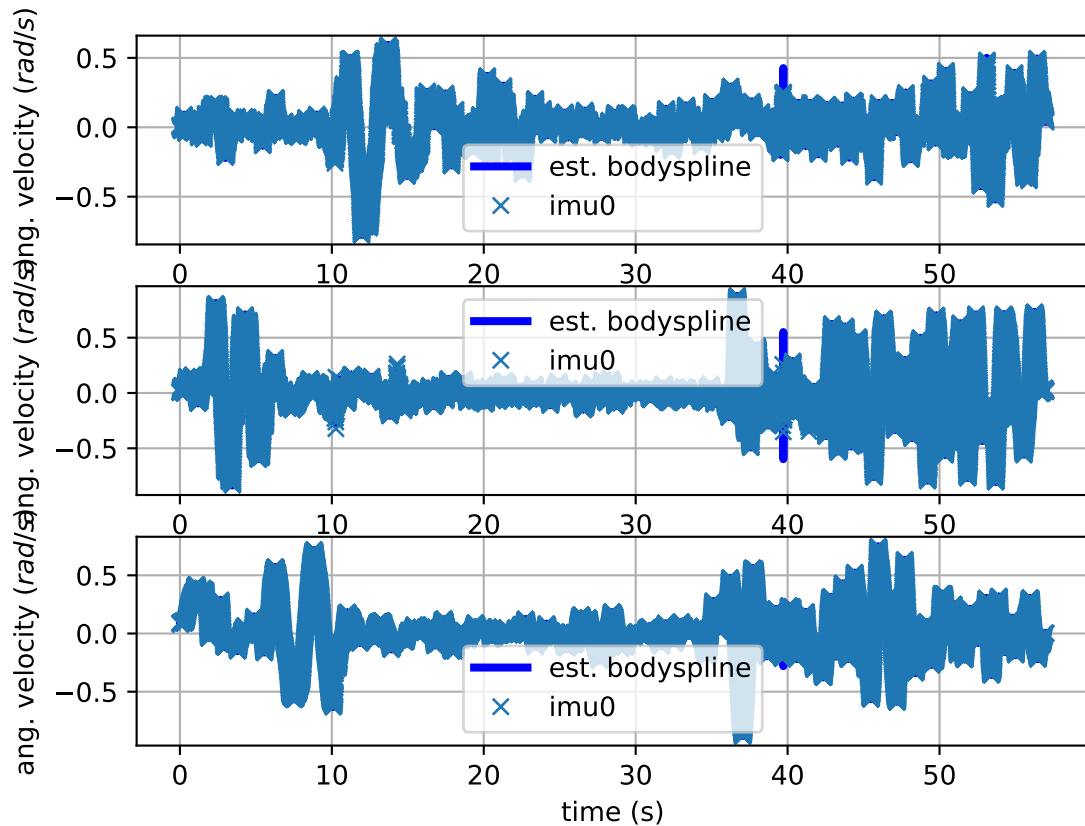
imu0: acceleration error



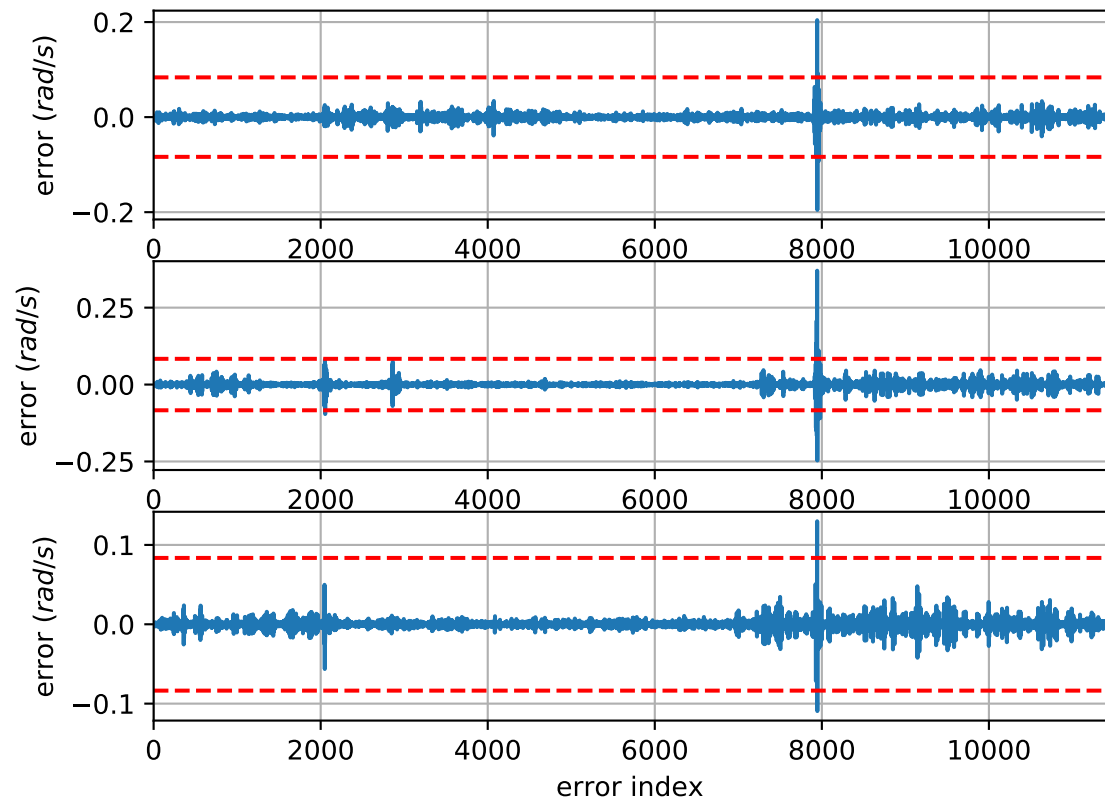
imu0: estimated accelerometer bias (imu frame)



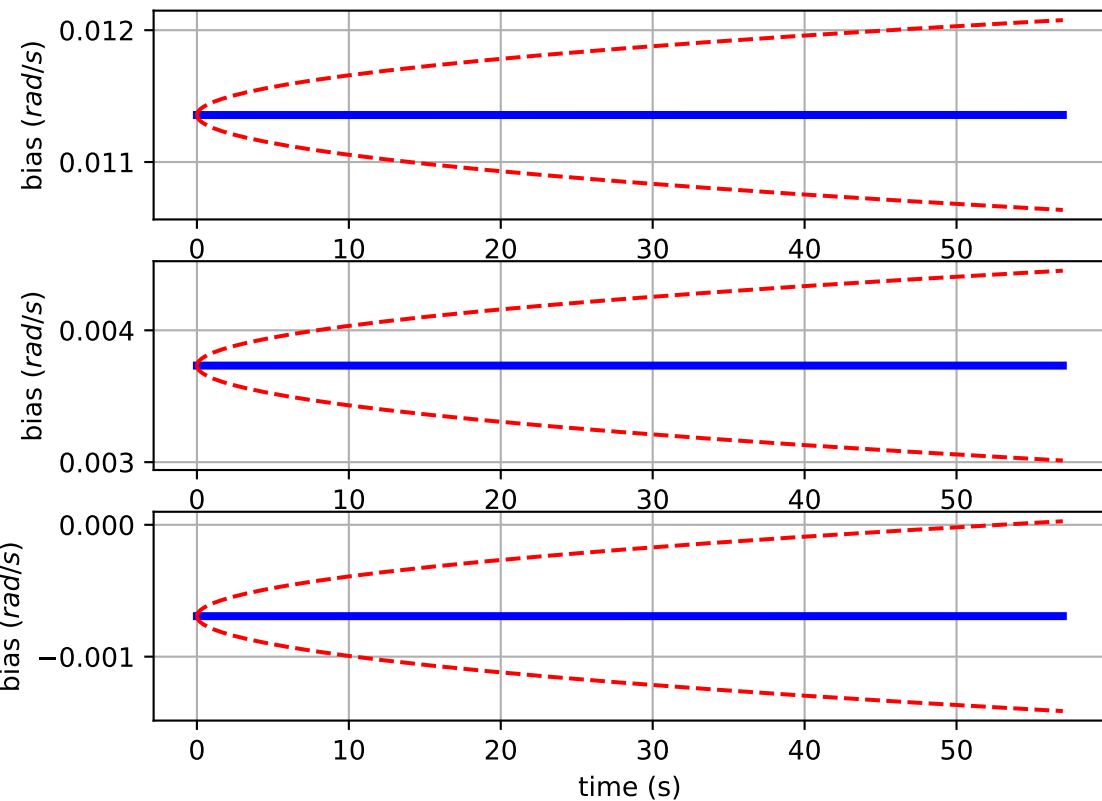
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

