

Calibration results

=====

Normalized Residuals

Reprojection error (cam0): mean 0.856335, median 0.542942, std: 0.943177
Gyroscope error (imu0): mean 14.257694, median 12.266507, std: 12.334019
Accelerometer error (imu0): mean 0.476074, median 0.373683, std: 0.367102

Residuals

Reprojection error (cam0) [px]: mean 0.856335, median 0.542942, std: 0.943177
Gyroscope error (imu0) [rad/s]: mean 0.002348, median 0.002020, std: 0.002031
Accelerometer error (imu0) [m/s²]: mean 0.067327, median 0.052847, std: 0.051916

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.007938 -0.999956 -0.004901 0.018893]

[-0.004177 0.004868 -0.999979 -0.000358]

[0.999996 0.007958 -0.004138 -0.036011]

[0. 0. 0. 1.]]

euler: [0.553118 -1.561467 -1.021836] rad(YZX) [31.691334 -89.465484 -58.546902] deg(YZX) quad: [-0.501799

0.500267 -0.495746 0.502162]

t: [0.018893 -0.000358 -0.036011] m

T_ic: (cam0 to imu0):

[[0.007938 -0.004177 0.999996 0.035858]

[-0.999956 0.004868 0.007958 0.01918]

[-0.004901 -0.999979 -0.004138 -0.000415]

[0. 0. 0. 1.]]

euler: [-1.562858 -0.004177 1.565928] rad(YZX) [-89.545183 -0.239343 89.72109] deg(YZX) quad: [0.501799

-0.500267 0.495746 0.502162]

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

0.006955108921446355

Gravity vector in target coords: [m/s^2]
[-9.619694 -0.301889 -1.881161]

Calibration configuration

=====

cam0

Camera model: pinhole
Focal length: [478.10736083984375, 478.10736083984375]
Principal point: [315.911376953125, 175.01486206054688]
Distortion model: radtan
Distortion coefficients: [0.0, 0.0, 0.0, 0.0]
Type: checkerboard
Rows
Count: 5
Distance: 0.04225 [m]
Cols
Count: 8
Distance: 0.04225 [m]

IMU configuration

=====

IMU0:

Model: calibrated
Update rate: 200.0
Accelerometer:
Noise density: 0.01
Noise density (discrete): 0.1414213562373095
Random walk: 0.0009473501575154749

Gyroscope:

Noise density: 1.1643431462054363e-05

Noise density (discrete): 0.00016466298686198874

Random walk: 4.613602053277946e-07

T_ib (imu0 to imu0)

[[1. 0. 0. 0.]

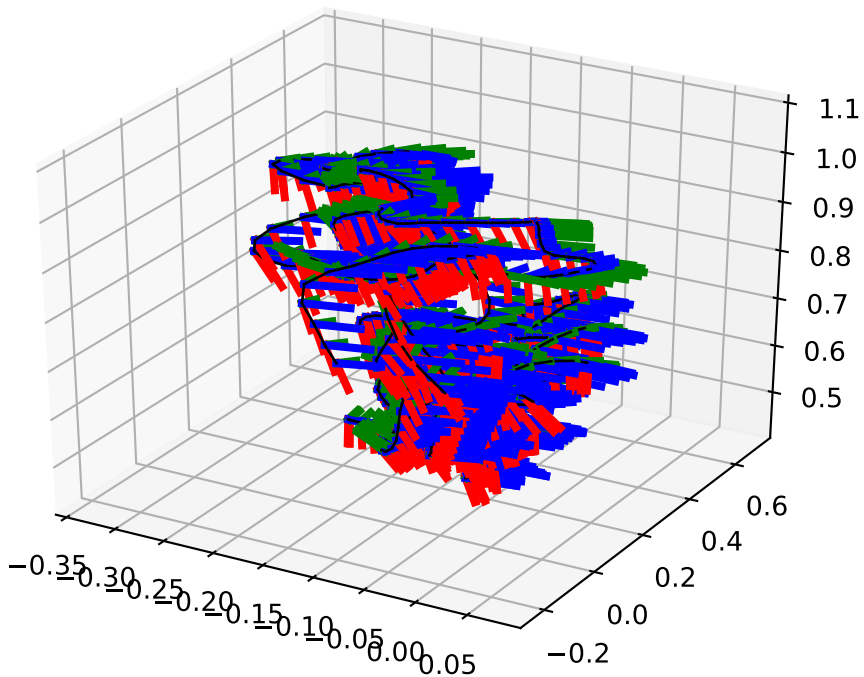
[0. 1. 0. 0.]

[0. 0. 1. 0.]

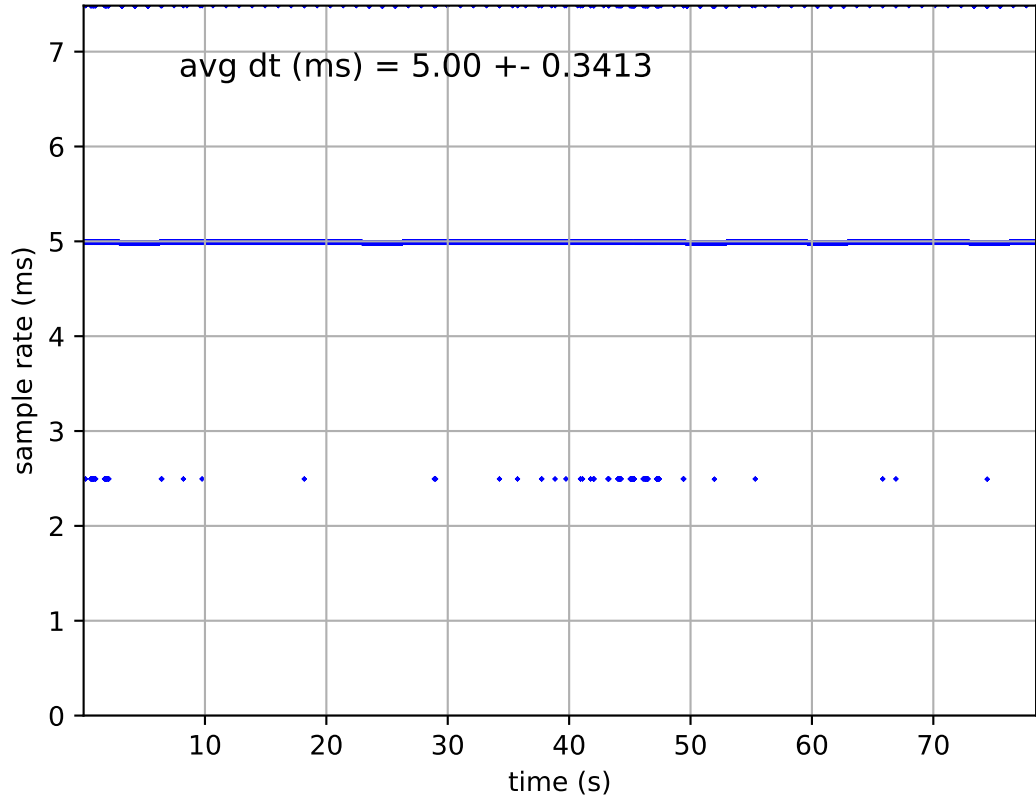
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

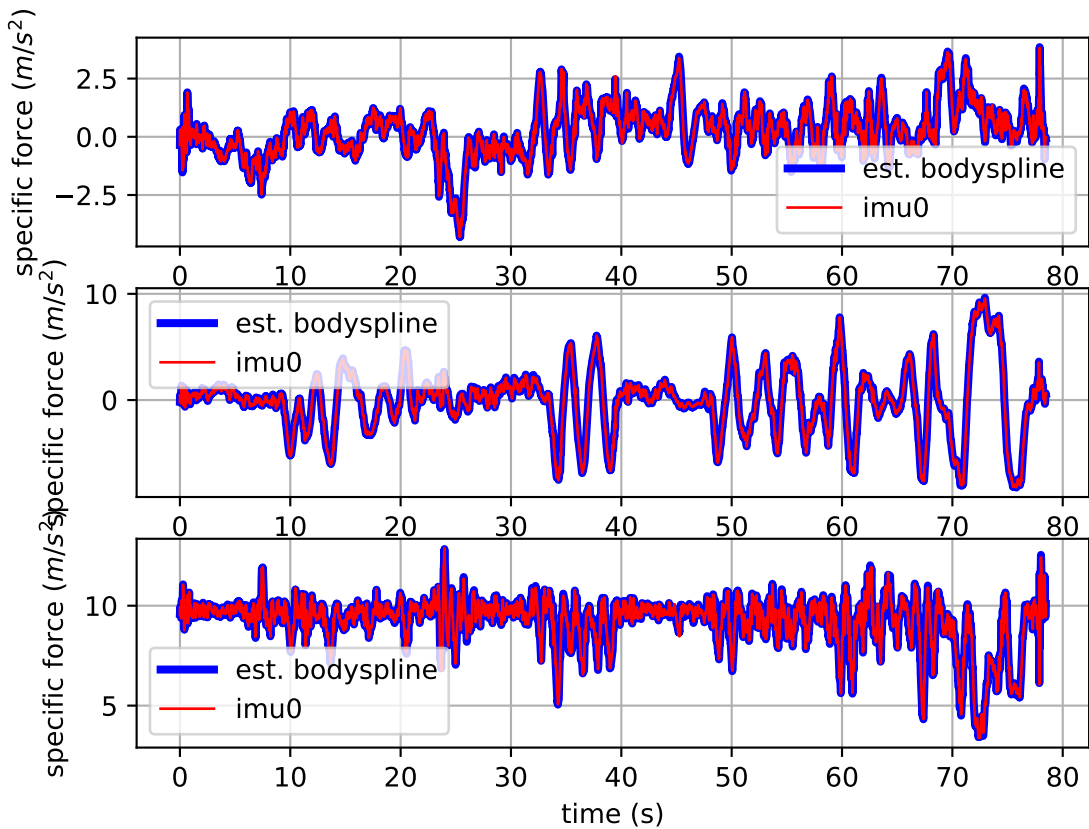
imu0: estimated poses



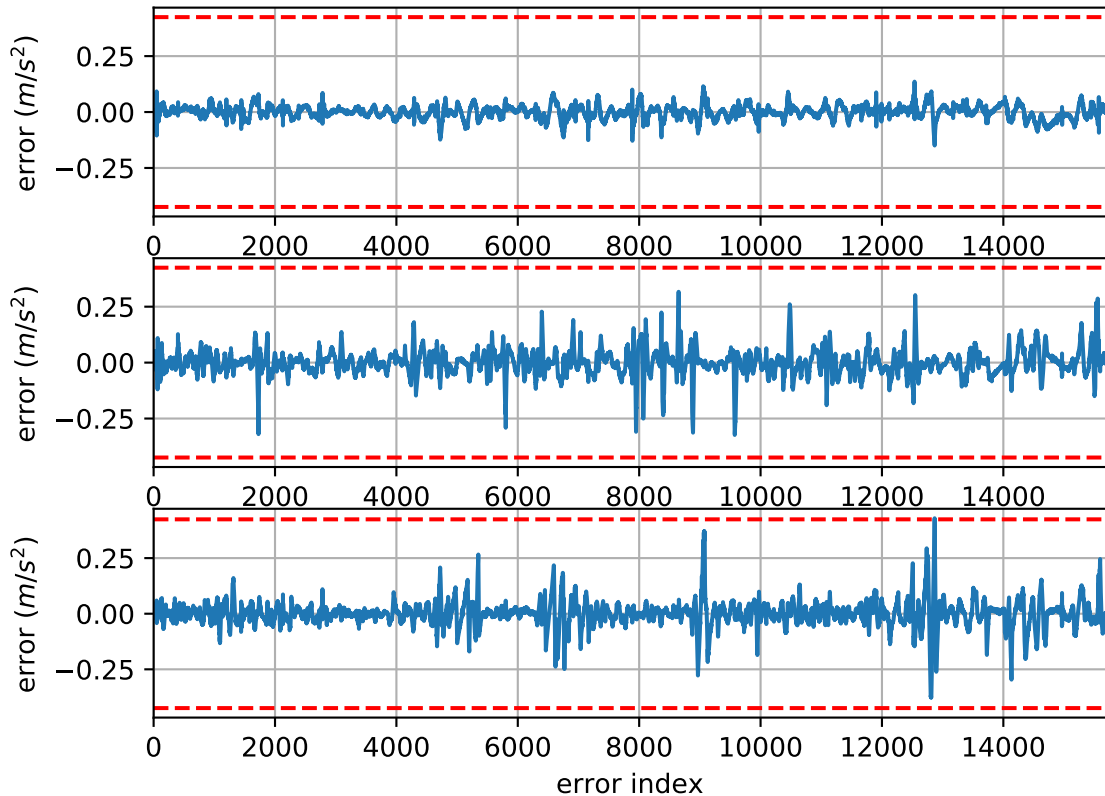
imu0: sample inertial rate



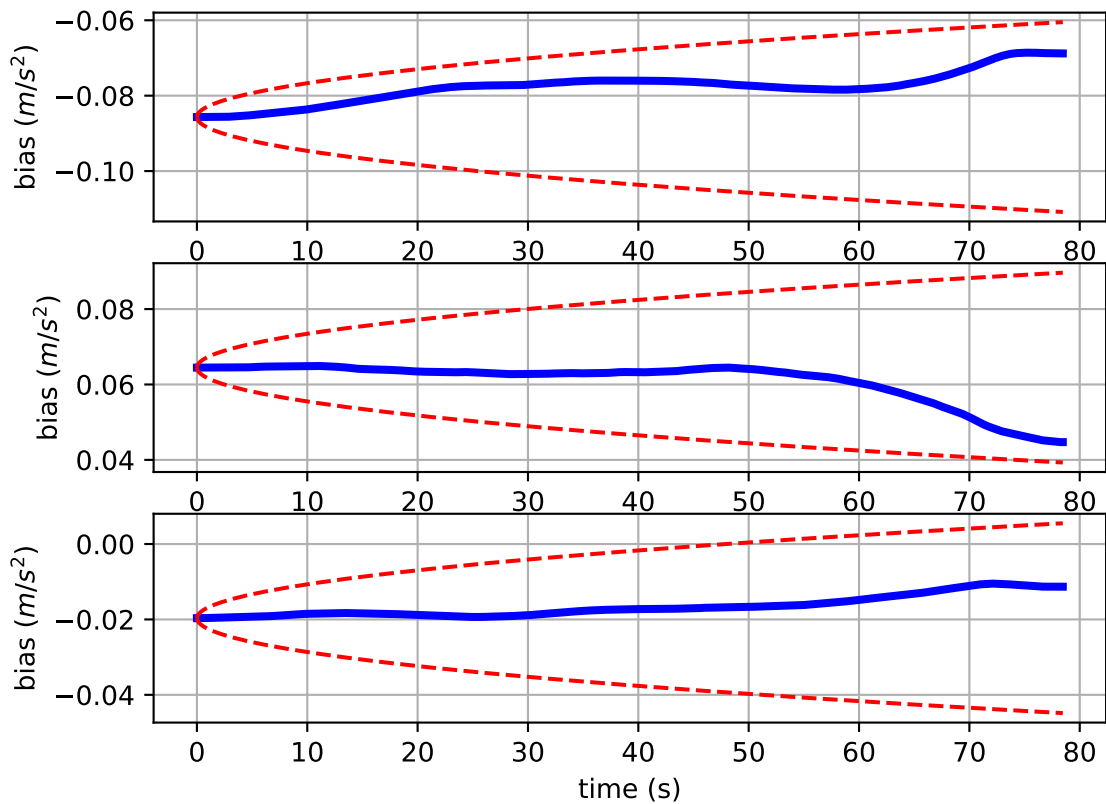
Comparison of predicted and measured specific force (imu0 frame)



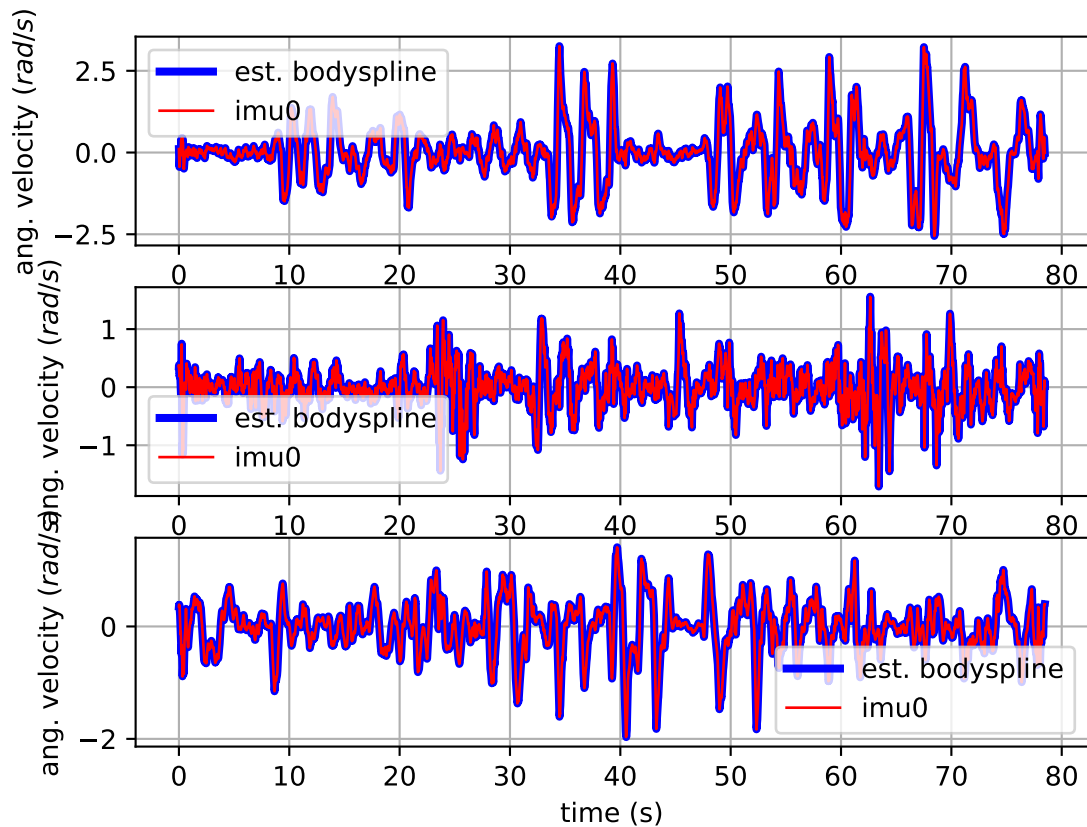
imu0: acceleration error



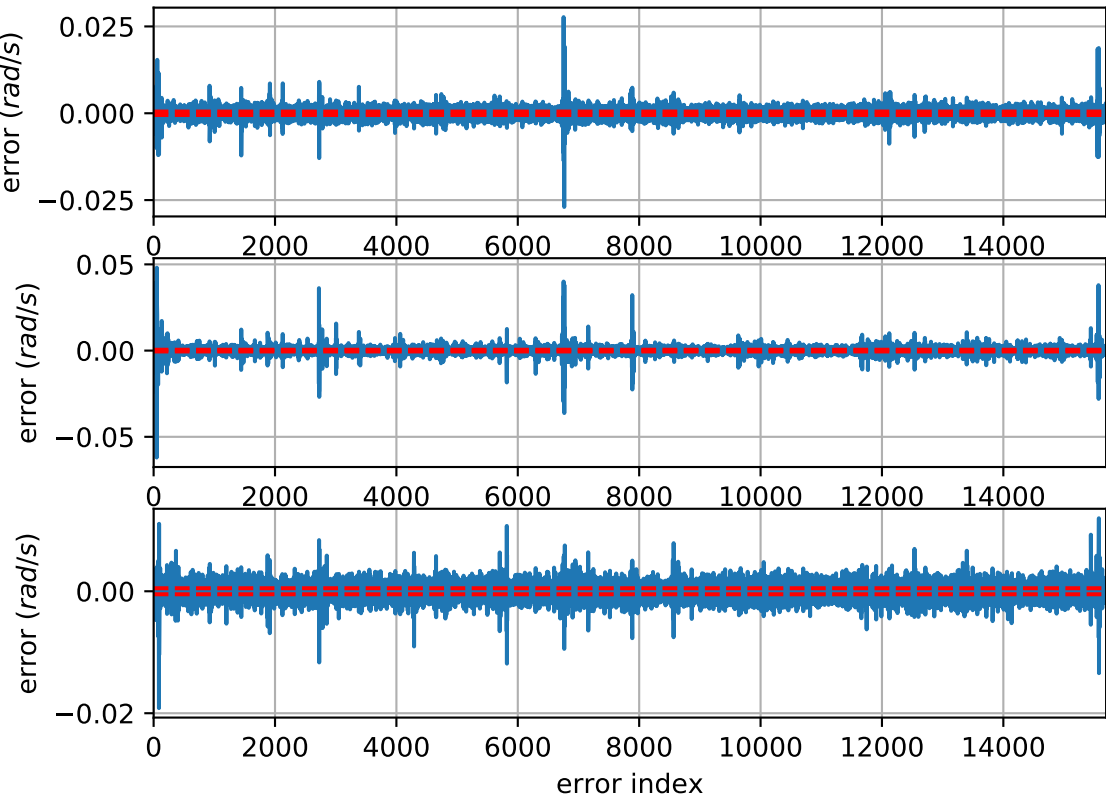
imu0: estimated accelerometer bias (imu frame)



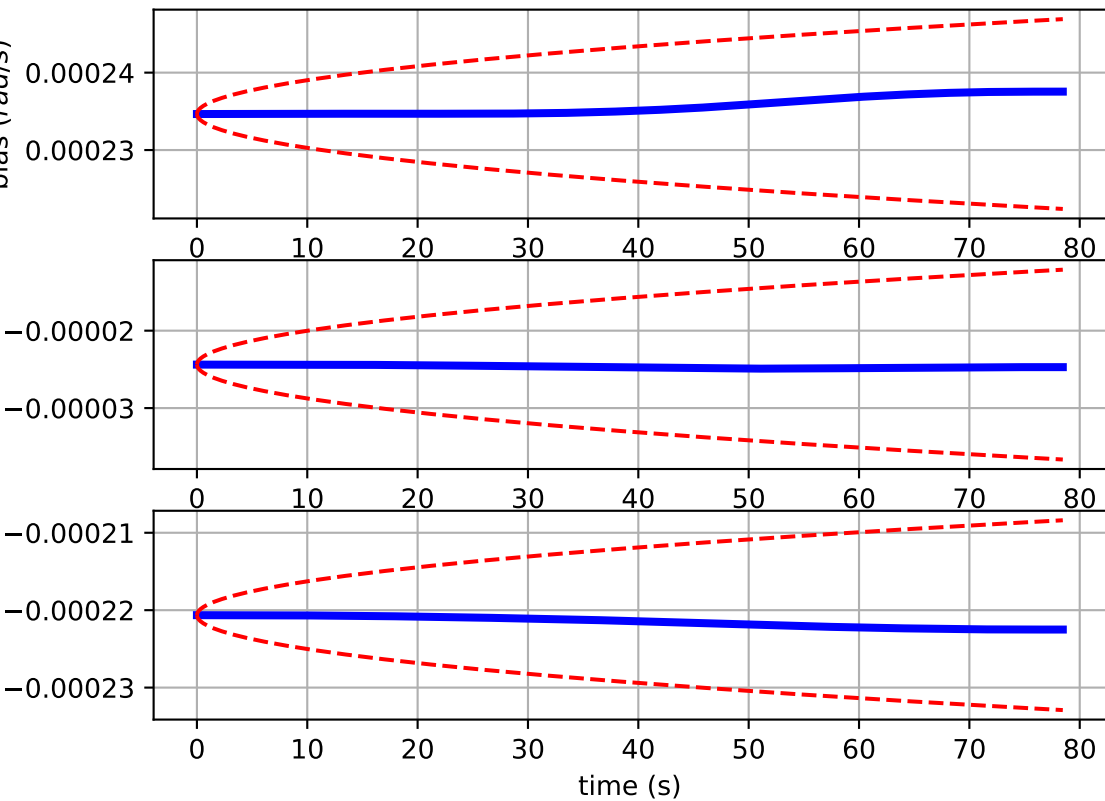
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

