

## Calibration results

=====

### Normalized Residuals

Reprojection error (cam0): mean 0.30696548997836565, median 0.22736209459040677, std: 0.27558545923957095  
Gyroscope error (imu0): mean 0.5207052497474107, median 0.36664902707467684, std: 0.4543157108921081  
Accelerometer error (imu0): mean 0.4816351510994398, median 0.35340791128695537, std: 0.44893512316740786

### Residuals

Reprojection error (cam0) [px]: mean 0.30696548997836565, median 0.22736209459040677, std:  
0.27558545923957095  
Gyroscope error (imu0) [rad/s]: mean 0.0022450870742053044, median 0.0015808540279834212, std:  
0.0019588401127644626  
Accelerometer error (imu0) [m/s<sup>2</sup>]: mean 0.1304704984456038, median 0.09573492764175125, std:  
0.12161236395575523

### Transformation (cam0):

T\_ci: (imu0 to cam0):

[[-0.49091339 -0.87095748 0.02090719 -0.0217842 ]  
[-0.01506087 -0.01551019 -0.99976627 -0.03628775]  
[ 0.87107819 -0.49111353 -0.00550322 -0.05667842]  
[ 0. 0. 0. 1. ]]

T\_ic: (cam0 to imu0):

[[-0.49091339 -0.01506087 0.87107819 0.03813065]  
[-0.87095748 -0.01551019 -0.49111353 -0.04737149]  
[ 0.02090719 -0.99976627 -0.00550322 -0.03613574]  
[ 0. 0. 0. 1. ]]

timeshift cam0 to imu0: [s] (t\_imu = t\_cam + shift)  
-0.0010401357321229623

Gravity vector in target coords: [m/s<sup>2</sup>]

[ 0.00563714 -9.7308541 -1.21608779]

## Calibration configuration

=====

cam0

-----

Camera model: pinhole

Focal length: [402.1174035535856, 402.1152411421357]

Principal point: [324.5147560075993, 244.2856592964756]

Distortion model: radtan

Distortion coefficients: [-0.35070046060377746, 0.11337663311886138, -0.0010909795133790443,  
0.00025398293348416544]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.088 [m]

Spacing 0.026399999999999996 [m]

## IMU configuration

=====

IMU0:

-----

Model: calibrated

Update rate: 100

Accelerometer:

Noise density: 0.02708907316

Noise density (discrete): 0.2708907316

Random walk: 0.00264054372

Gyroscope:

Noise density: 0.00043116275

Noise density (discrete): 0.0043116275

Random walk: 5.597187e-05

T\_ib (imu0 to imu0)

[[1. 0. 0. 0.]

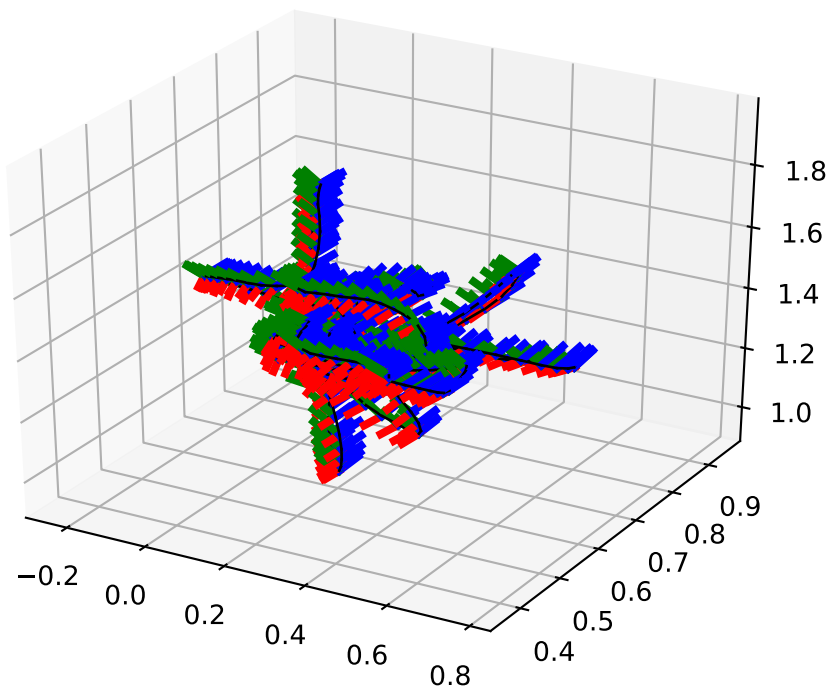
[0. 1. 0. 0.]

[0. 0. 1. 0.]

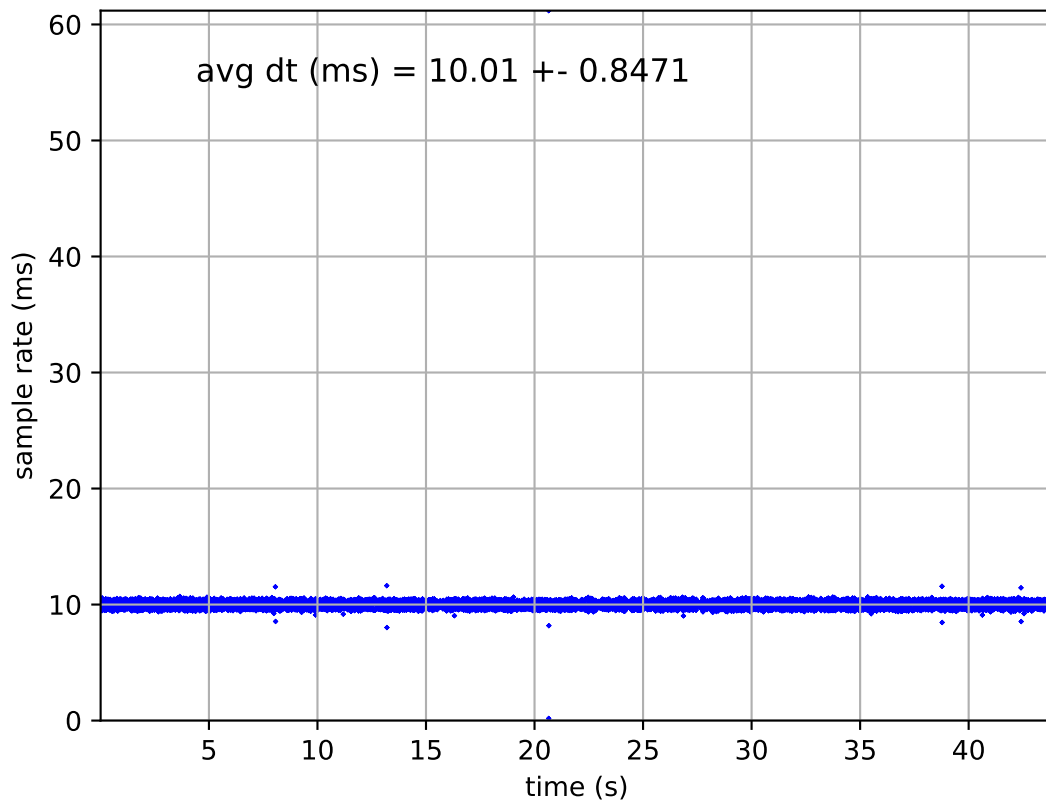
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

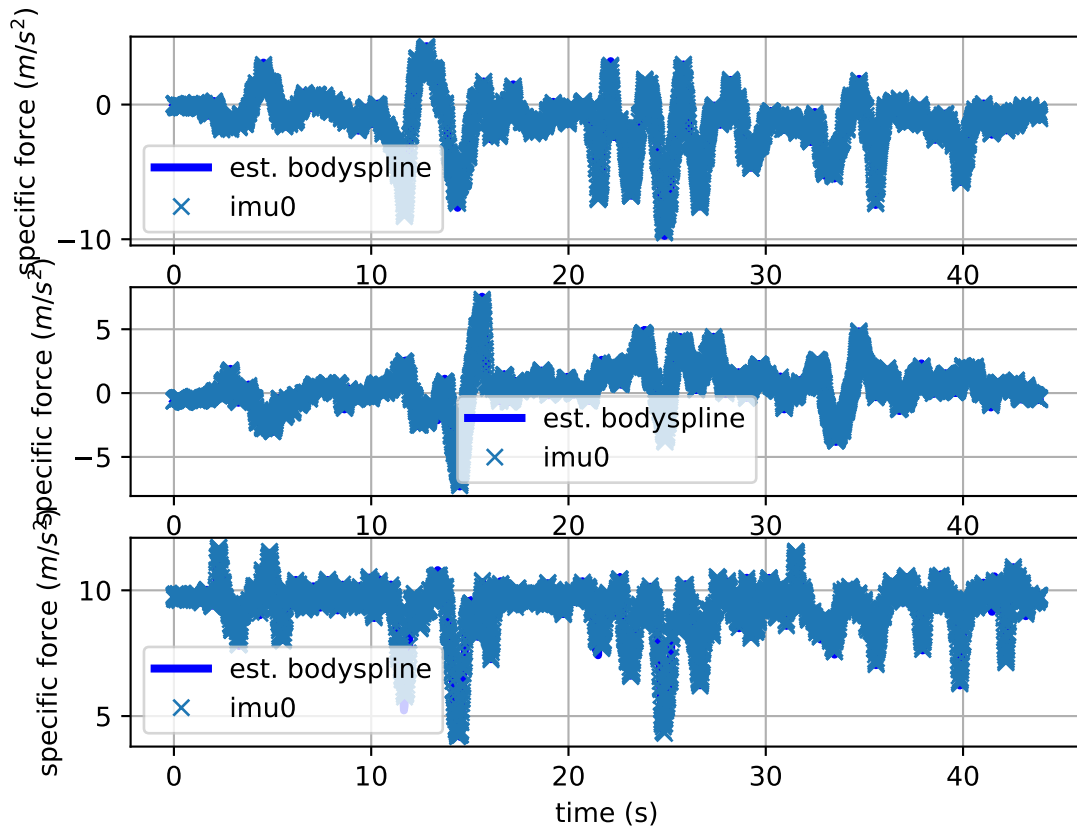
imu0: estimated poses



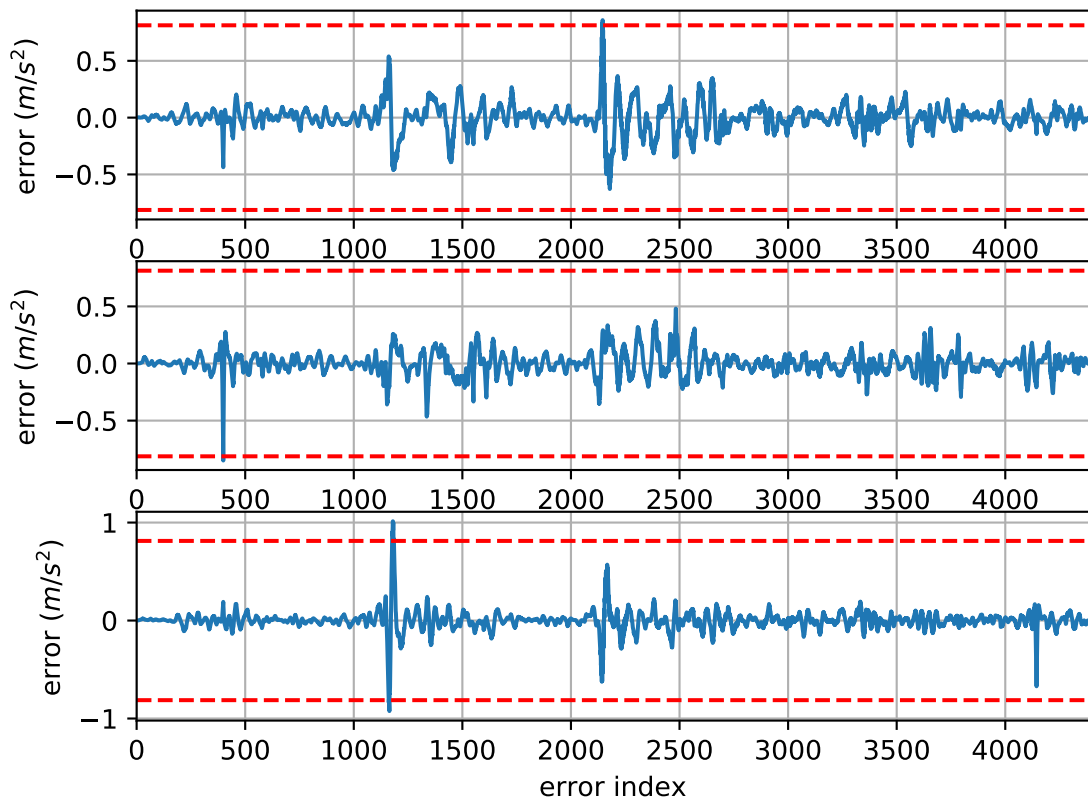
# imu0: sample inertial rate



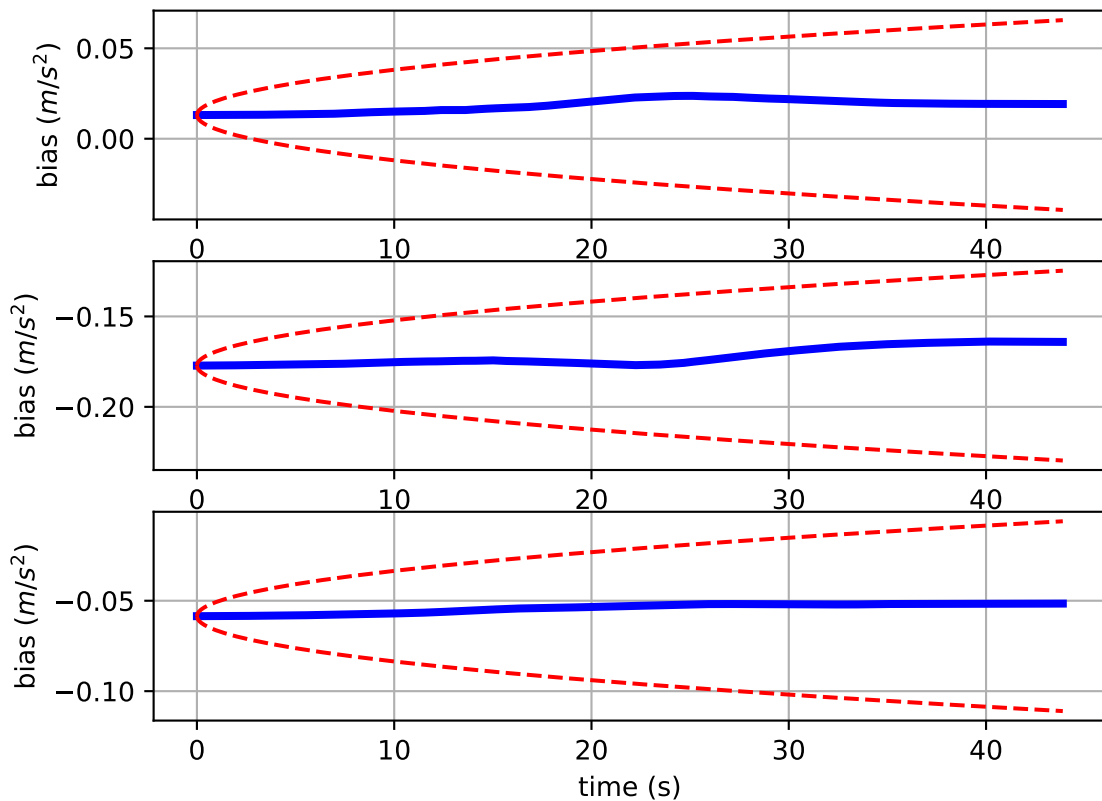
# Comparison of predicted and measured specific force (imu0 frame)



imu0: acceleration error

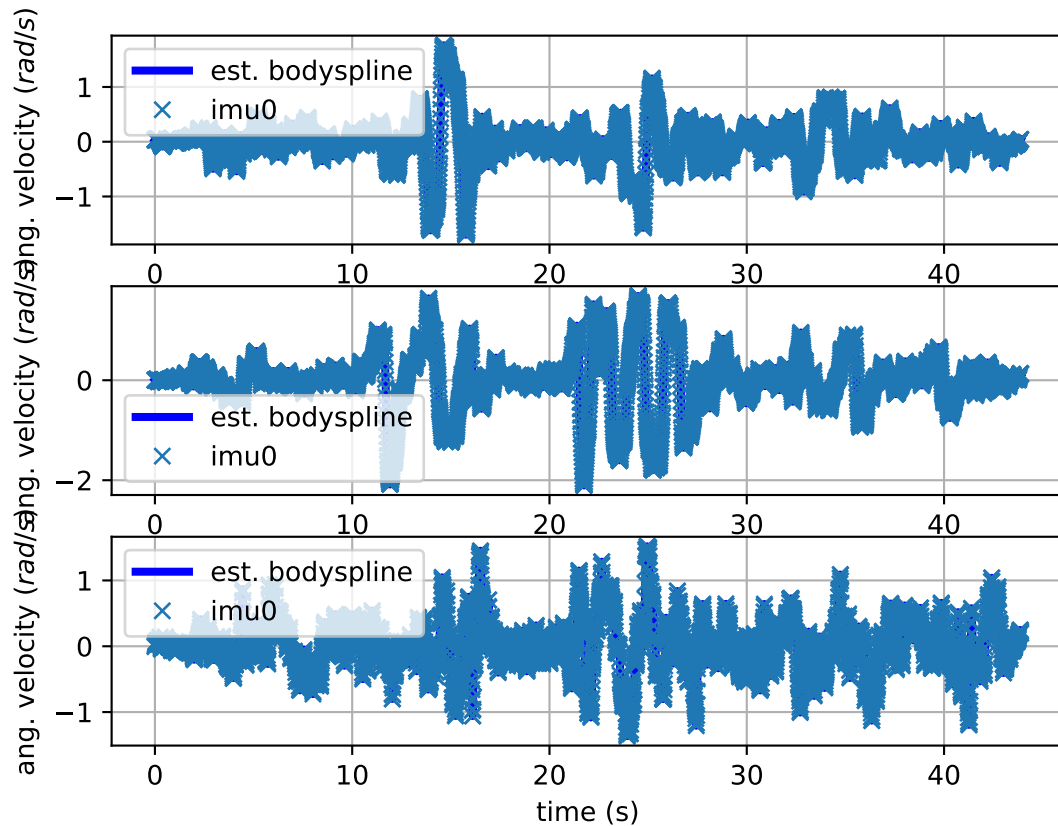


imu0: estimated accelerometer bias (imu frame)

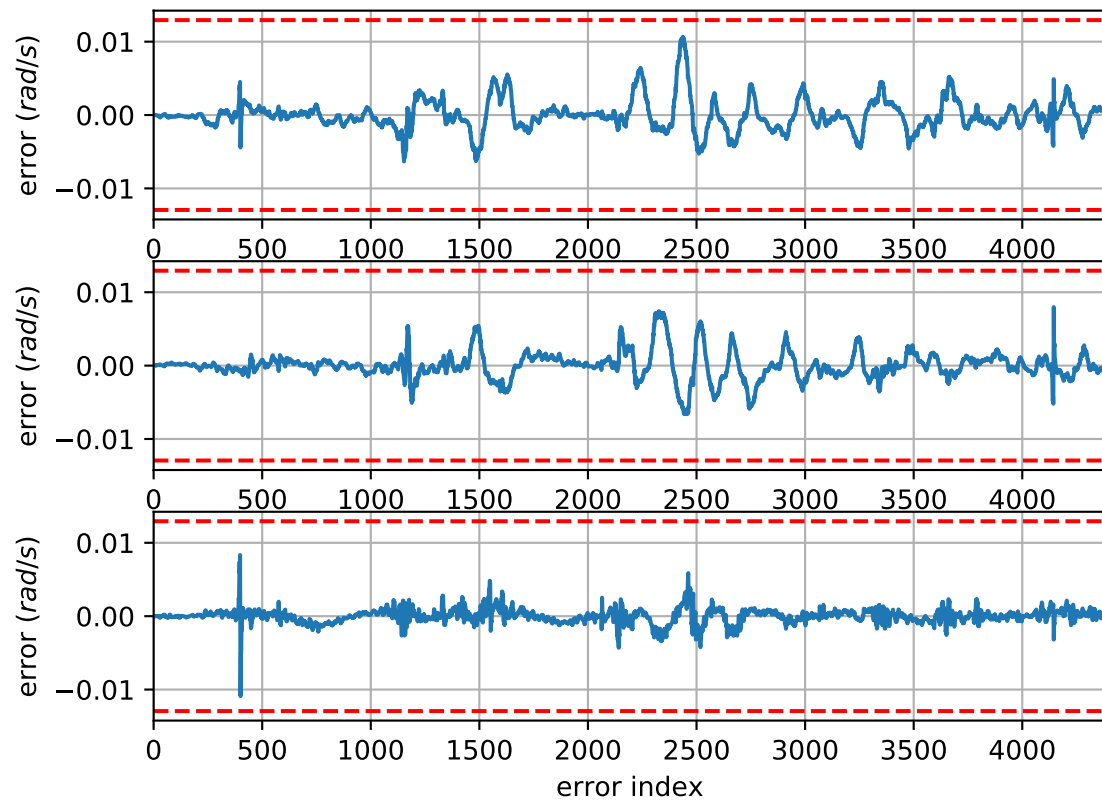




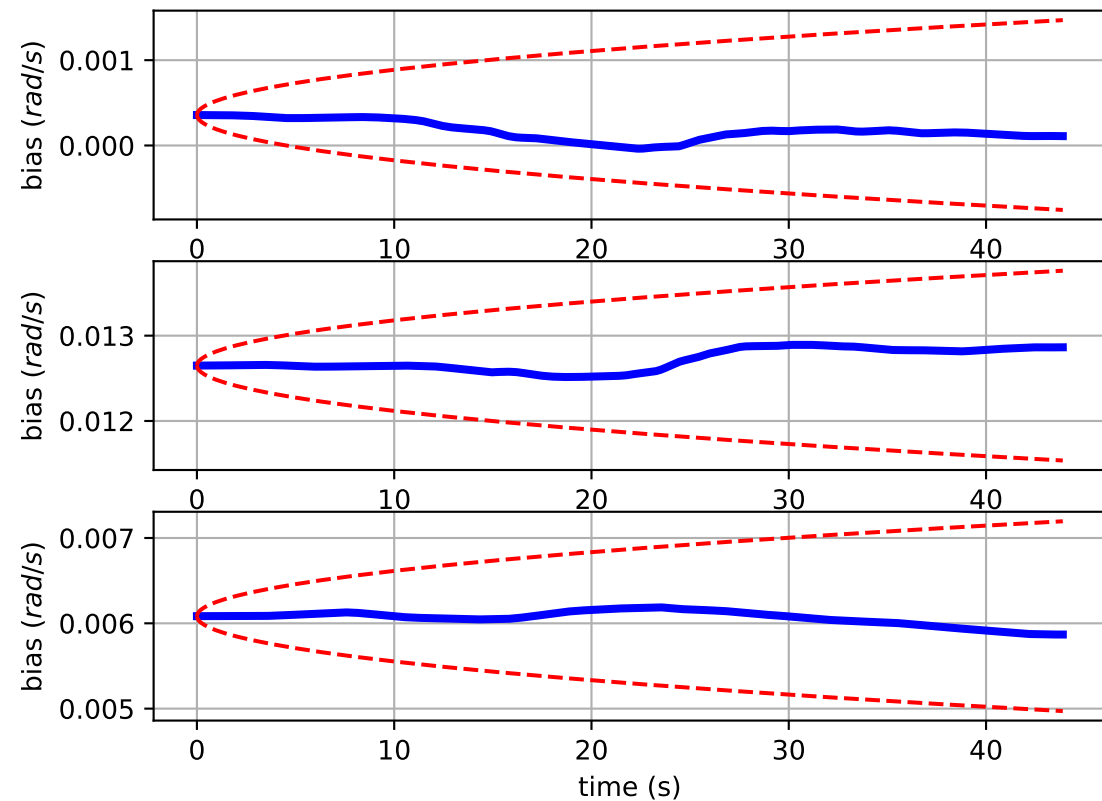
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

