

Calibration results

=====

Normalized Residuals

Reprojection error (cam0): mean 1.300898395112156, median 1.1885868620067965, std: 0.7456325134119759
Gyroscope error (imu0): mean 0.33209313339595453, median 0.24201043802135258, std: 0.27236378198784006
Accelerometer error (imu0): mean 0.15200401258811938, median 0.12437570494816504, std: 0.11645957542322935

Residuals

Reprojection error (cam0) [px]: mean 1.300898395112156, median 1.1885868620067965, std: 0.7456325134119759
Gyroscope error (imu0) [rad/s]: mean 0.04696506132195363, median 0.03422544436856501, std: 0.03851805543864323
Accelerometer error (imu0) [m/s^2]: mean 0.1719729089097993, median 0.14071504701392756, std: 0.13175896882539467

Transformation (cam0):

T_ci: (imu0 to cam0):

[[0.00279092 -0.99908746 0.04261997 0.00053325]
[-0.9999632 -0.00244255 0.00822379 0.02836912]
[-0.00811219 -0.04264135 -0.99905751 -0.07833341]
[0. 0. 0. 1.]]

T_ic: (cam0 to imu0):

[[0.00279092 -0.9999632 -0.00811219 0.02773114]
[-0.99908746 -0.00244255 -0.04264135 -0.00273819]
[0.04261997 0.00822379 -0.99905751 -0.07851561]
[0. 0. 0. 1.]]

timeshift cam0 to imu0: [s] ($t_{imu} = t_{cam} + \text{shift}$)
-0.027663288044167733

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

[0.0843458 -9.80225265 0.27776187]

Calibration configuration

=====

cam0

Camera model: pinhole

Focal length: [629.8477, 629.7639]

Principal point: [492.1117, 277.6097]

Distortion model: radtan

Distortion coefficients: [0.03458671, -0.15489642, -0.00036472, 0.00026632]

Type: aprilgrid

Tags:

Rows: 6

Cols: 6

Size: 0.0345 [m]

Spacing 0.01035 [m]

IMU configuration

=====

IMU0:

Model: calibrated

Update rate: 200.0

Accelerometer:

Noise density: 0.08

Noise density (discrete): 1.131370849898476

Random walk: 4e-05

Gyroscope:

Noise density: 0.01

Noise density (discrete): 0.1414213562373095

Random walk: 2e-06

T_ib (imu0 to imu0)

[[1. 0. 0. 0.]

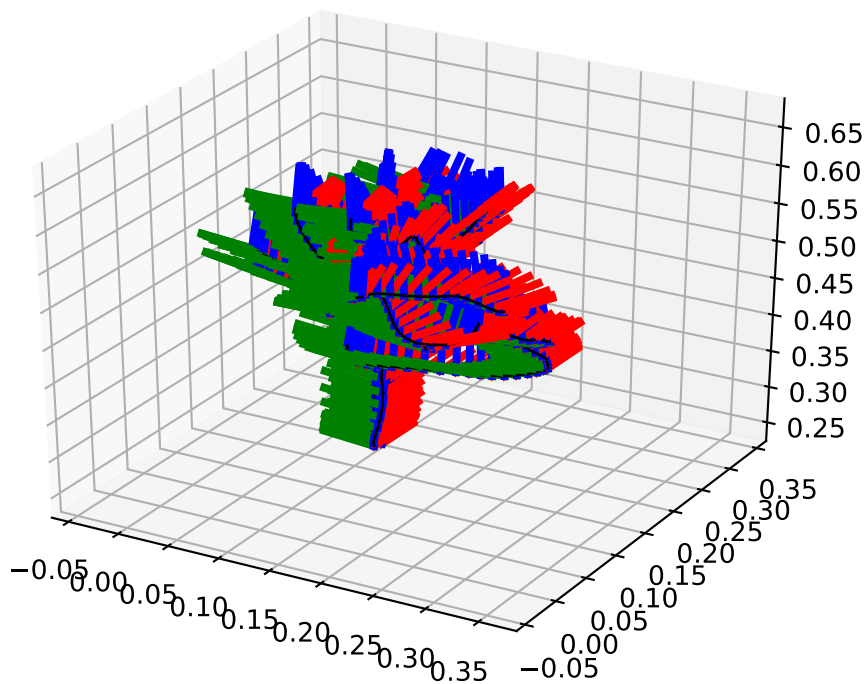
[0. 1. 0. 0.]

[0. 0. 1. 0.]

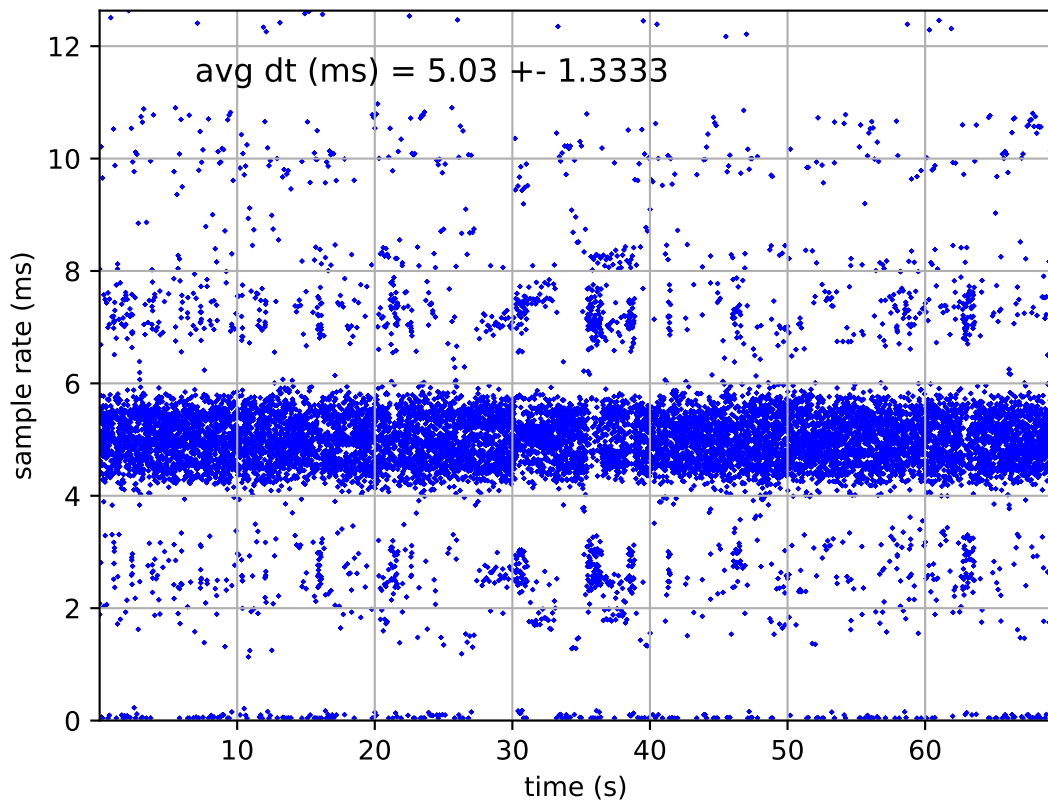
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

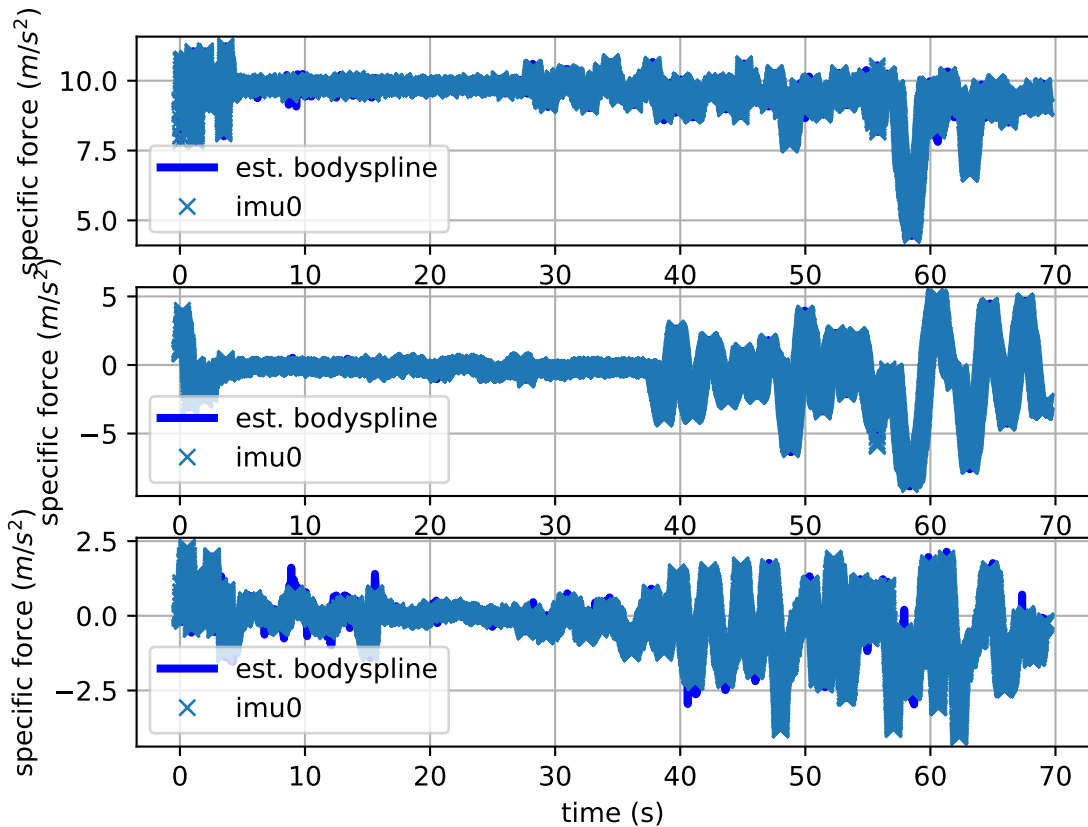
imu0: estimated poses



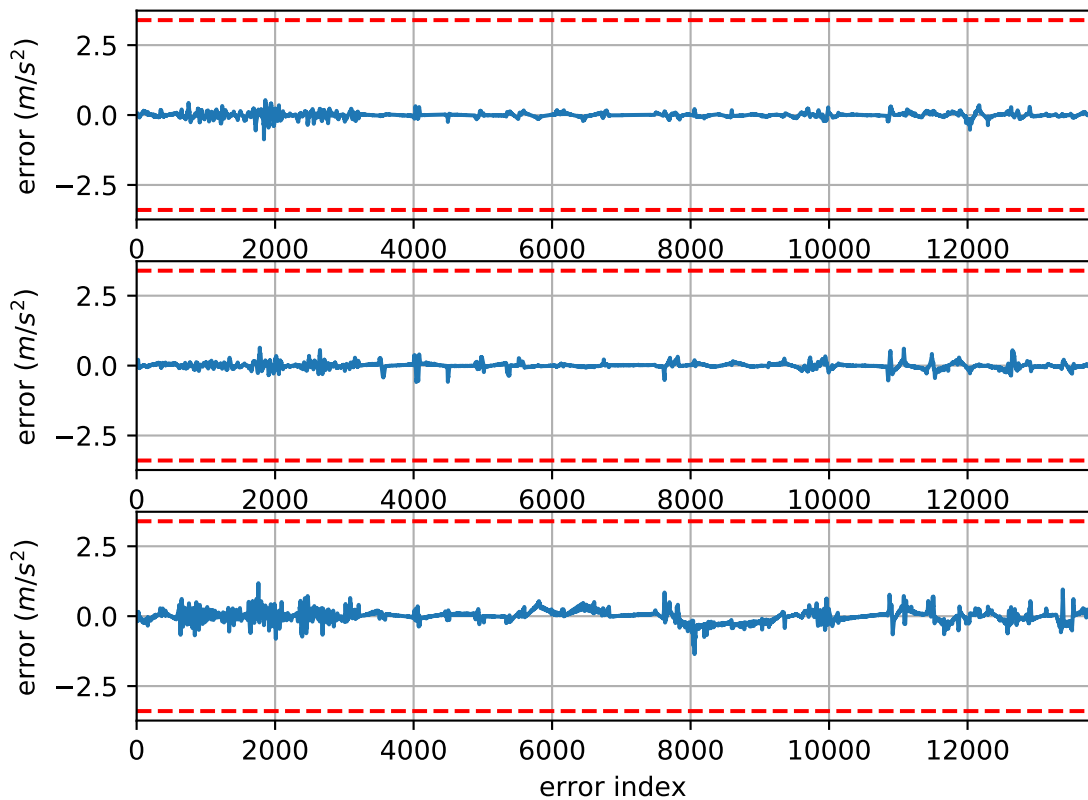
imu0: sample inertial rate



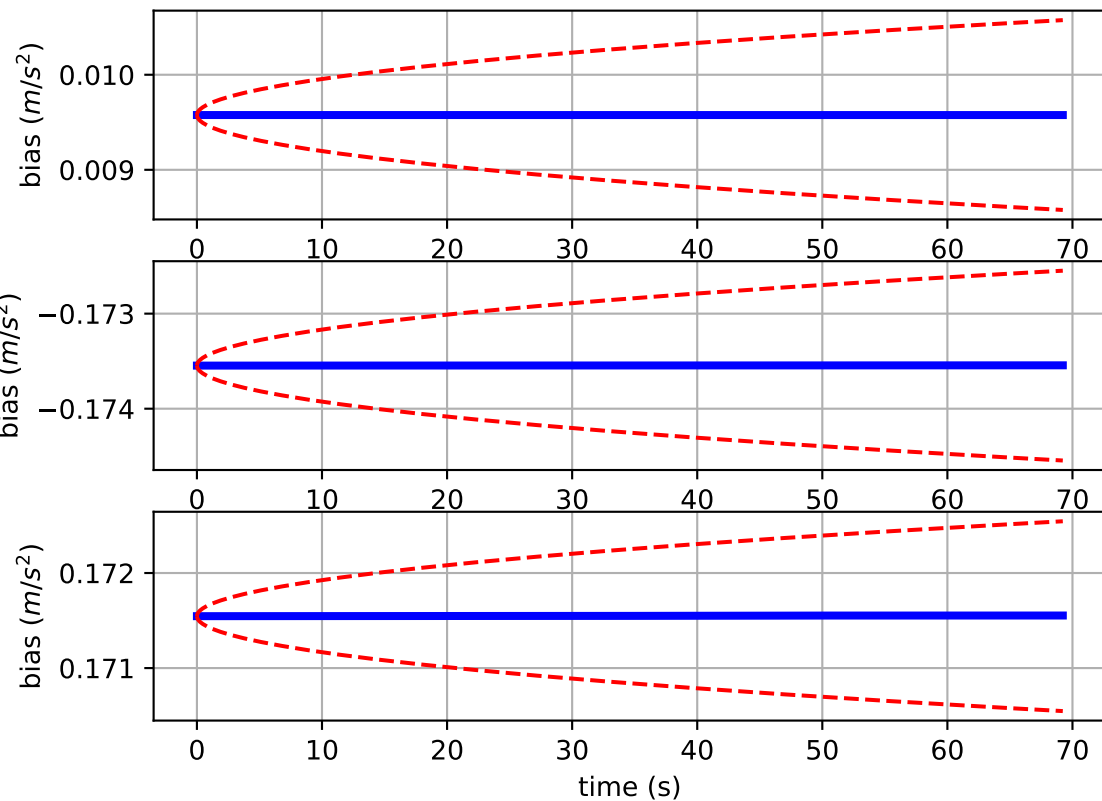
Comparison of predicted and measured specific force (imu0 frame)



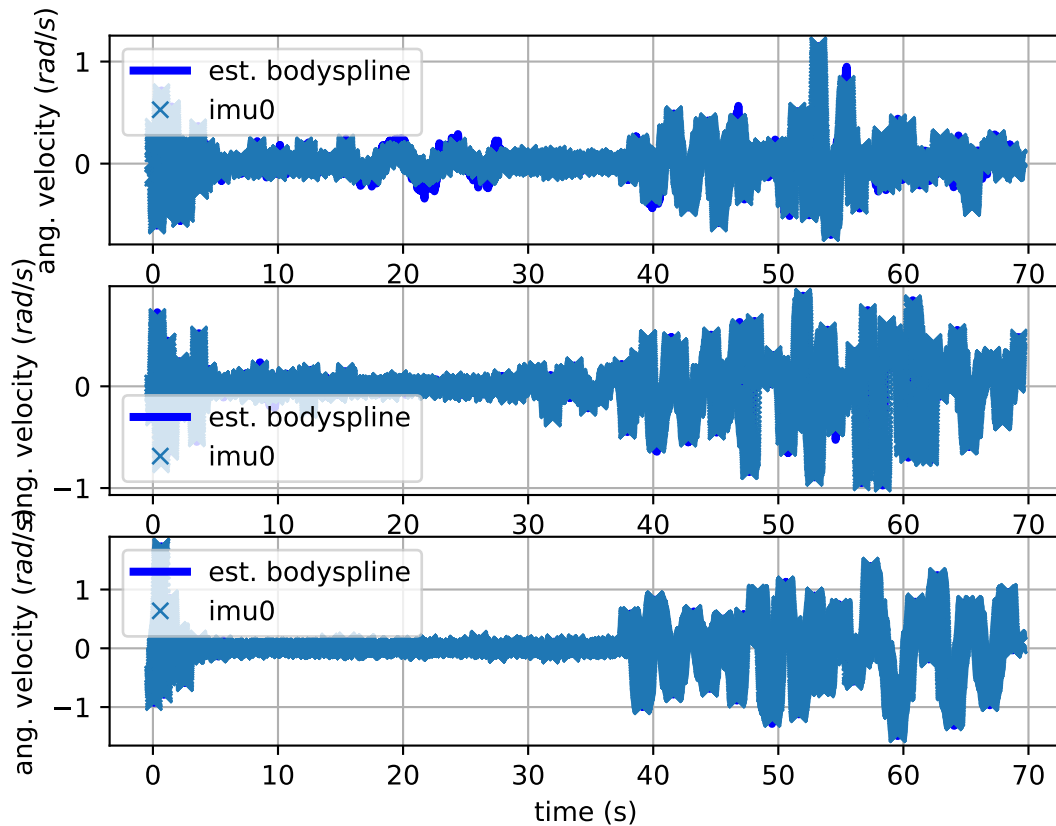
imu0: acceleration error



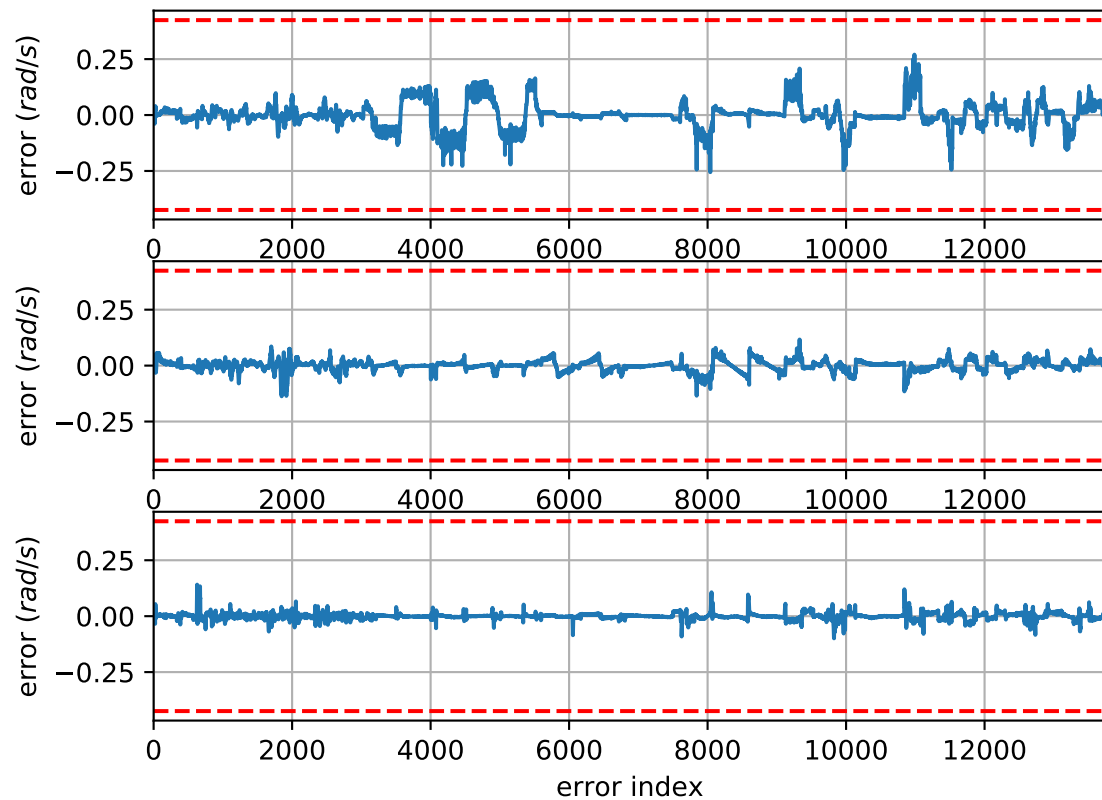
imu0: estimated accelerometer bias (imu frame)



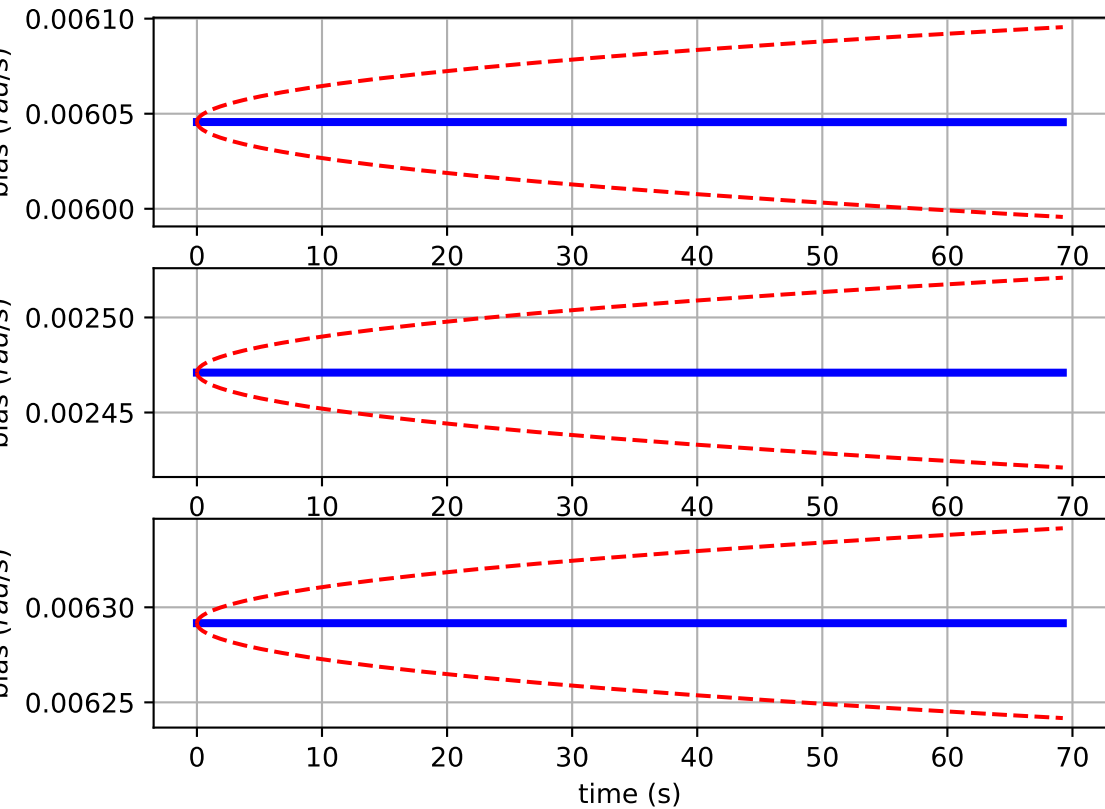
Comparison of predicted and measured angular velocities (body frame)



imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors

