

Calibration results

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Normalized Residuals

Reprojection error (cam0): mean 0.16587159675161092, median 0.15042285188212906, std: 0.0940903633589587
Reprojection error (cam1): mean 0.17616837285868683, median 0.16098145922528714, std: 0.0957548004550478
Gyroscope error (imu0): mean 2.260629795202681e-09, median 9.851017582562003e-11, std:
1.9144732270410098e-08
Accelerometer error (imu0): mean 7.886049249311458e-10, median 4.236442882941289e-12, std:
1.322134232358069e-08

Residuals

Reprojection error (cam0) [px]: mean 0.16587159675161092, median 0.15042285188212906, std:
0.0940903633589587
Reprojection error (cam1) [px]: mean 0.1761683728586869, median 0.16098145922528714, std: 0.0957548004550478
Gyroscope error (imu0) [rad/s]: mean 5.372185176427311e-11, median 2.3410065081009706e-12, std:
4.5495749515477656e-10
Accelerometer error (imu0) [m/s^2]: mean 1.2146567429648727e-10, median 6.525224166460121e-13, std:
2.036430676081095e-09

Transformation (cam0):

T_ci: (imu0 to cam0):

```
[[ -0.01497547 -0.99980081 -0.0131936  0.00222299]
 [ -0.57460374  0.01940385 -0.81820171 -0.00103862]
 [  0.81829474 -0.00467186 -0.57477987 -0.00056567]
 [  0.          0.          0.          1.          ]]
```

T_ic: (cam0 to imu0):

```
[[ -0.01497547 -0.57460374  0.81829474 -0.00010062]
 [ -0.99980081  0.01940385 -0.00467186  0.00224006]
 [ -0.0131936  -0.81820171 -0.57477987 -0.00114561]
 [  0.          0.          0.          1.          ]]
```

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)
0.00037378896437530244

Transformation (cam1):

T_ci: (imu0 to cam1):
[[-0.01397807 -0.99979309 -0.01477772 -0.04839421]
[-0.57829048 0.02014 -0.81558231 -0.00106438]
[0.81571118 -0.00285445 -0.57845235 -0.00135426]
[0. 0. 0. 1.]]

T_ic: (cam1 to imu0):
[[-0.01397807 -0.57829048 0.81571118 -0.0001873]
[-0.99979309 0.02014 -0.00285445 -0.04836663]
[-0.01477772 -0.81558231 -0.57845235 -0.00236662]
[0. 0. 0. 1.]]

timeshift cam1 to imu0: [s] (t_imu = t_cam + shift)
0.0005084175203891054

Baselines:

Baseline (cam0 to cam1):
[[0.99999825 0.00072317 0.00172665 -0.05061547]
[-0.00071535 0.9999895 -0.00452586 -0.00002674]
[-0.00172991 0.00452462 0.99998827 -0.00078005]
[0. 0. 0. 1.]]

baseline norm: 0.050621490035511675 [m]

Gravity vector in target coords: [m/s^2]
[9.80448155 -0.09729753 -0.17634504]

Calibration configuration

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cam0

Camera model: pinhole
Focal length: [385.9663579533714, 386.66632586105874]
Principal point: [326.31560591362586, 228.94820856640544]
Distortion model: radtan
Distortion coefficients: [-0.006216881543788755, -0.008965831146637354, -0.006699760163435405,
0.004722332098436569]
Type: checkerboard
Rows
 Count: 8
 Distance: 0.0248 [m]
Cols
 Count: 6
 Distance: 0.0248 [m]

cam1

Camera model: pinhole
Focal length: [386.5092116377738, 386.6137952578704]
Principal point: [324.9424812770913, 231.01404187987941]
Distortion model: radtan
Distortion coefficients: [0.0008912292688776762, -0.049744871536725306, -0.003605966286580121,
0.0028794430597202047]
Type: checkerboard
Rows
 Count: 8
 Distance: 0.0248 [m]
Cols
 Count: 6
 Distance: 0.0248 [m]

IMU configuration

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IMU0:

Model: calibrated

Update rate: 200.0

Accelerometer:

Noise density: 0.010891283995460944

Noise density (discrete): 0.154026015380379

Random walk: 0.0001787920692948497

Gyroscope:

Noise density: 0.0016803762279444879

Noise density (discrete): 0.02376410851448438

Random walk: 2.7945920744214167e-05

T_ib (imu0 to imu0)

[[1. 0. 0. 0.]

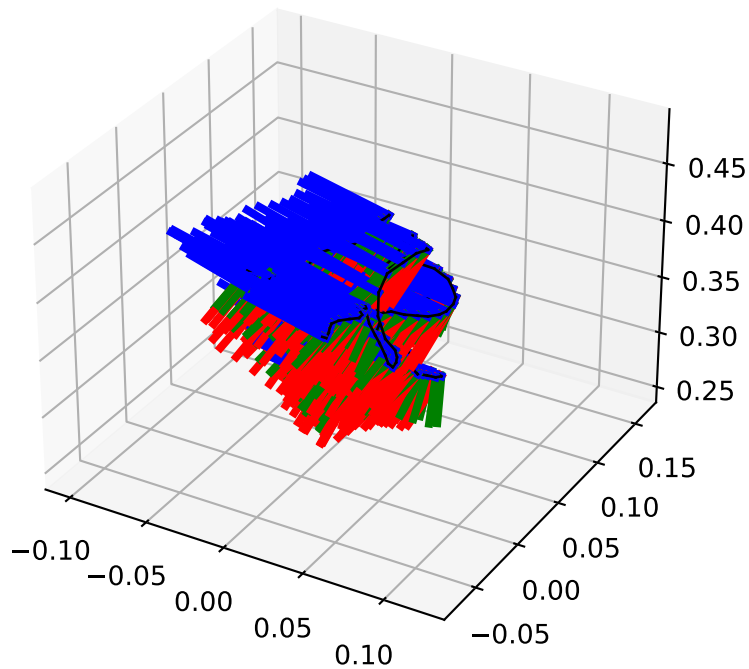
[0. 1. 0. 0.]

[0. 0. 1. 0.]

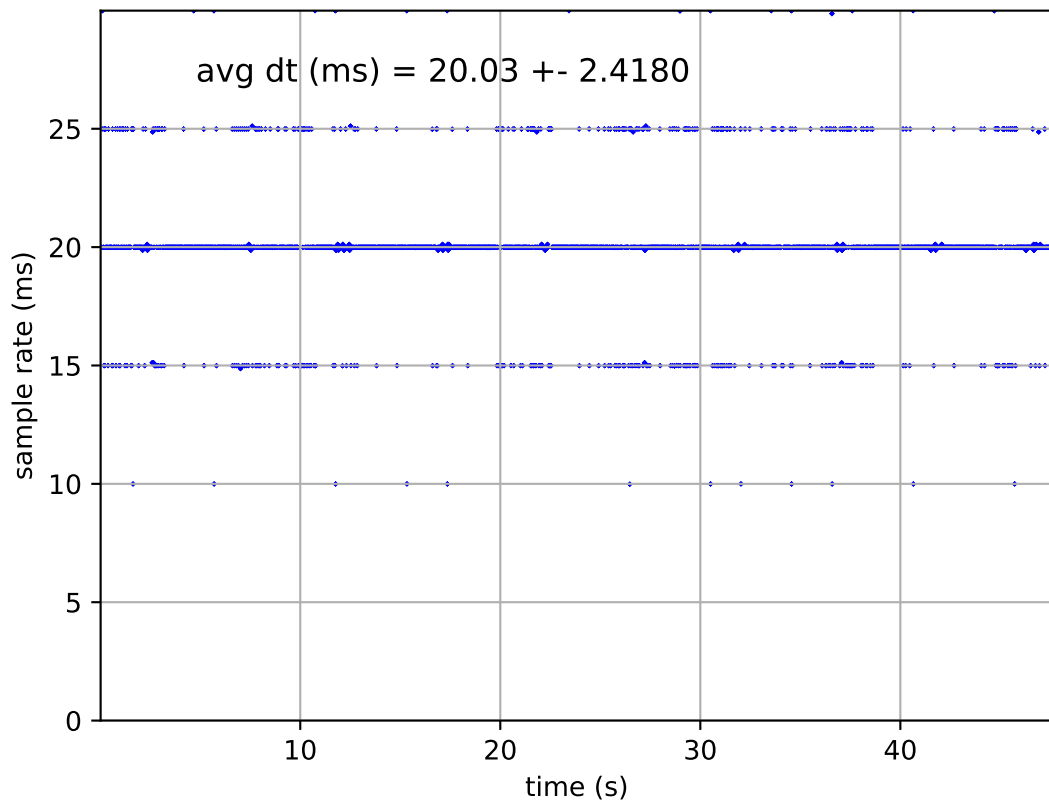
[0. 0. 0. 1.]]

time offset with respect to IMU0: 0.0 [s]

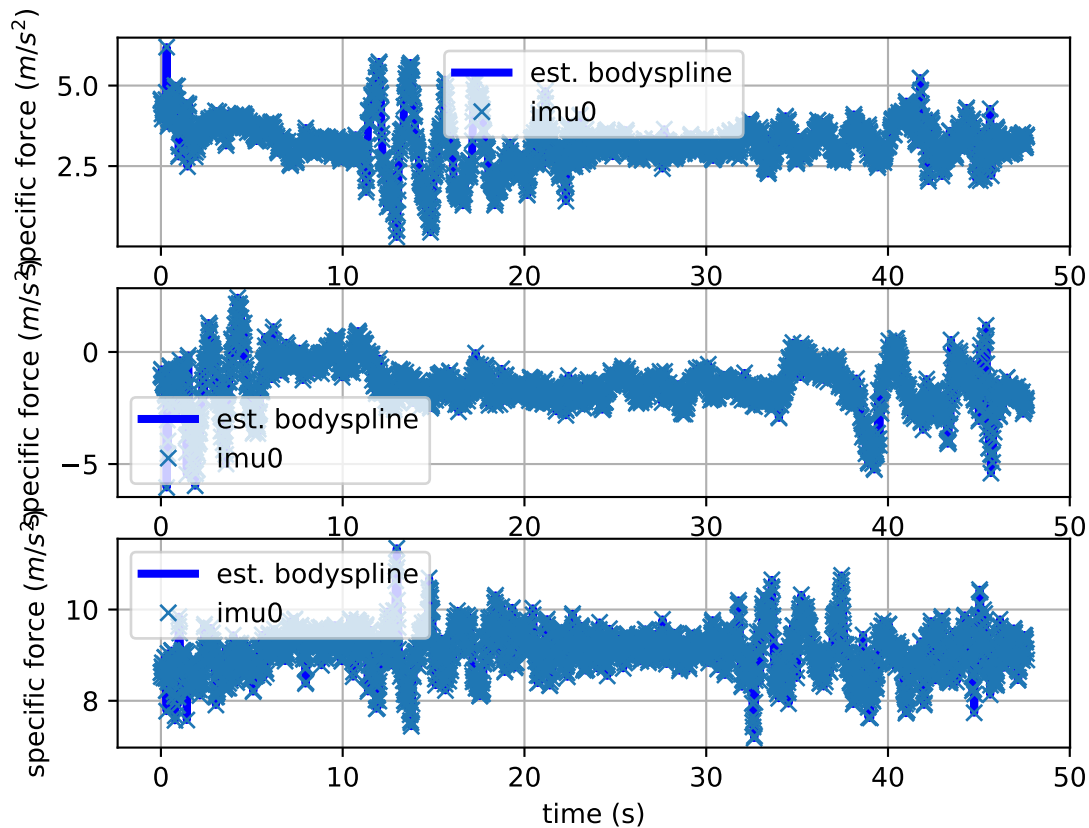
imu0: estimated poses



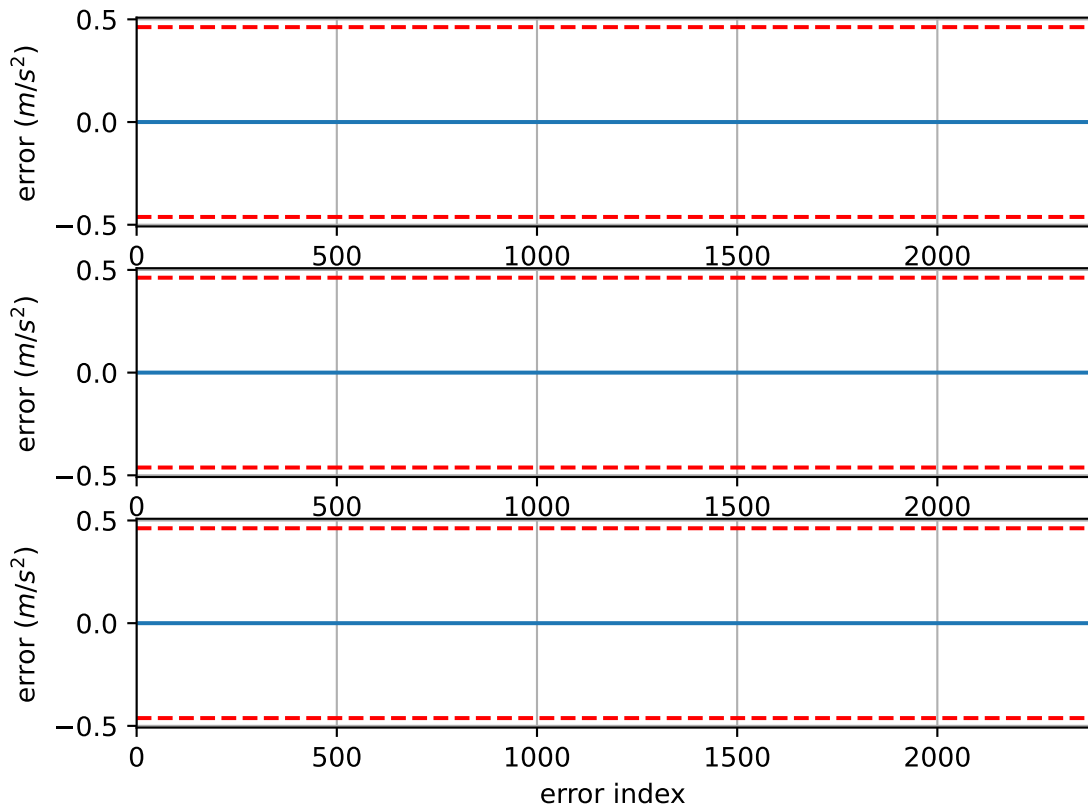
imu0: sample inertial rate



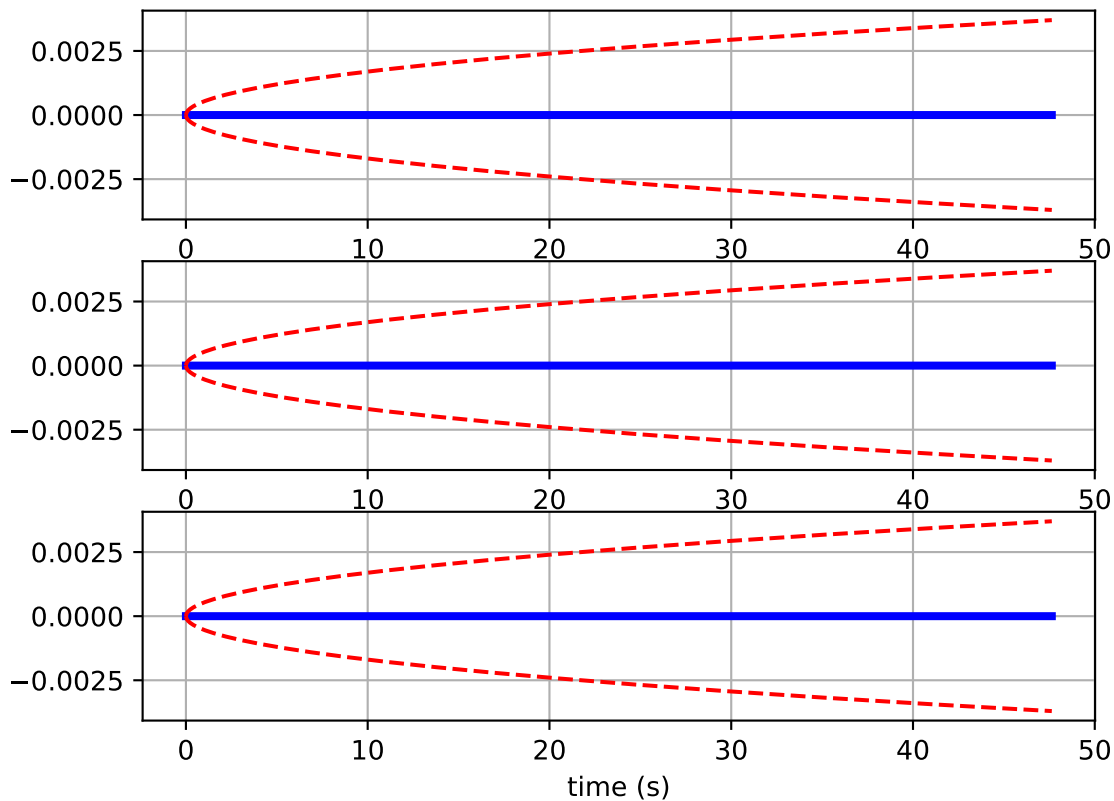
Comparison of predicted and measured specific force (imu0 frame)



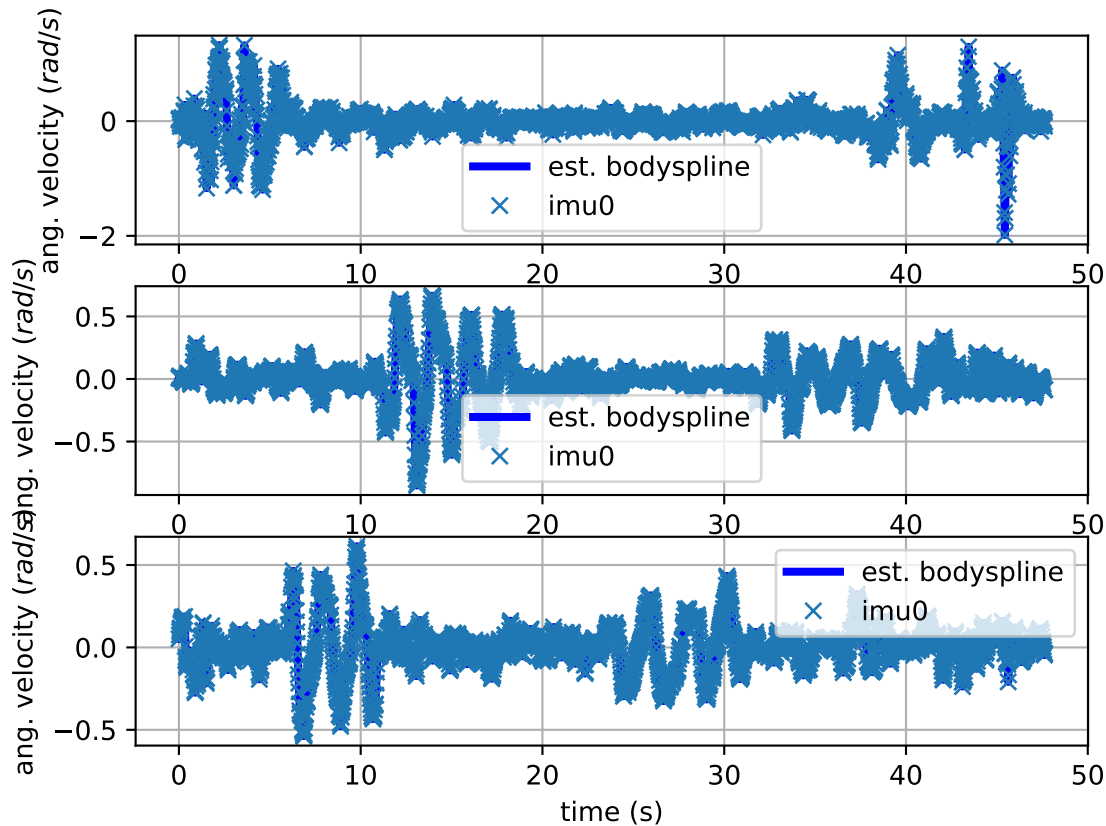
imu0: acceleration error



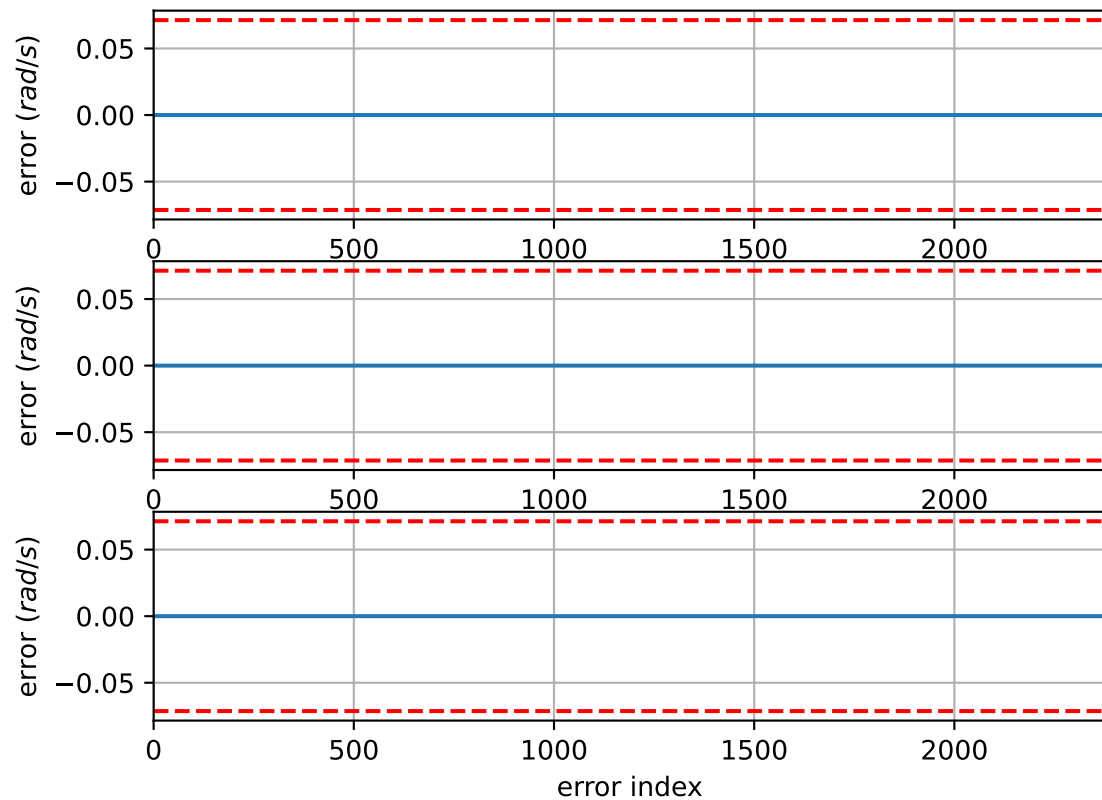
imu0: estimated accelerometer bias (imu frame)



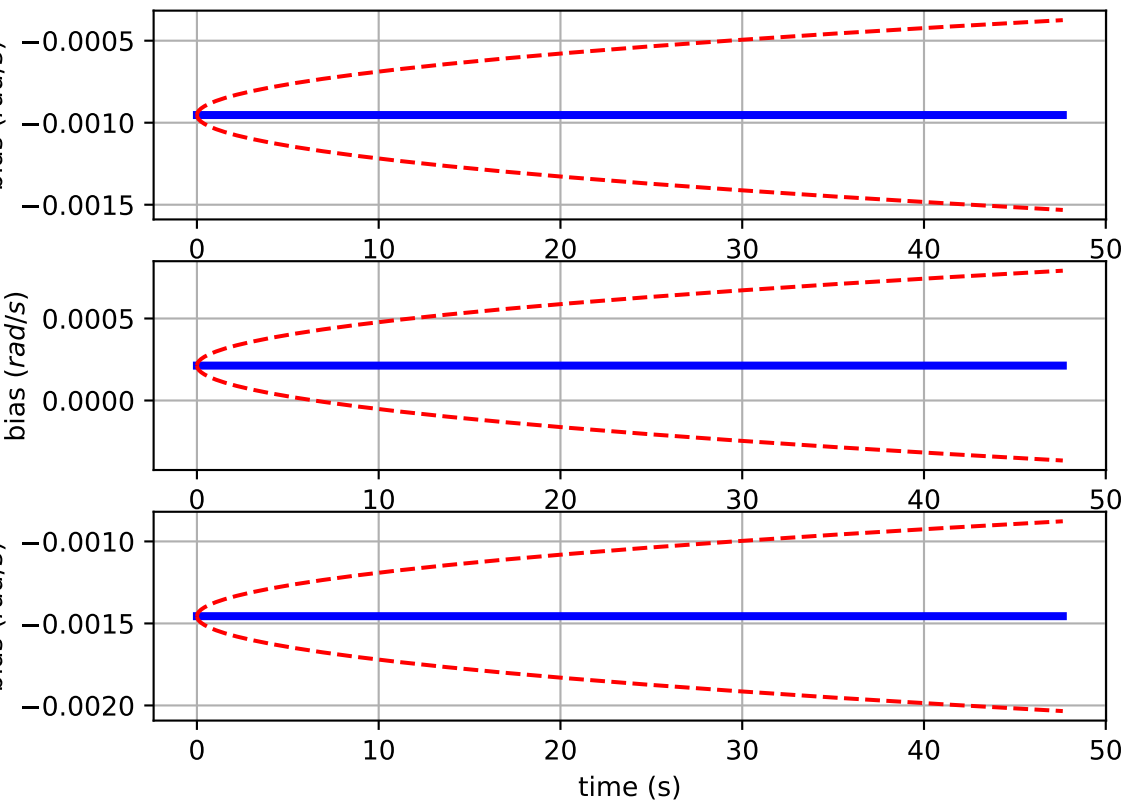
Comparison of predicted and measured angular velocities (body frame)



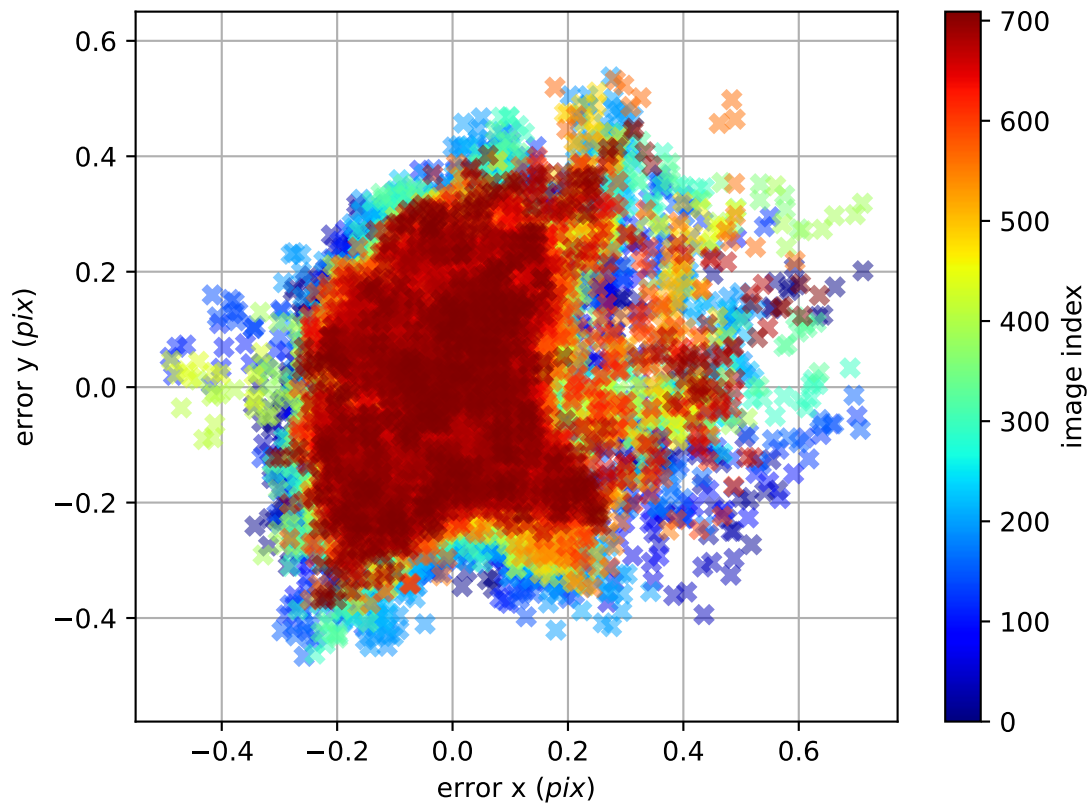
imu0: angular velocities error



imu0: estimated gyro bias (imu frame)



cam0: reprojection errors



cam1: reprojection errors

