Calibration results
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Normalized Residuals

Reprojection error (cam0): mean 0.448041615078, median 0.31681982198, std: 0.413871000681
Gyroscope error (imu0): mean 1.34152973689, median 1.1977554271, std: 0.997372337423
Accelerometer error (imu0): mean 4.70366529897, median 3.55465972101, std: 3.55172952442

Residuals

Reprojection error (cam0) [px]: mean 0.448041615078, median 0.31681982198, std: 0.4138710006
Gyroscope error (imu0) [rad/s]: mean 0.0948604774116, median 0.0846940984702, std: 0.0705248
Accelerometer error (imu0) [m/s^2]: mean 0.665198725866, median 0.502704798708, std: 0.502290

Transformation (cam0):

T_ci: (imu0 to cam0):
[[0.00179621 0.99975266 -0.02216745 0.04066494]
 [-0.99977684 0.00226197 0.02100357 -0.02253073]
 [0.02104852 0.02212478 0.99953362 0.02270426]
 [0.   0.   0.   1.   ]]

T_ic: (cam0 to imu0):
[[0.00179621 -0.99977684 0.02104852 -0.02307663]
 [0.99975266 0.00226197 0.02212478 -0.04110625]
 [-0.02216745 0.02100357 0.99953362 -0.02131901]
 [0.   0.   0.   1.   ]]

timeshift cam0 to imu0: [s] (t_imu = t_cam + shift)
0.0006782345229153565

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  Camera model: pinhole
  Focal length: [462.1043820249756, 460.64320792063444]
  Principal point: [360.5759001834265, 234.15330719645002]
  Distortion model: equidistant
  Distortion coefficients: [-0.0066083616410188865, 0.03065787714084398, -0.03875016297076553
  Type: aprilgrid
  Tags:
    Rows: 6
    Cols: 6
    Size: 0.02 [m]
    Spacing 0.006 [m]



IMU configuration
==================

IMU0:
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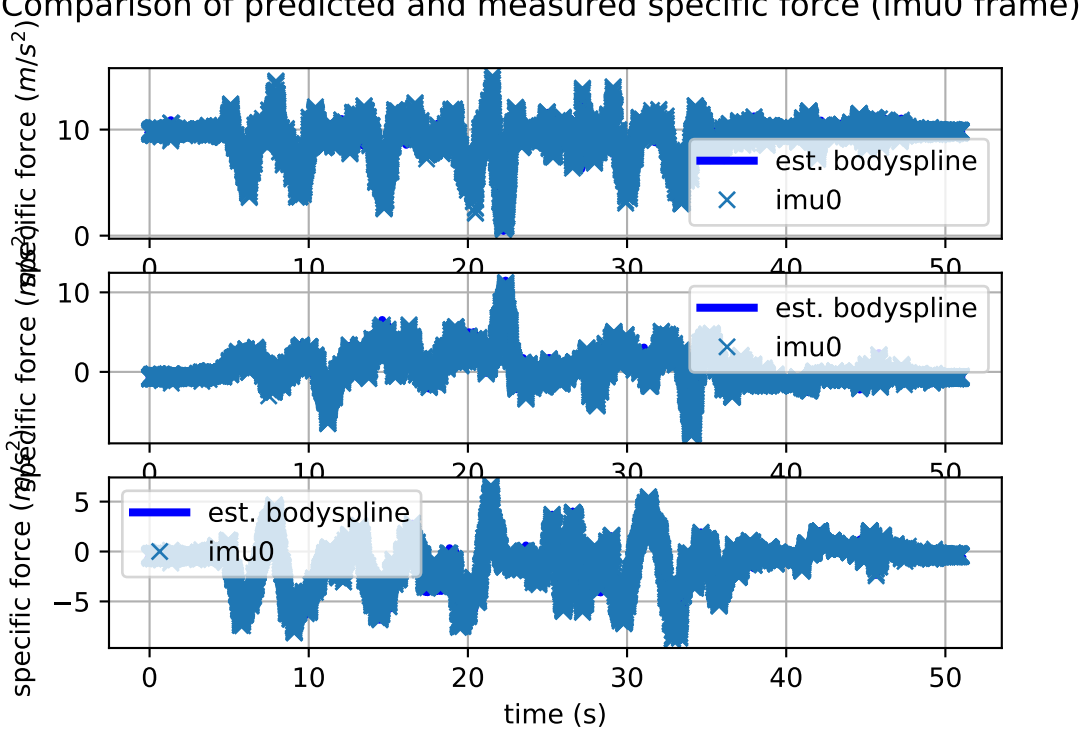
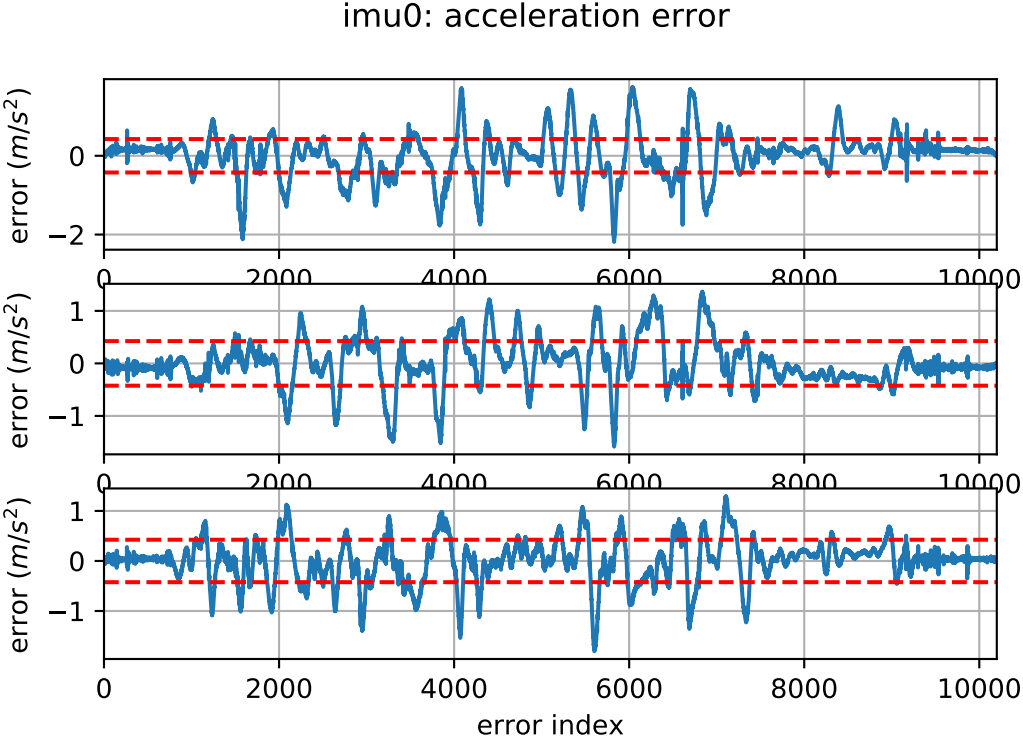
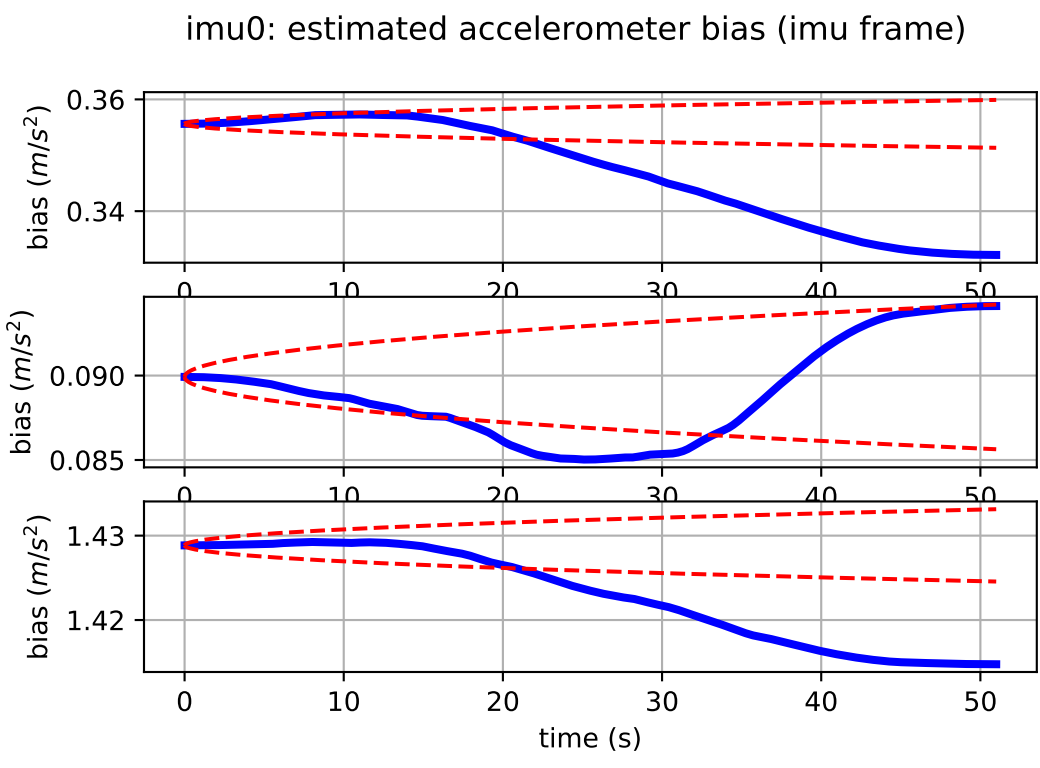
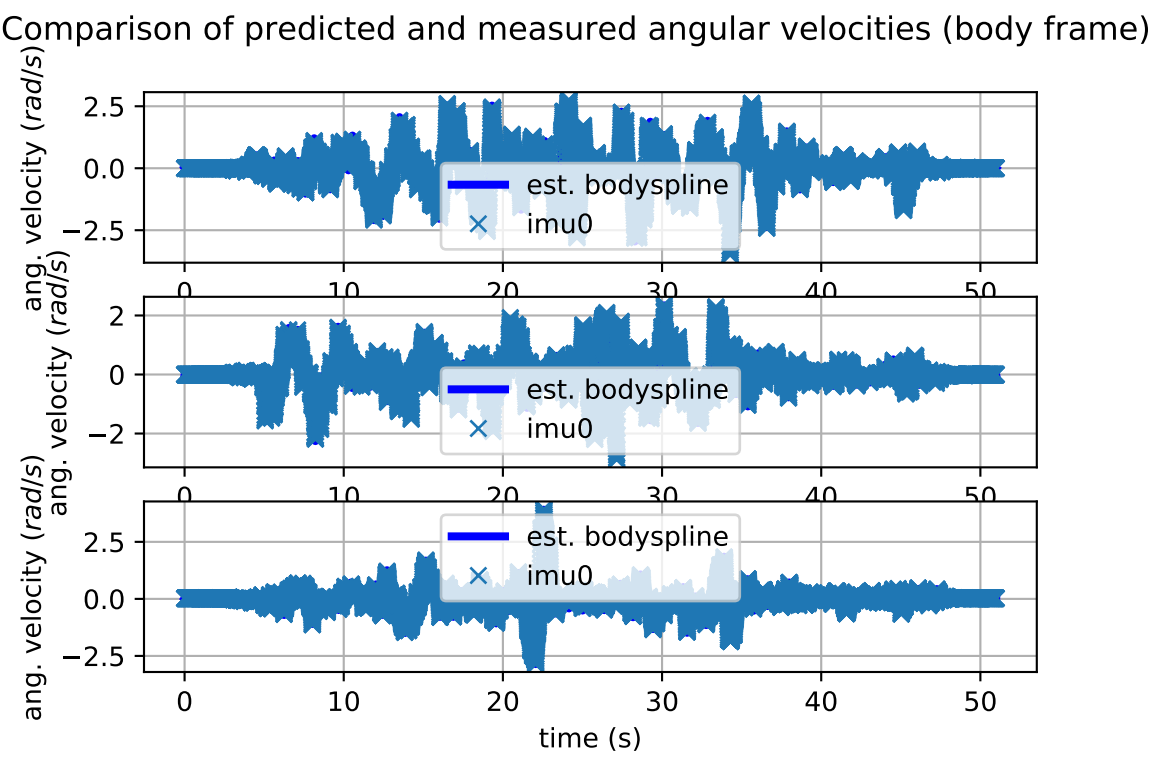
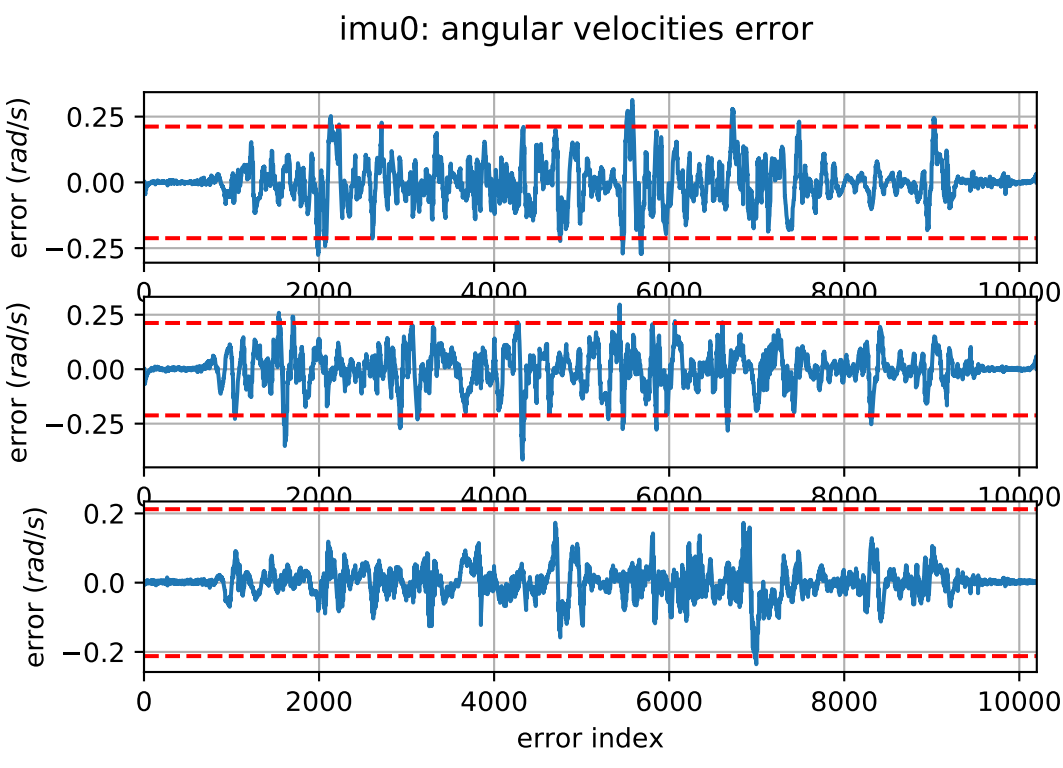
  Model: calibrated
  Update rate: 200.0
  Accelerometer:
    Noise density: 0.01
    Noise density (discrete): 0.141421356237
    Random walk: 0.0002
  Gyroscope:
    Noise density: 0.005
    Noise density (discrete): 0.0707106781187
    Random walk: 4e-06
  T_i_b
```

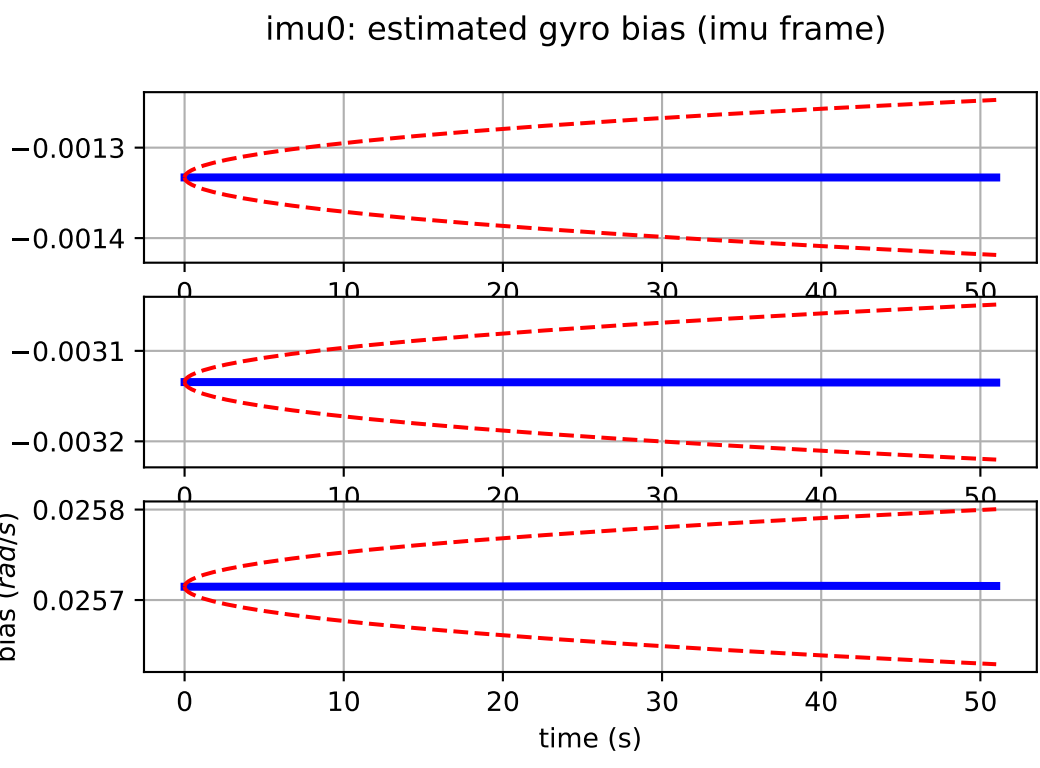

Comparison of predicted and measured specific force (imu0 frame)
specific force (m/s^2)
est. bodyspline
imu0
time (s)

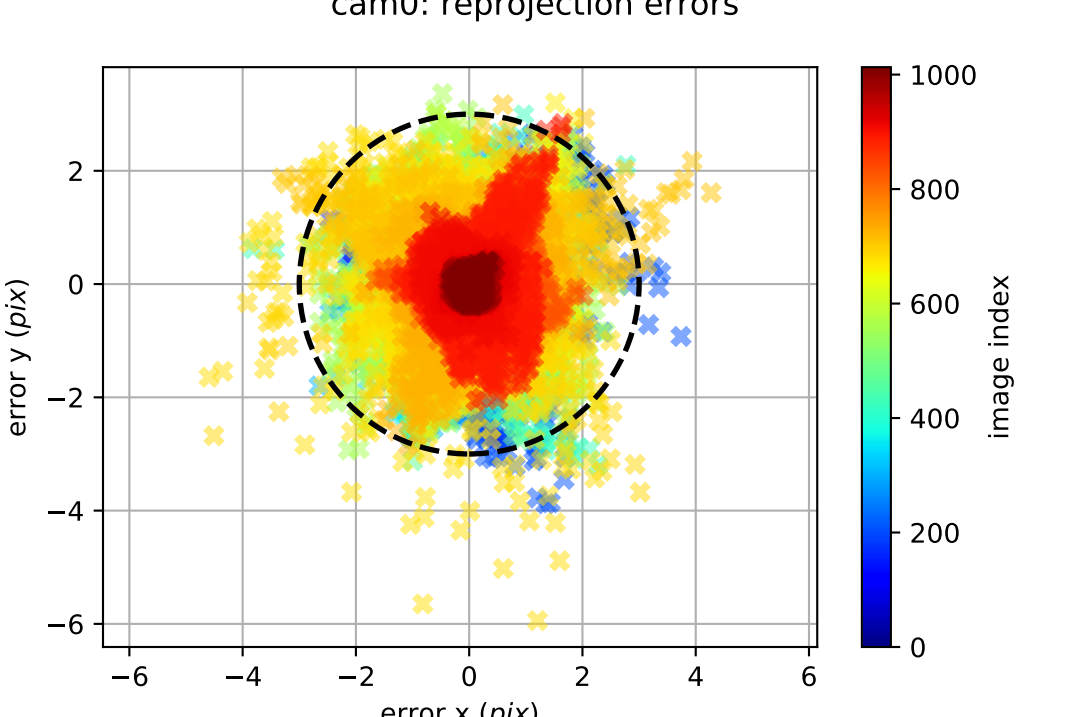

imu0: acceleration error
error (m/s^2)
0
−2
1
0
−1
error (m/s^2)
1
0
−1
error (m/s^2)
0
2000
4000
6000
8000
10000
error index


imu0: estimated accelerometer bias (imu frame)
bias (m/s^2)
0.36
0.34
bias (m/s^2)
0.090
0.085
bias (m/s^2)
1.43
1.42
0
10
20
30
40
50
time (s)


Comparison of predicted and measured angular velocities (body frame)
ang. velocity (rad/s)
ang. velocity (rad/s)
ang. velocity (rad/s)
est. bodyspline
imu0
est. bodyspline
imu0
est. bodyspline
imu0
2.5
0.0
−2.5
2
0
−2
2.5
0.0
−2.5
0
10
20
30
40
50
time (s)


imu0: angular velocities error
error (rad/s)
0.25
0.00
−0.25
0
2000
4000
6000
8000
10000
error (rad/s)
0.25
0.00
−0.25
0
2000
4000
6000
8000
10000
error (rad/s)
0.2
0.0
−0.2
0
2000
4000
6000
8000
10000
error index


imu0: estimated gyro bias (imu frame)
−0.0013
−0.0014
−0.0031
−0.0032
0.0258
0.0257
bias (rad/s)
0
10
20
30
40
50
time (s)


cam0: reprojection errors
error x (pix)
error y (pix)
image index
−6
−4
−2
0
2
4
6
0
200
400
600
800
1000