Calibration results
==========
Camera-system parameters:
cam0 (/prophesee/left/events):
type: <class 'aslam_cv.libaslam_cv_python.DistortedPinholeCameraGeometry'>
distortion: [-0.04609943 0.07857733 -0.00006457 -0.00239367] +- [0.00103997 0.00228732 0.0000752 0.00006774]
projection: [1035.22468431 1034.81090307 629.22144494 363.88827975] +- [0.14483653 0.14388191 0.00553593 0.00291133]
reprojection error: [0.000345, 0.000518] +- [0.606271, 0.538567]

cam1 (/prophesee/right/events):
type: <class 'aslam_cv.libaslam_cv_python.DistortedPinholeCameraGeometry'>
distortion: [-0.05014874 0.08026686 0.00122553 -0.0010863] +- [0.00111945 0.00258076 0.00007998 0.00006189]
projection: [1033.88447915 1033.8977882   631.25797912 365.49397053] +- [0.14860271 0.14832083 0.00203042 0.034348]
reprojection error: [0.000434, 0.000421] +- [0.761697, 0.692739]

cam2 (/ovc/left/image_mono/compressed):
type: <class 'aslam_cv.libaslam_cv_python.DistortedPinholeCameraGeometry'>
distortion: [-0.39178384 0.15109403 -0.00012711 0.00148735] +- [0.00048836 0.00078285 0.00005186 0.00004339]
projection: [1060.05652758 1060.07625769 667.67163229 336.03452354] +- [0.11757137 0.11868579 0.00459303 0.1346797]
reprojection error: [0.000462, 0.000155] +- [0.605946, 0.557013]

cam3 (/ovc/right/image_mono/compressed):
type: <class 'aslam_cv.libaslam_cv_python.DistortedPinholeCameraGeometry'>
distortion: [-0.39299296 0.15043159 -0.00030025 0.00191688] +- [0.00044757 0.00072897 0.00005353 0.000038]
projection: [1055.68924845 1056.15674144 667.45976107 328.85935884] +- [0.11384818 0.11387288 0.00509793 0.17833016]
reprojection error: [0.000267, -0.000272] +- [0.709748, 0.677663]

cam4 (/ovc/rgb/image_color/compressed):
type: <class 'aslam_cv.libaslam_cv_python.DistortedPinholeCameraGeometry'>
distortion: [-0.41561366 0.18442594 -0.00047654 0.00110007] +- [0.00090731 0.00237696 0.00005938 0.00004981]
projection: [1265.79198878 1265.53611675 645.89572407 371.11169235] +- [0.13528863 0.13308739 0.00175117 0.01353039]
reprojection error: [0.000076, -0.000580] +- [0.808711, 0.844633]

baseline T_1_0:
q: [-0.00087363 0.00243039 -0.00035283 0.9999966] +- [0.00006223 0.00005672 0.00004113]

t: [-0.12025877 0.00074425 -0.0001545] +- [0.00003808 0.00003548 0.00012852]

baseline T_2_1:
q: [-0.00140159 -0.00346282 -0.00500877 0.99998048] +- [0.00010839 0.00005003 0.00003844]
t: [0.12013637 0.06945621 0.00348873] +- [0.00003392 0.0000324 0.00011819]

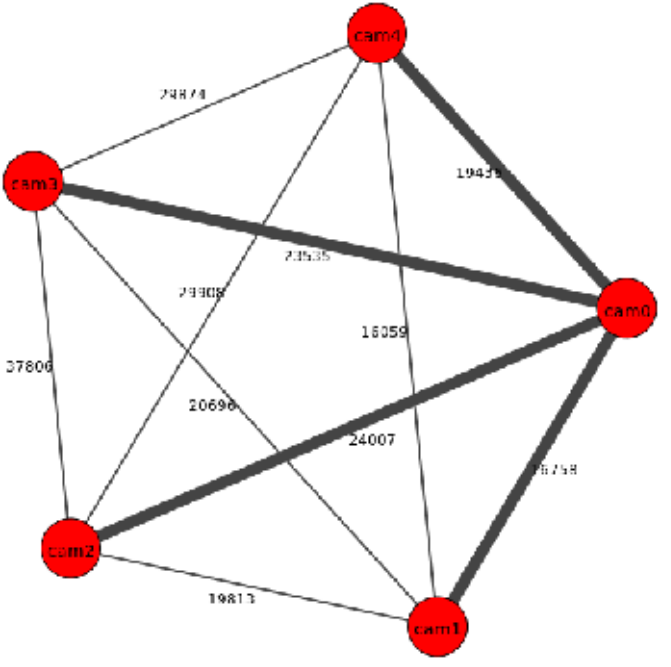
baseline T_3_2:
q: [0.00022951 -0.00146639 0.00024151 0.99999887] +- [0.00029598 0.00004337 0.00003104]
t: [-0.11992472 -0.00014786 0.00153784] +- [0.00002937 0.00002798 0.00009873]

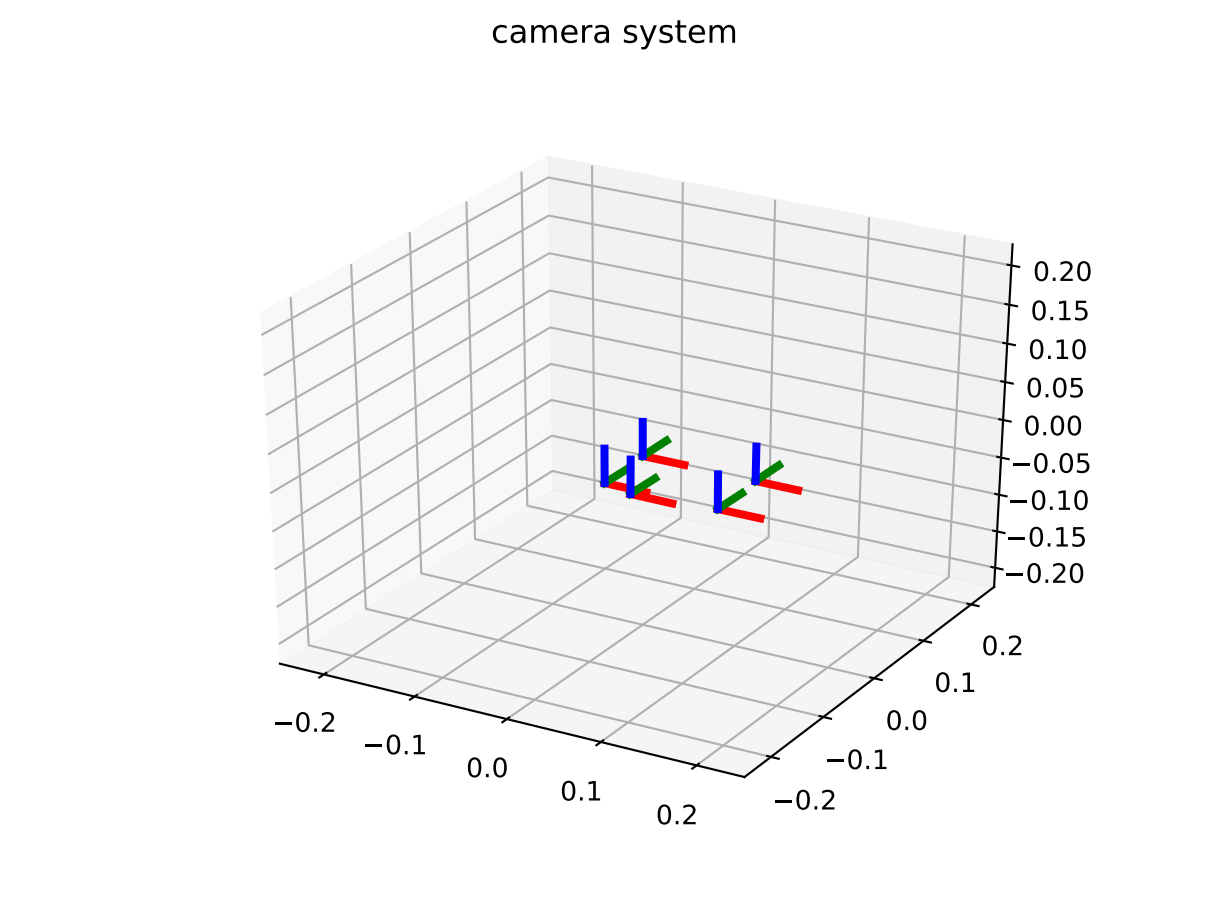
baseline T_4_3:
q: [0.00049821 0.00449876 0.00041066 0.99998967] +- [0.0001795 0.00004038 0.00003203]
t: [0.08867354 0.00620806 0.0022616] +- [0.00002743 0.00002629 0.00009947]

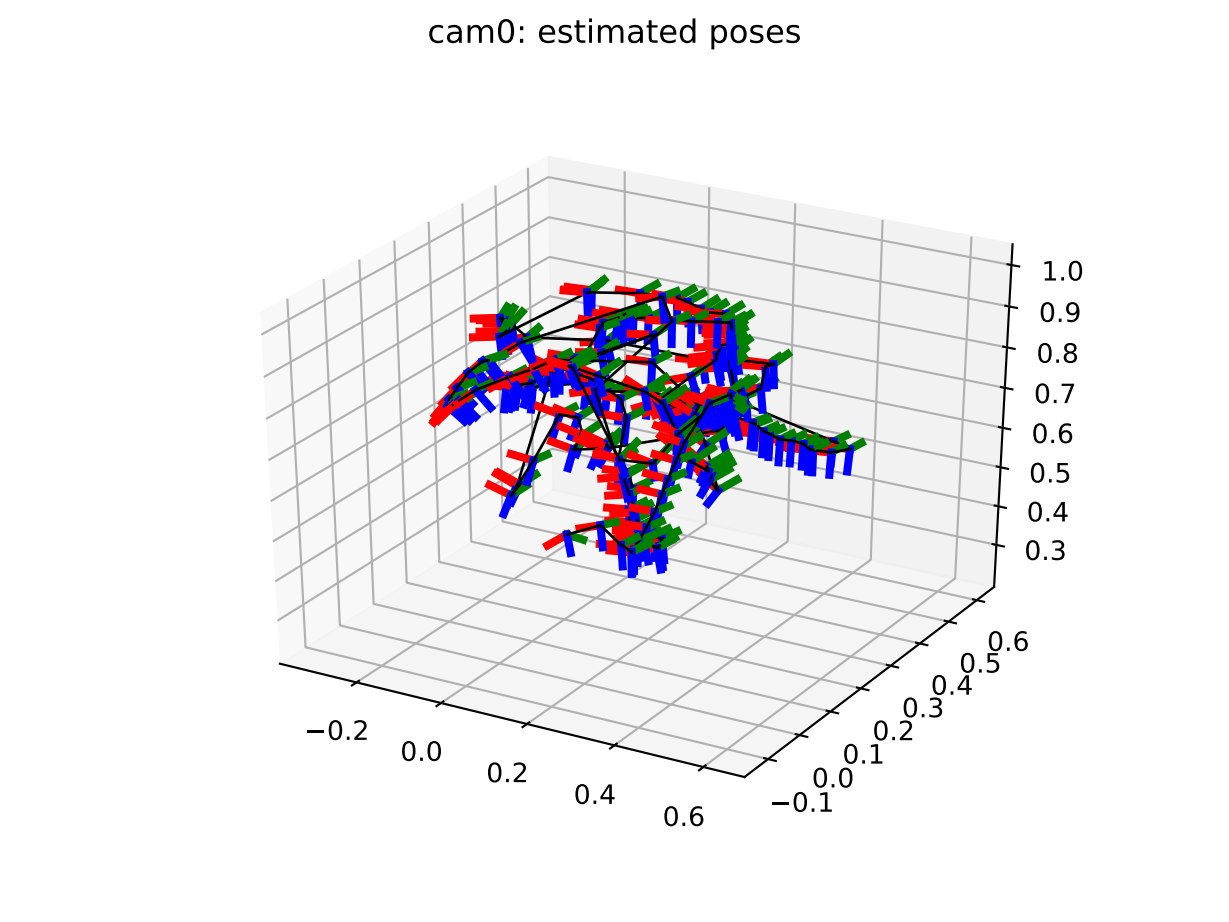
Target configuration
====================

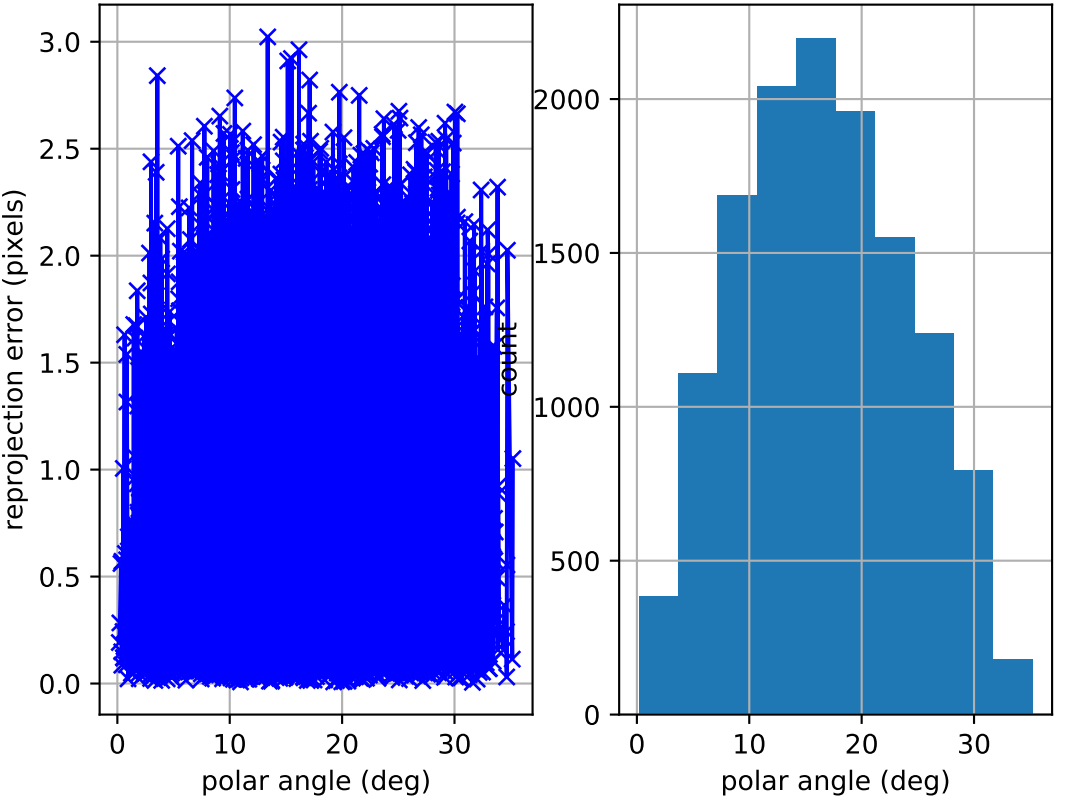
Type: aprilgrid
Tags:
Rows: 5
Cols: 7
Size: 0.04 [m]
Spacing 0.01 [m]

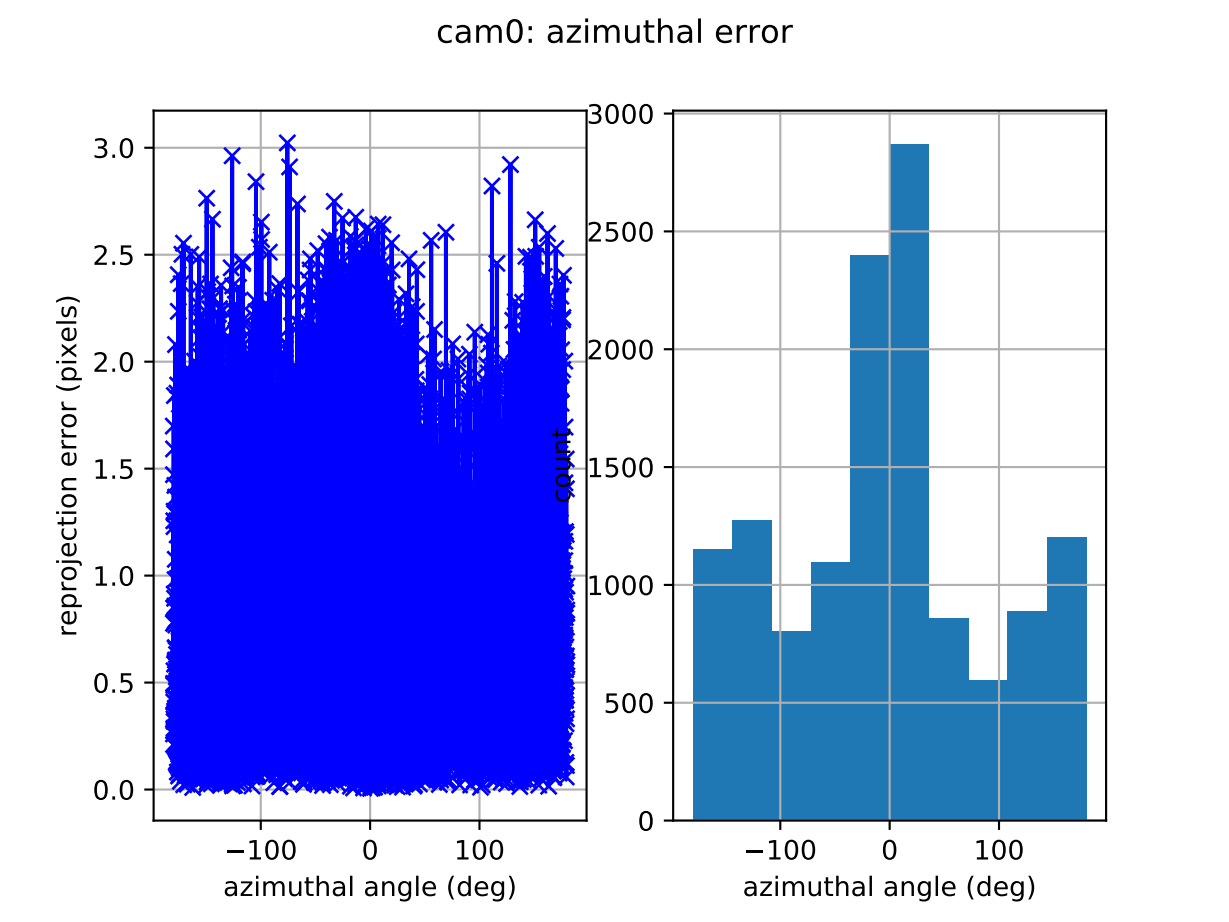
Inter-camera observations graph (edge weight=#mutual obs.)

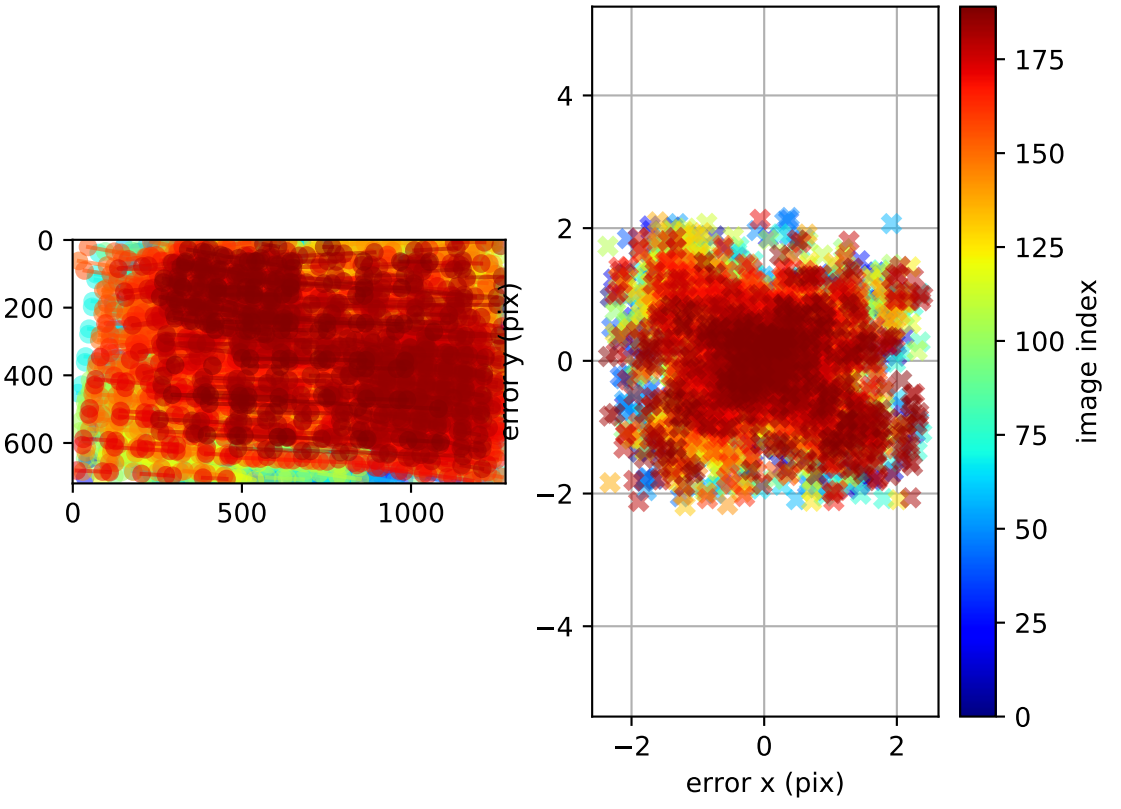


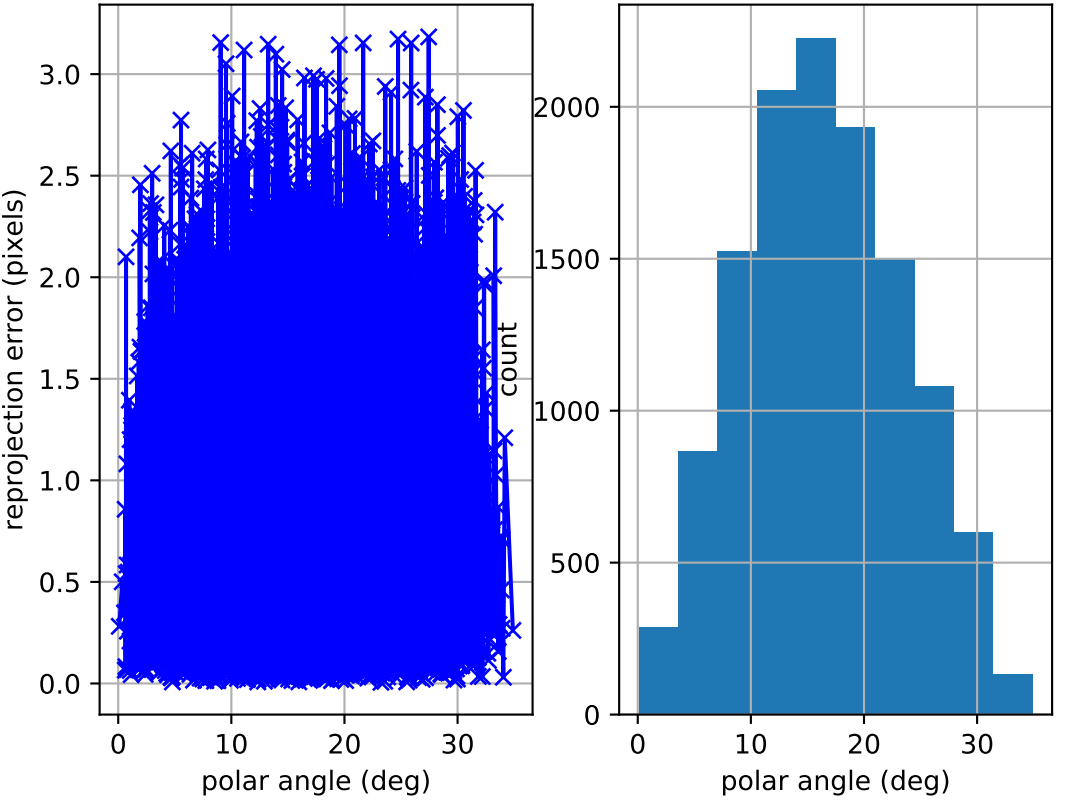

camera system
0.20
0.15
0.10
0.05
0.00
−0.05
−0.10
−0.15
−0.20
−0.2
−0.1
0.0
0.1
0.2
0.2
0.1
0.0
−0.1
−0.2

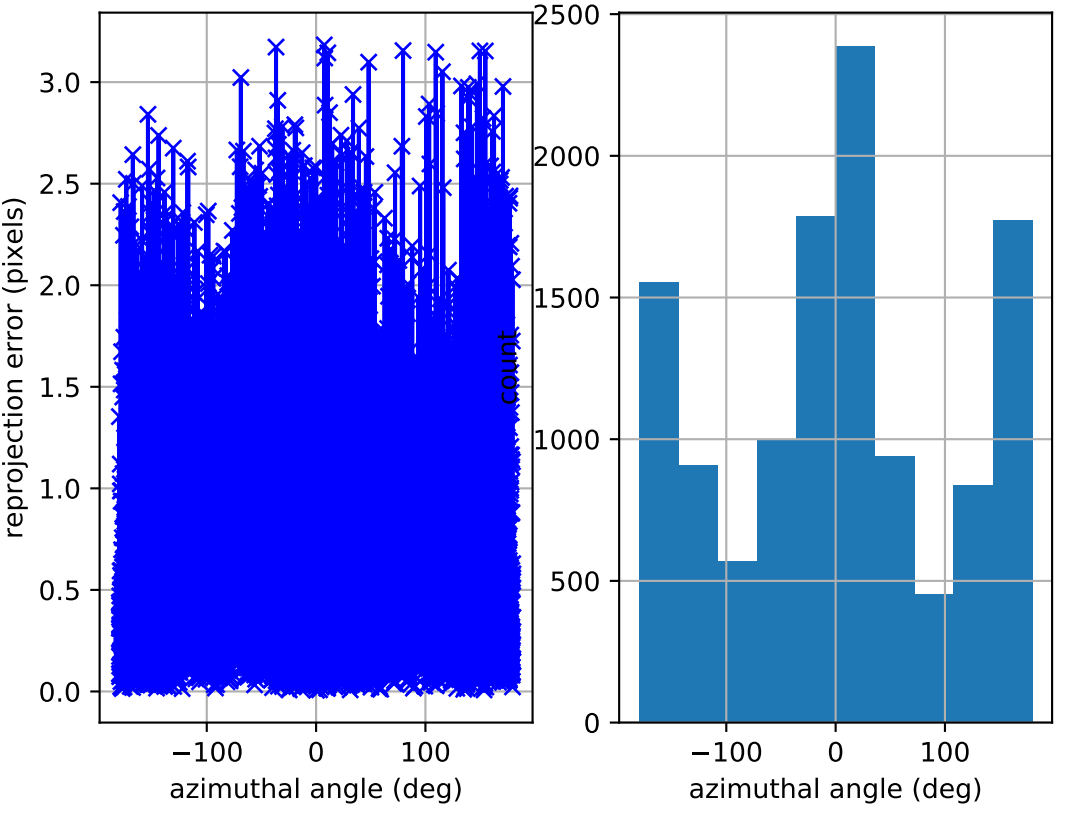

cam0: estimated poses
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
−0.2
0.0
0.2
0.4
0.6

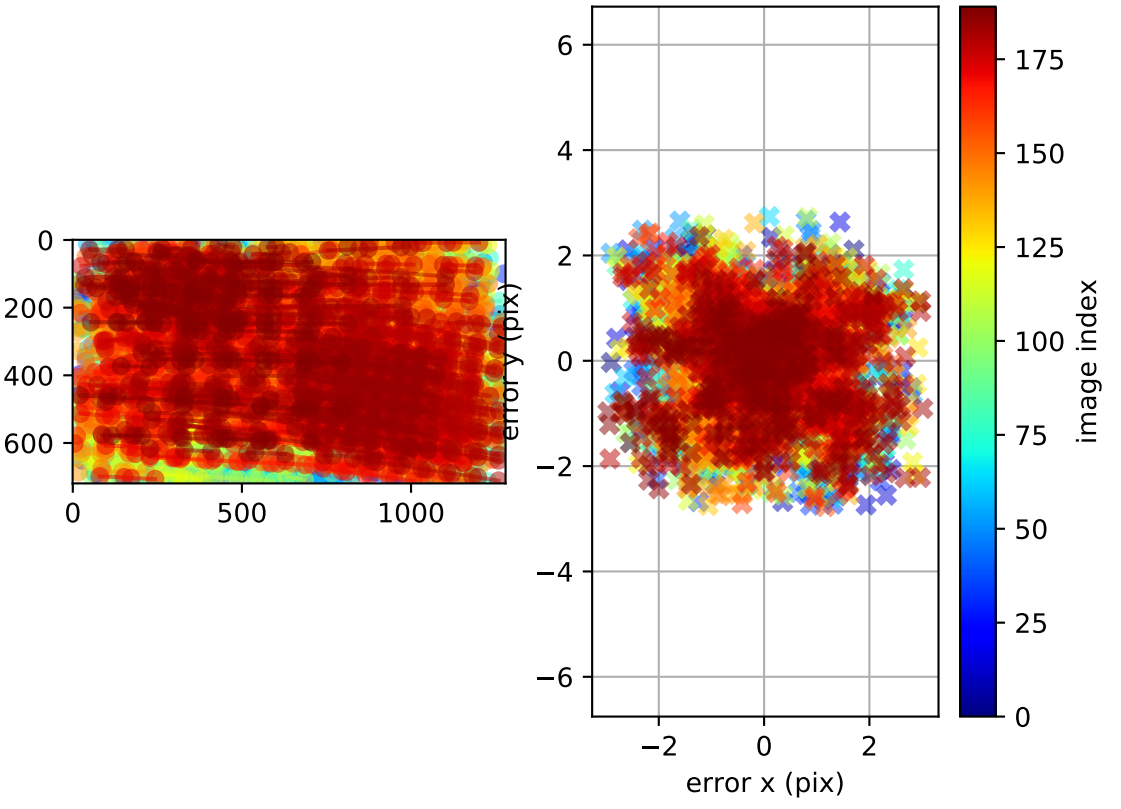

cam0: polar error
reprojection error (pixels)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
polar angle (deg)
count
2000
1500
1000
500
0
0
10
20
30
polar angle (deg)

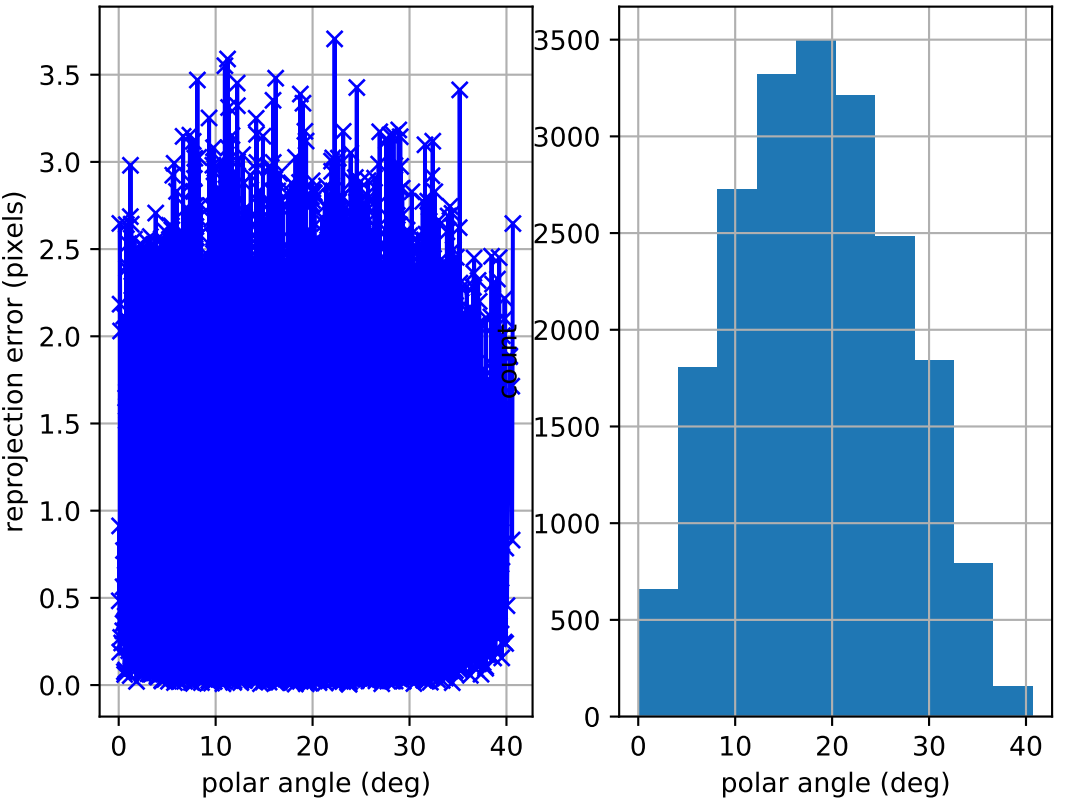

cam0: azimuthal error
reprojection error (pixels)
azimuthal angle (deg)
count
azimuthal angle (deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
−100
0
100
0
500
1000
1500
2000
2500
3000

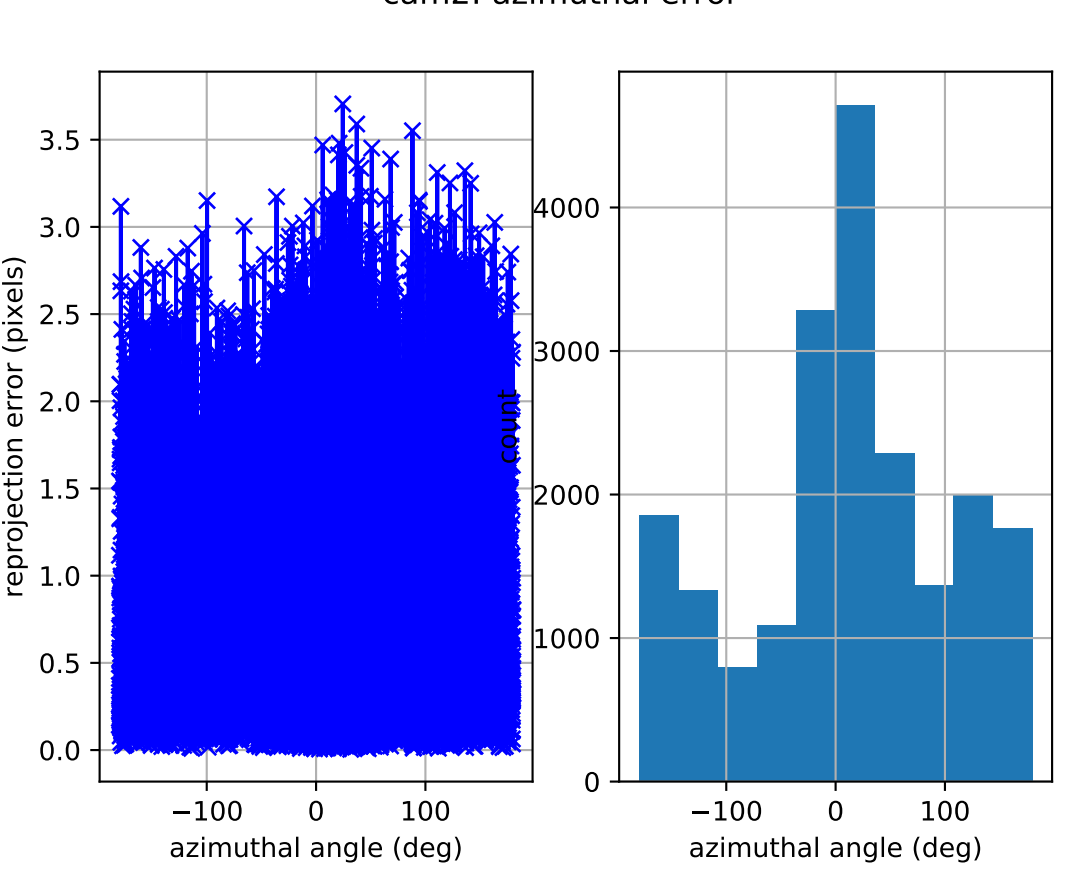

cam0: reprojection errors
0
200
400
600
0
500
1000
error y (pix)
4
2
0
−2
−4
−2
0
2
error x (pix)
175
150
125
100
75
50
25
0
image index

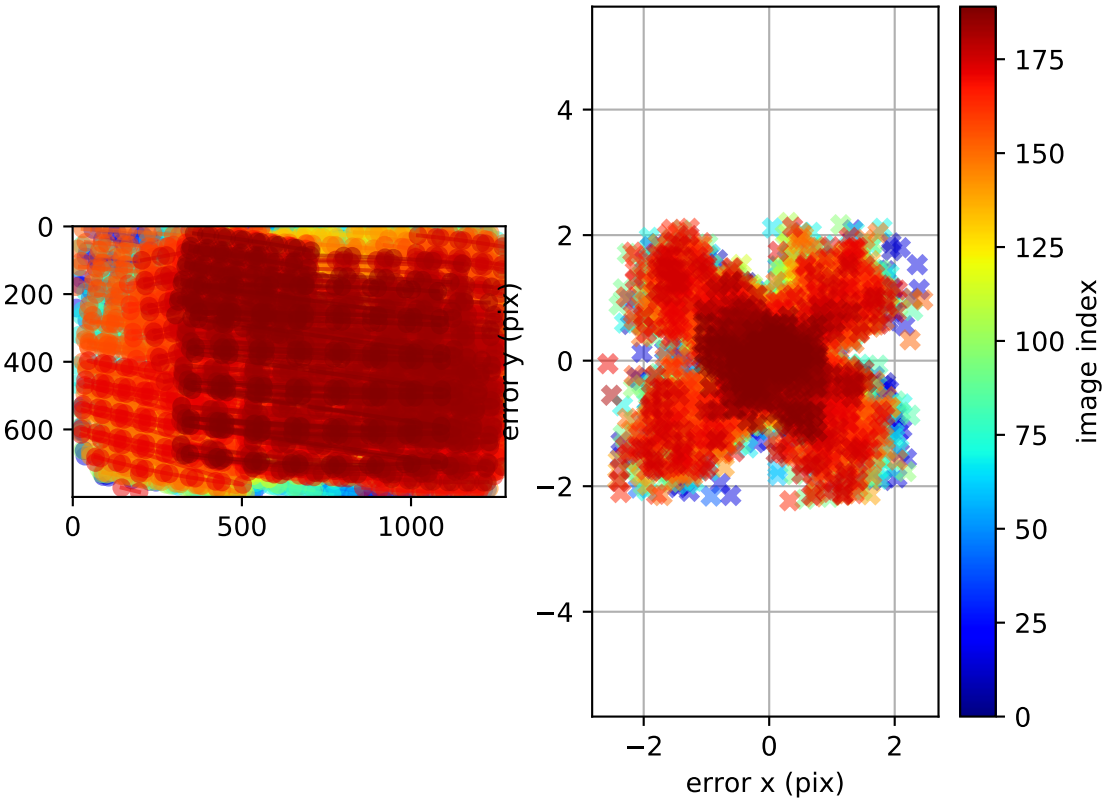

cam1: polar error
reprojection error (pixels)
polar angle (deg)
count
polar angle (deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
10
20
30
0
500
1000
1500
2000

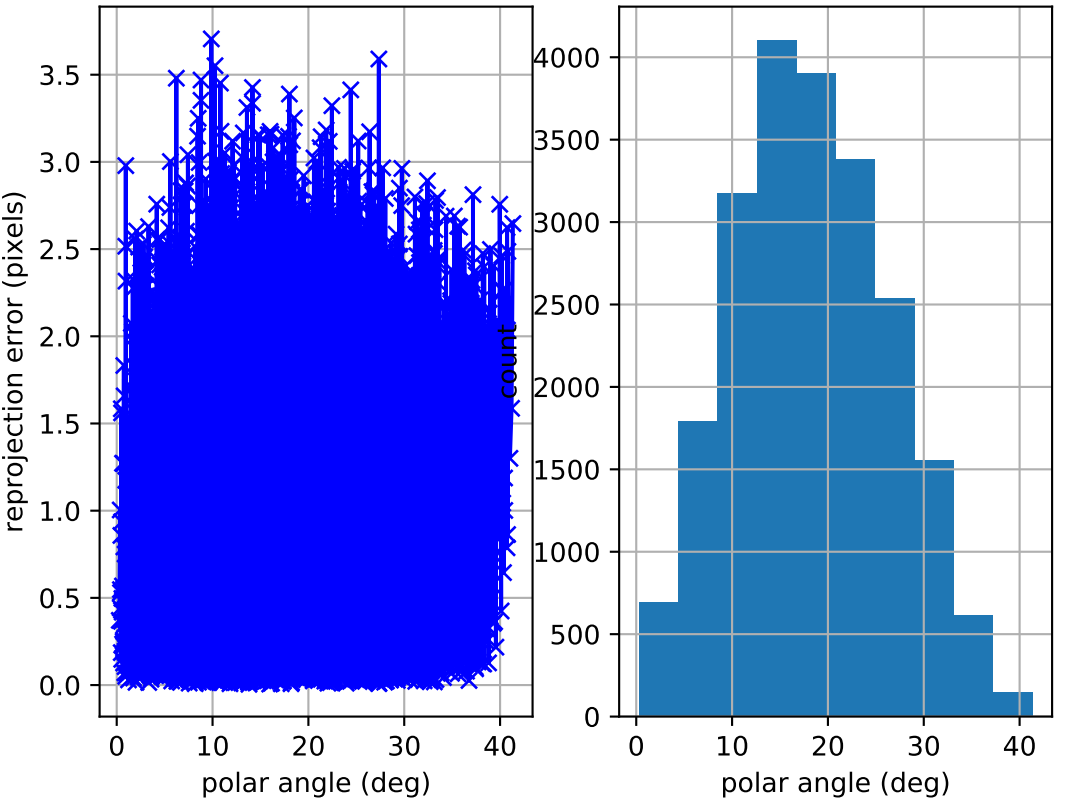

cam1: azimuthal error
reprojection error (pixels)
azimuthal angle (deg)
count
azimuthal angle (deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
−100
0
100
0
500
1000
1500
2000
2500
−100
0
100

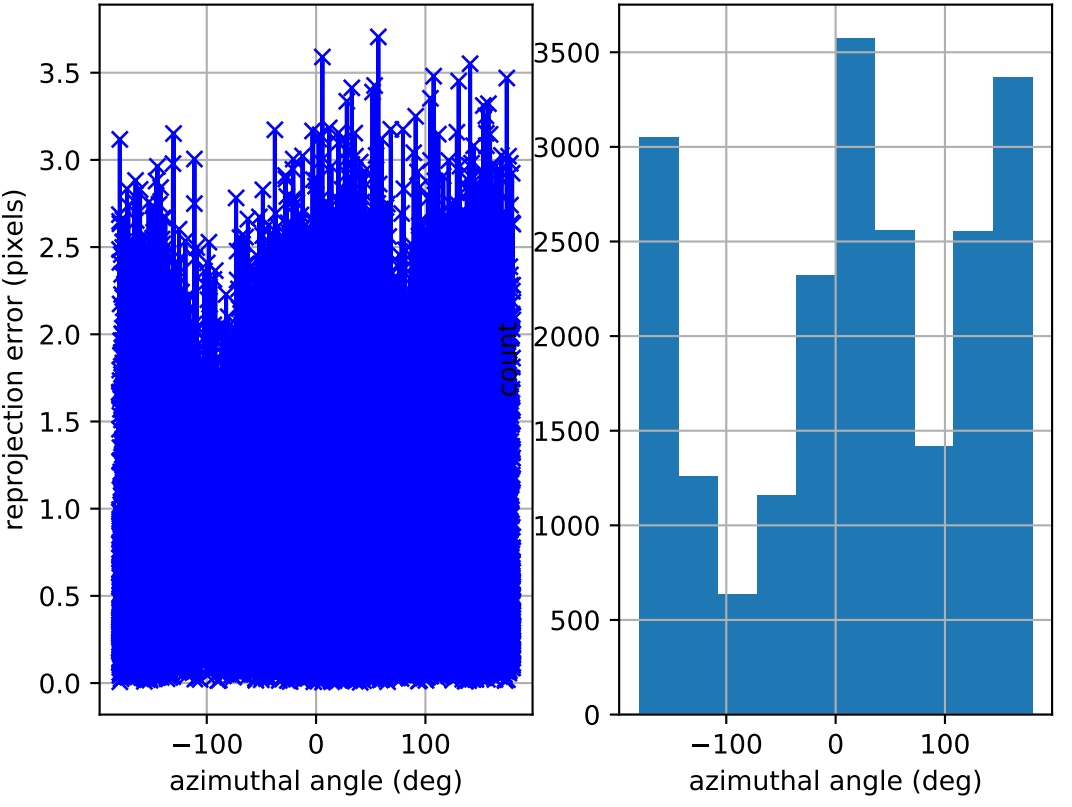

cam1: reprojection errors
0
200
400
600
0
500
1000
error y (pix)
6
4
2
0
−2
−4
−6
−2
0
2
error x (pix)
175
150
125
100
75
50
25
0
image index

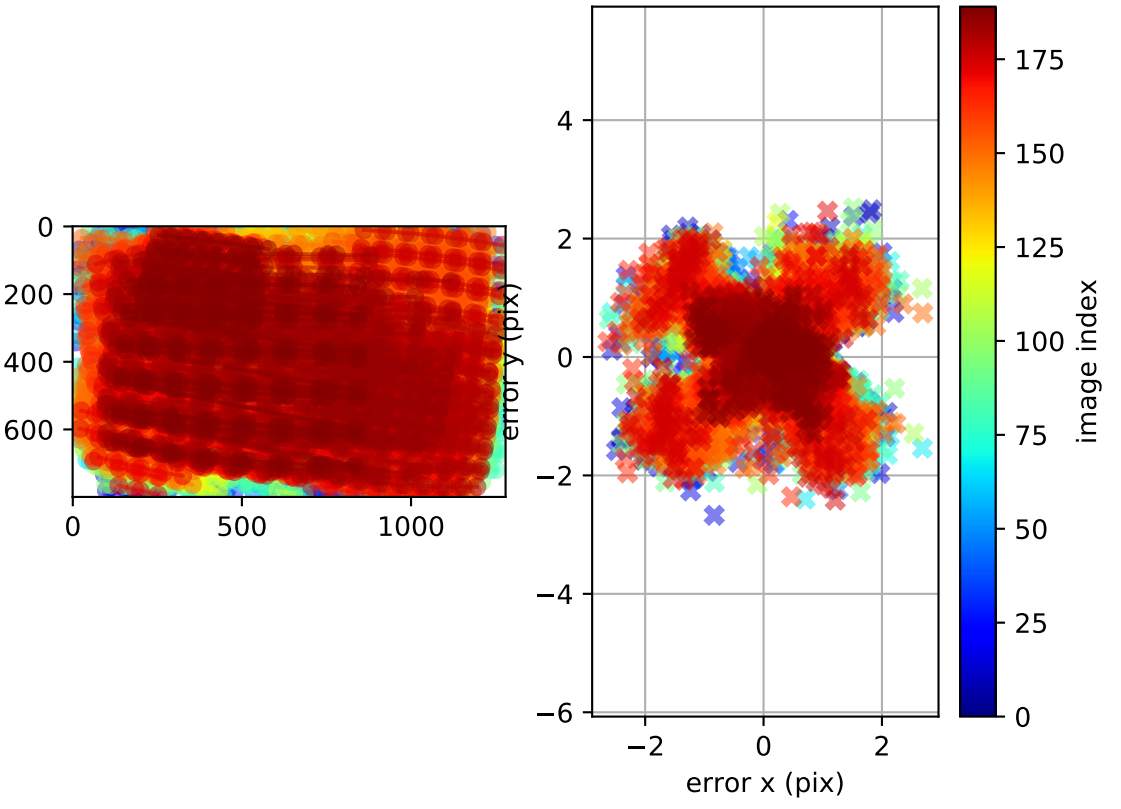

cam2: polar error
reprojection error (pixels)
polar angle (deg)
count
polar angle (deg)

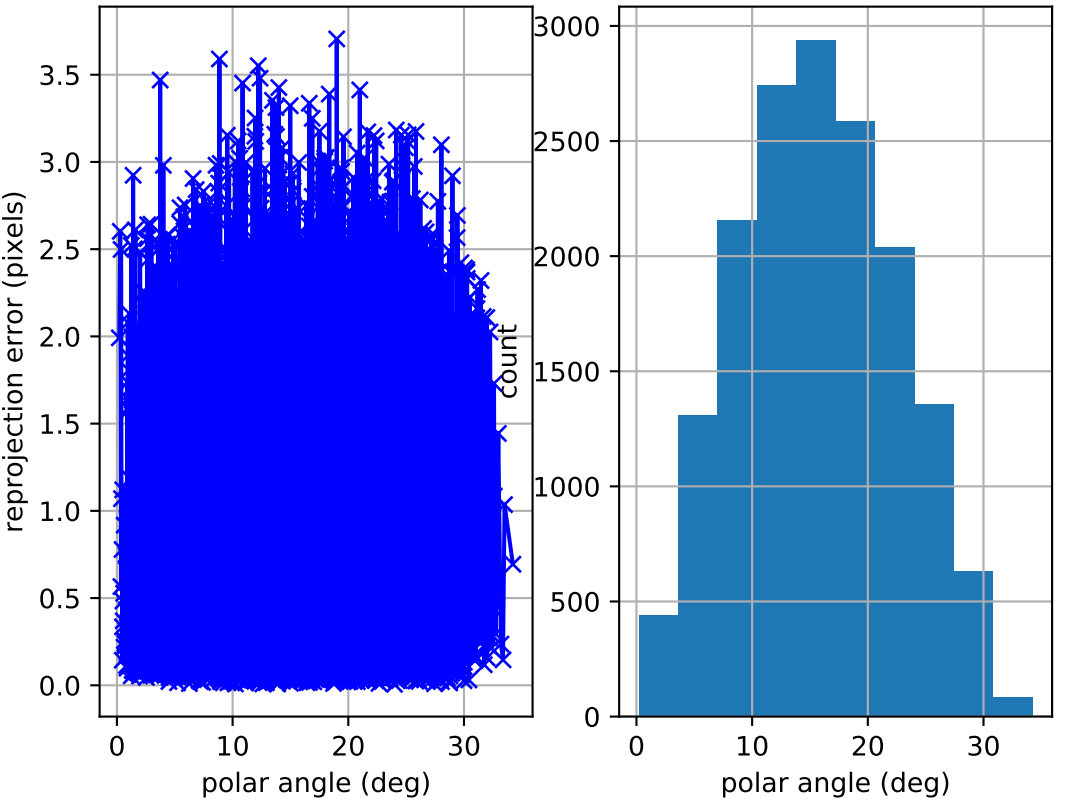

cam2: azimuthal error
reprojection error (pixels)
azimuthal angle (deg)
count
azimuthal angle (deg)

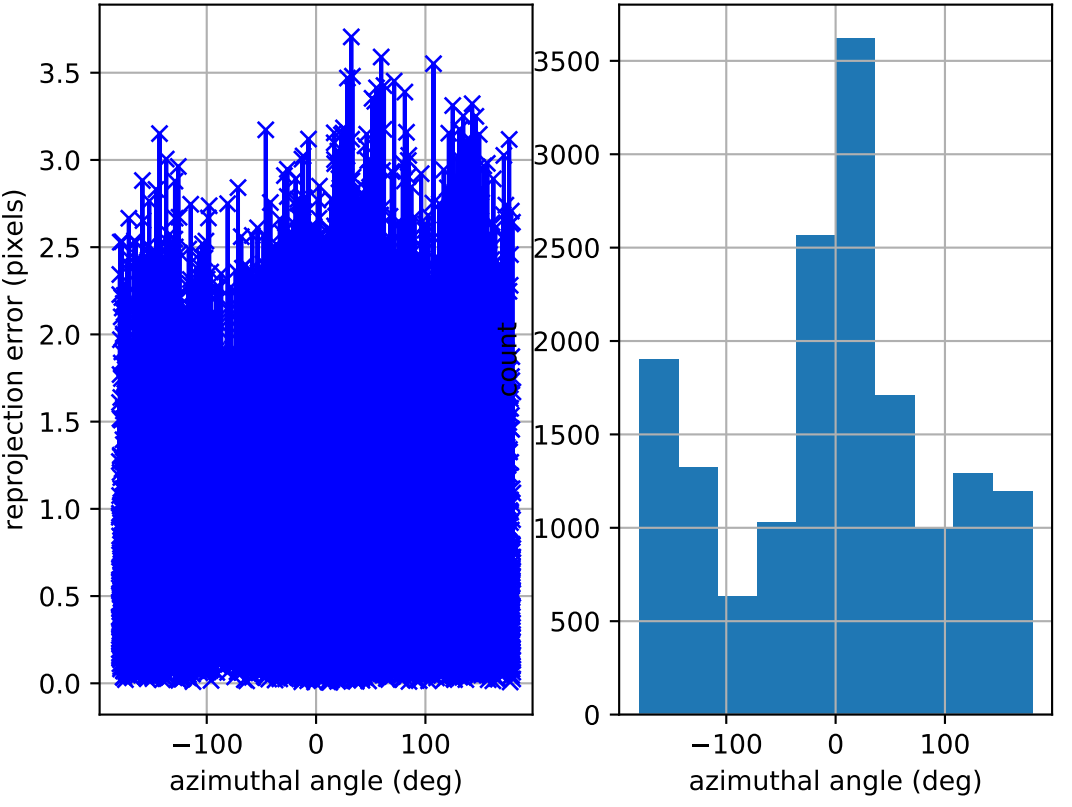

cam2: reprojection errors
0
200
400
600
0
500
1000
error y (pix)
4
2
0
−2
−4
−2
0
2
error x (pix)
175
150
125
100
75
50
25
0
image index

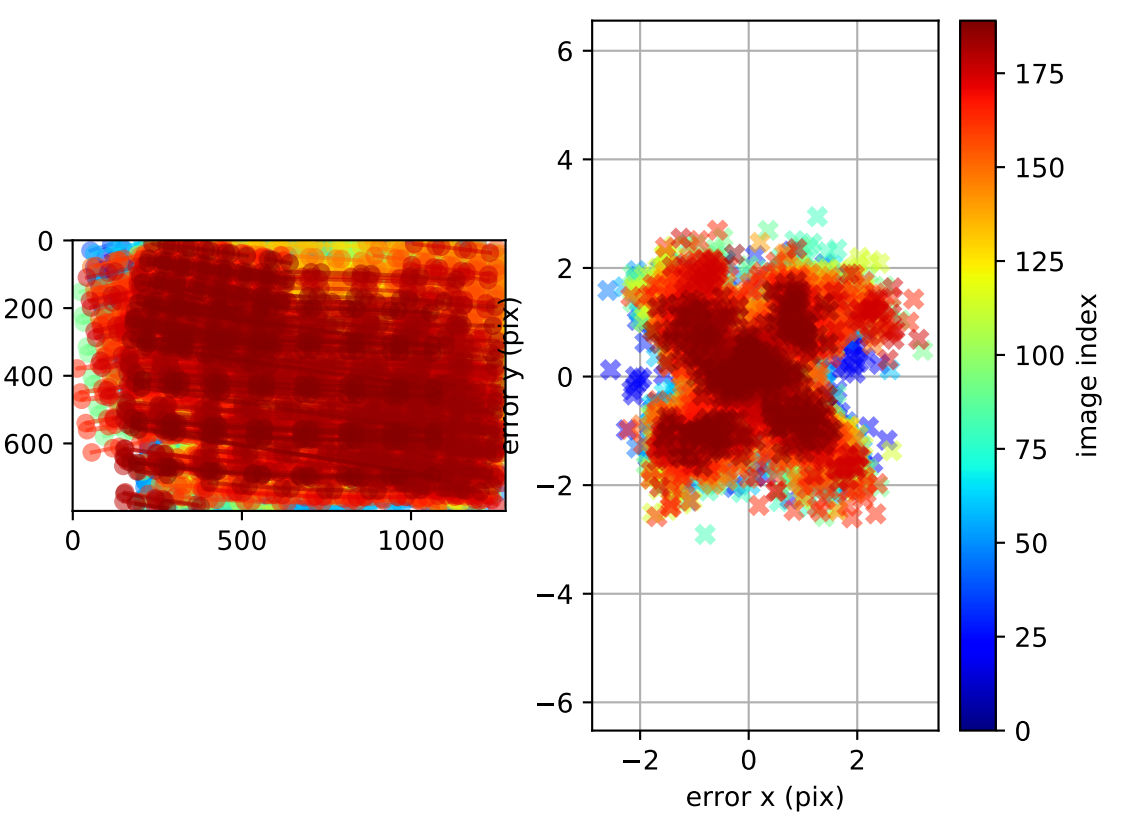

cam3: polar error
reprojection error (pixels)
polar angle (deg)
count
polar angle (deg)

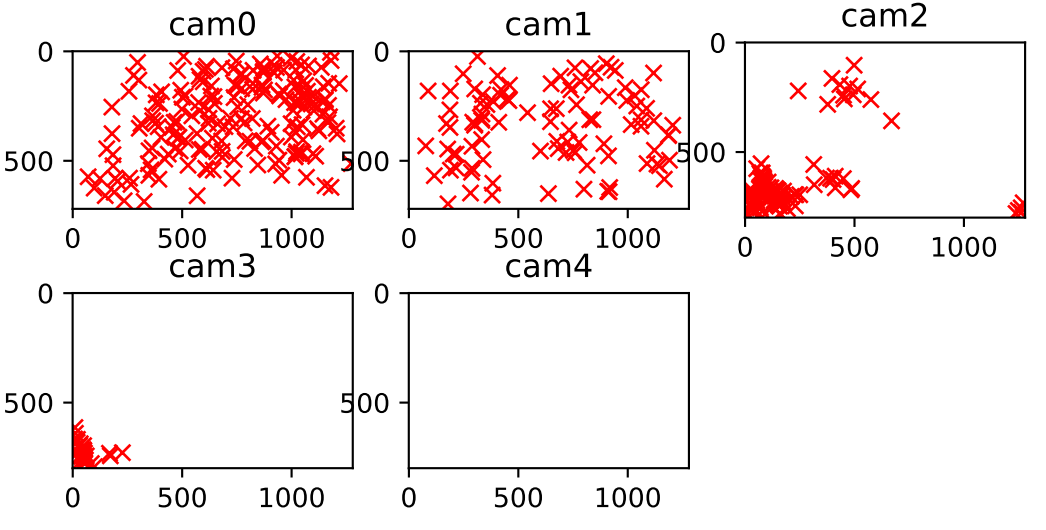

cam3: azimuthal error
reprojection error (pixels)
azimuthal angle (deg)
count
azimuthal angle (deg)


cam3: reprojection errors
0
200
400
600
0
500
1000
error y (pix)
4
2
0
−2
−4
−6
−2
0
2
error x (pix)
175
150
125
100
75
50
25
0
image index


cam4: polar error
reprojection error (pixels)
polar angle (deg)
count
polar angle (deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
0
10
20
30
0
500
1000
1500
2000
2500
3000


cam4: azimuthal error
reprojection error (pixels)
azimuthal angle (deg)
count
azimuthal angle (deg)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
−100
0
100
0
500
1000
1500
2000
2500
3000
3500


cam4: reprojection errors
0
200
400
600
0
500
1000
6
4
2
0
−2
−4
−6
−2
0
2
error x (pix)
error y (pix)
175
150
125
100
75
50
25
0
image index


Location of removed outlier corners
cam0
cam1
cam2
cam3
cam4
0
500
1000