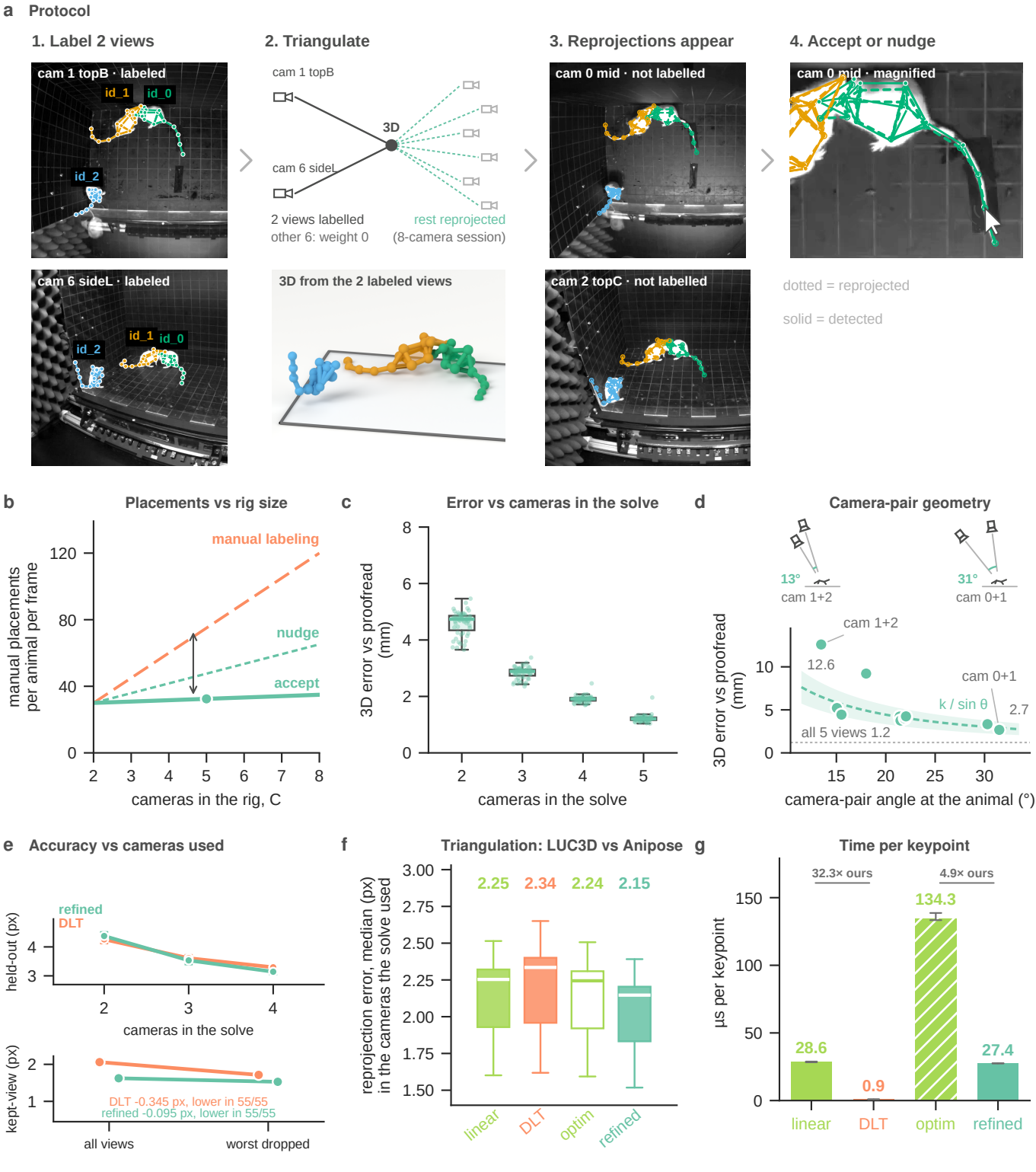

a Protocol
1. Label 2 views
2. Triangulate
3. Reprojections appear
4. Accept or nudge
cam 1 topB · labeled
id_1
id_0
id_2
cam 1 topB
3D
cam 6 sideL
2 views labelled
other 6: weight 0
rest reprojected
(8-camera session)
cam 0 mid · not labelled
cam 0 mid · magnified
cam 6 sideL · labeled
3D from the 2 labeled views
cam 2 topC · not labelled
dotted = reprojected
solid = detected
b
Placements vs rig size
manual labeling
nudge
accept
manual placements per animal per frame
cameras in the rig, C
c
Error vs cameras in the solve
3D error vs proofread (mm)
cameras in the solve
d
Camera-pair geometry
13°
cam 1+2
31°
cam 0+1
12.6
k / sin θ
2.7
all 5 views 1.2
3D error vs proofread (mm)
camera-pair angle at the animal (°)
e
Accuracy vs cameras used
refined
DLT
held-out (px)
cameras in the solve
kept-view (px)
DLT -0.345 px, lower in 55/55
refined -0.095 px, lower in 55/55
all views
worst dropped
f
Triangulation: LUC3D vs Anipose
2.25
2.34
2.24
2.15
reprojection error, median (px) in the cameras the solve used
linear
DLT
optim
refined
g
Time per keypoint
32.3× ours
4.9× ours
134.3
28.6
0.9
27.4
µs per keypoint
linear
DLT
optim
refined