A Toolbox for Easily Calibrating Omnidirectional Cameras D. Scaramuzza, A. Martinelli, and R. Siegwart (IROS 2006)



- Fast and automatic calibration of central omnidirectional cameras, both dioptric and catadioptric
- Requiring a few images of a checker board, and clicking on its corner points
- No need for specific model of the omnidirectional sensor
- Imaging function by a Taylor series expansion whose coefficients are estimated by
 - solving a four-step least-squares linear minimization problem
 - a non-linear refinement based on the maximum likelihood criterion
- Evaluation on both simulated and real data
- Showing calibration accuracy by projecting the color information of a calibrated camera on real 3D points extracted by a 3D sick laser range finder
- A Matlab toolbox