

Localization Based on Agami Fiducials with OMNIVIEWS Camera

- First Experiments

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Observed intensity of an Agami fiducial depends on the viewing angle

⇒ viewing angle from one view

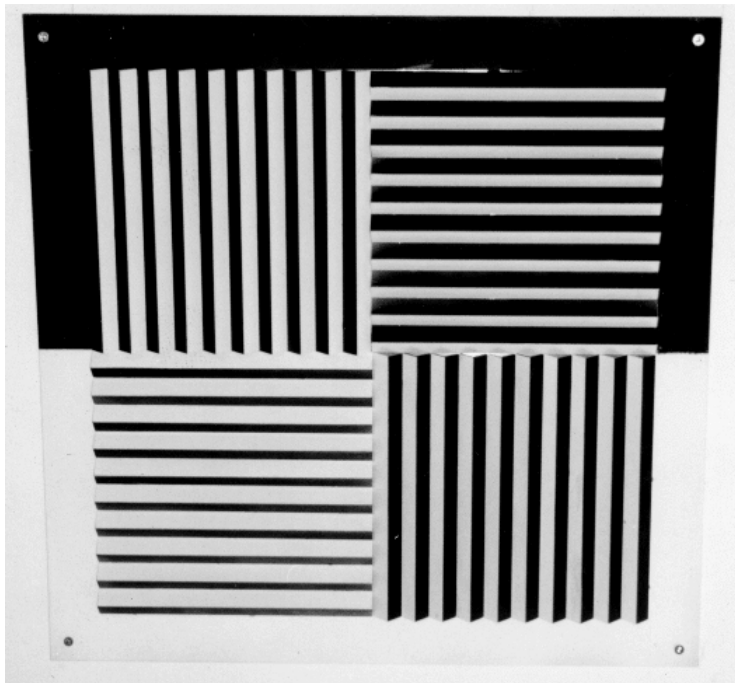
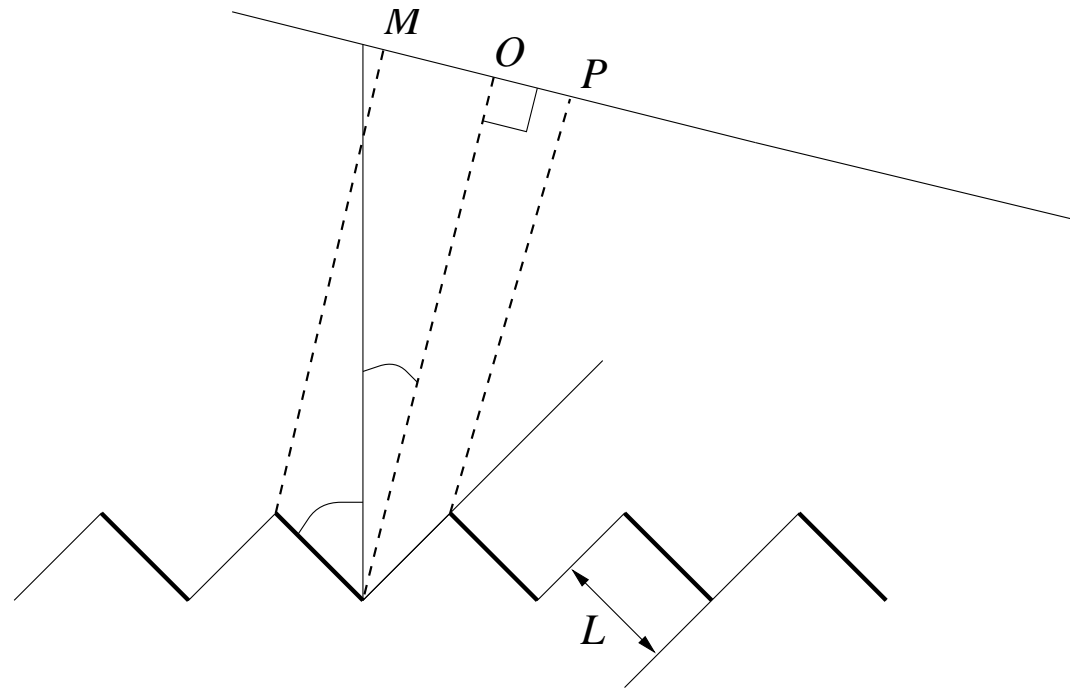
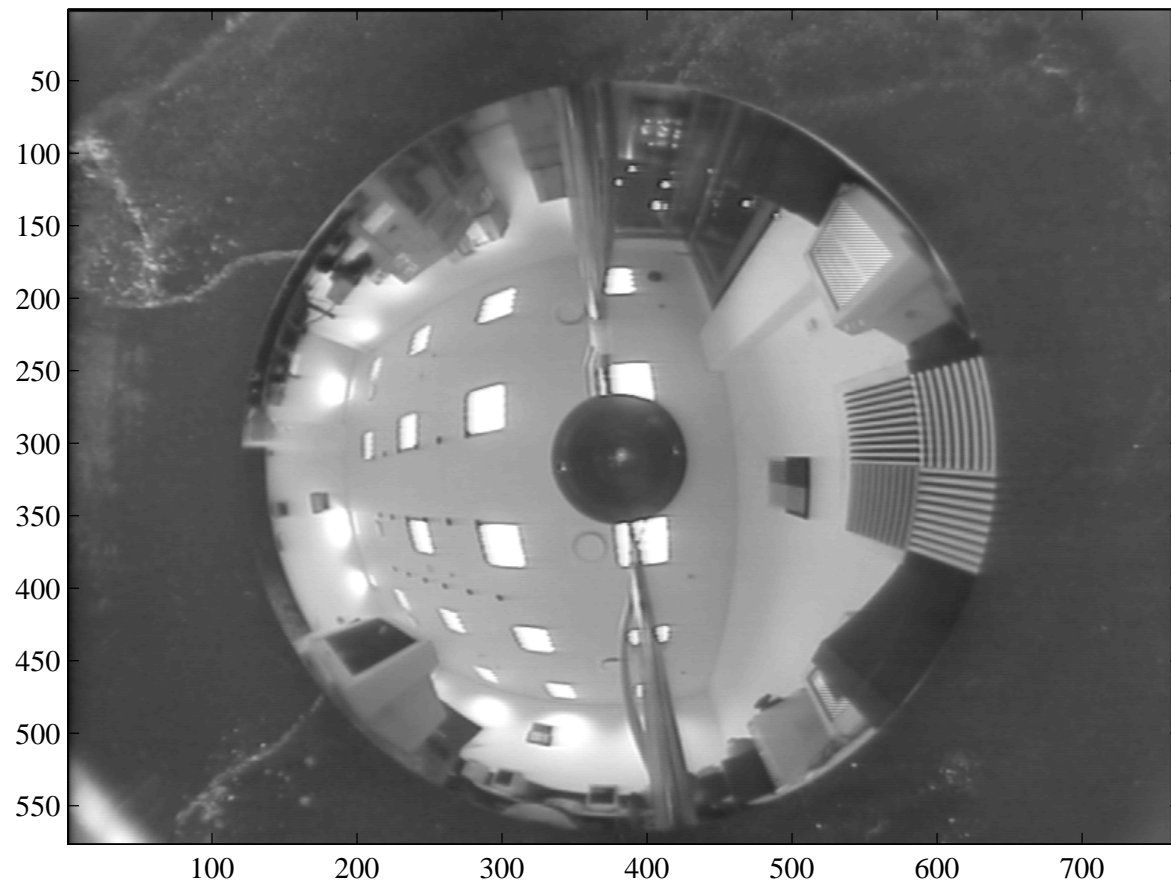


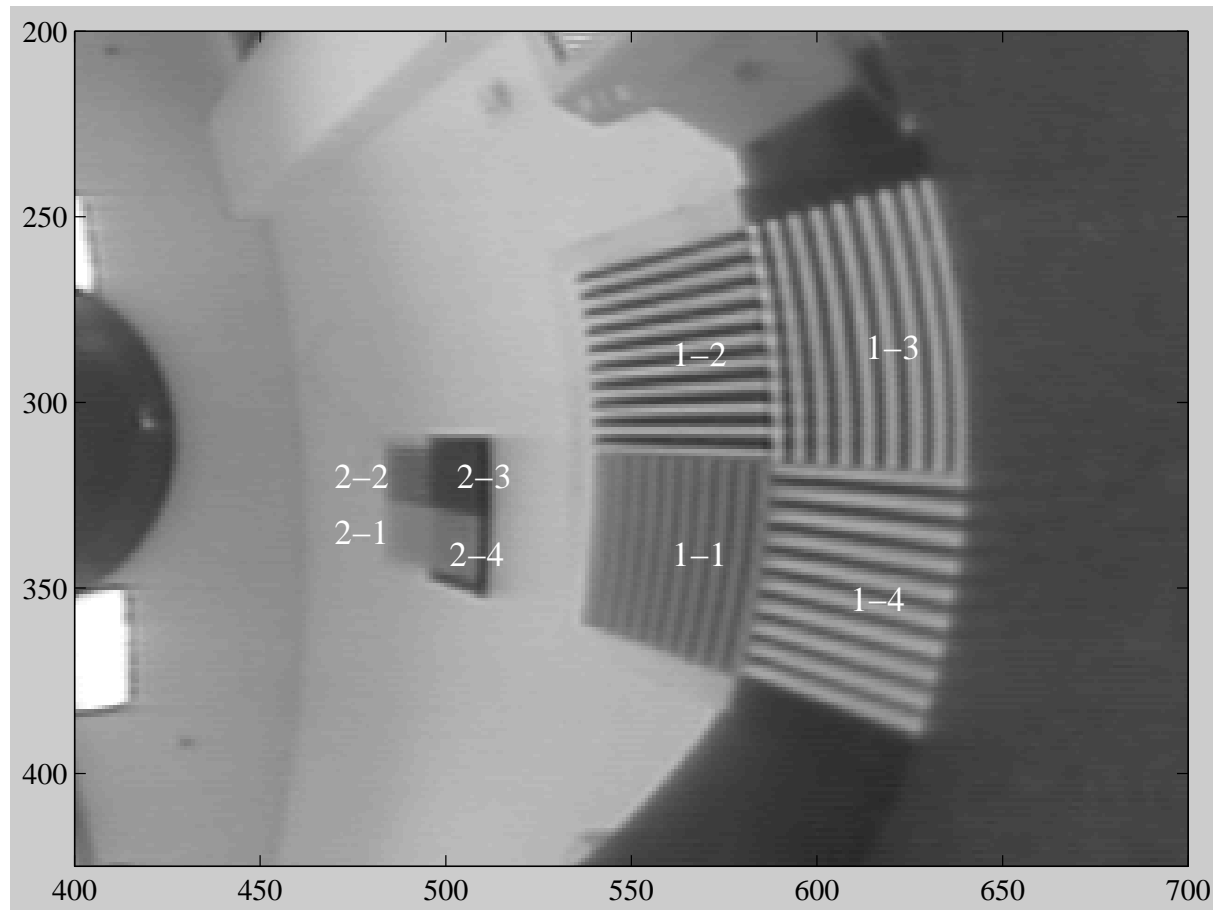
Image of an Agami fiducial



Height profile of an Agami fiducial

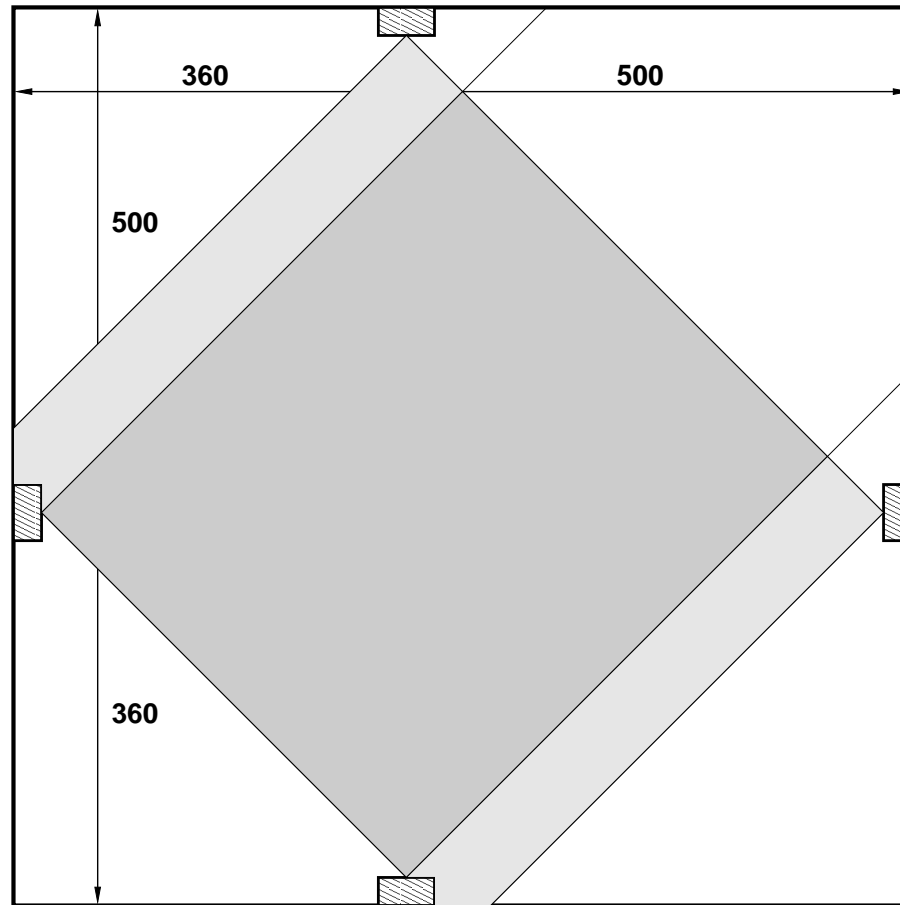


Panoramic image taken by a catadioptric panoramic camera with a CCD imager of the size 576×768 pixels



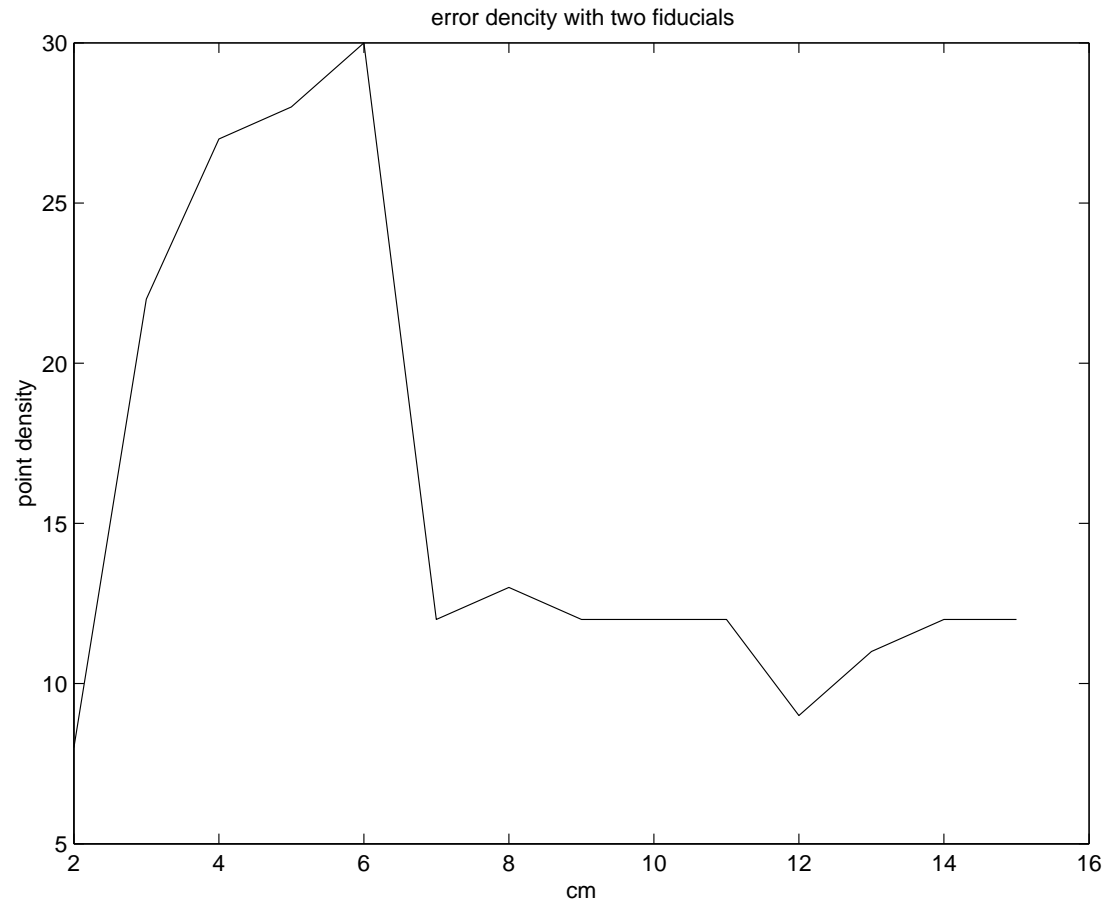
A detail view of the fiducial in a conventional image

Localization from *conventional* panoramic images of two fiducials



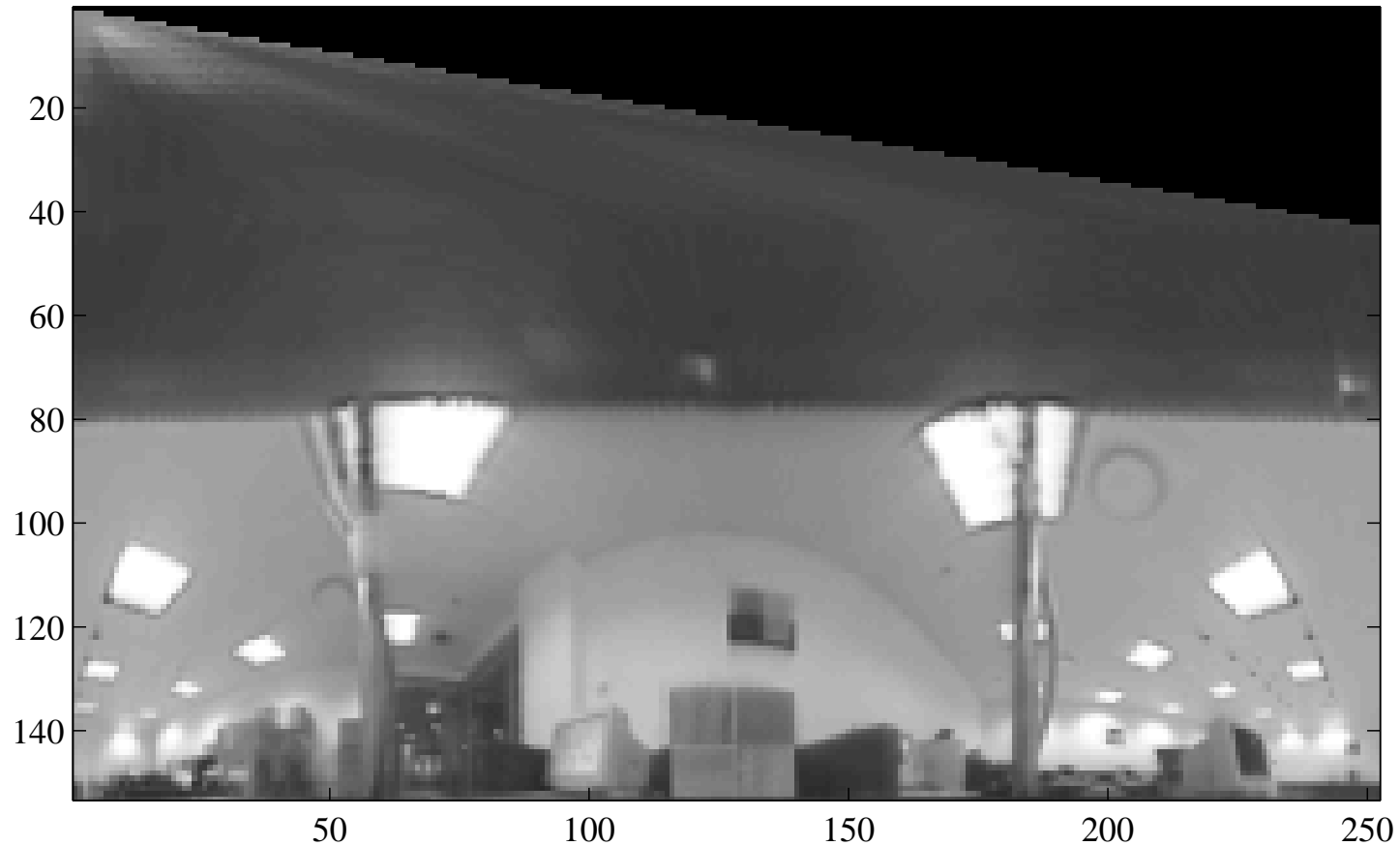
Test room with four fiducials

Localization is done by intersecting two lines from with directions measured from average gray levels of observed fiducials by a *conventional* panoramic catadioptric camera!

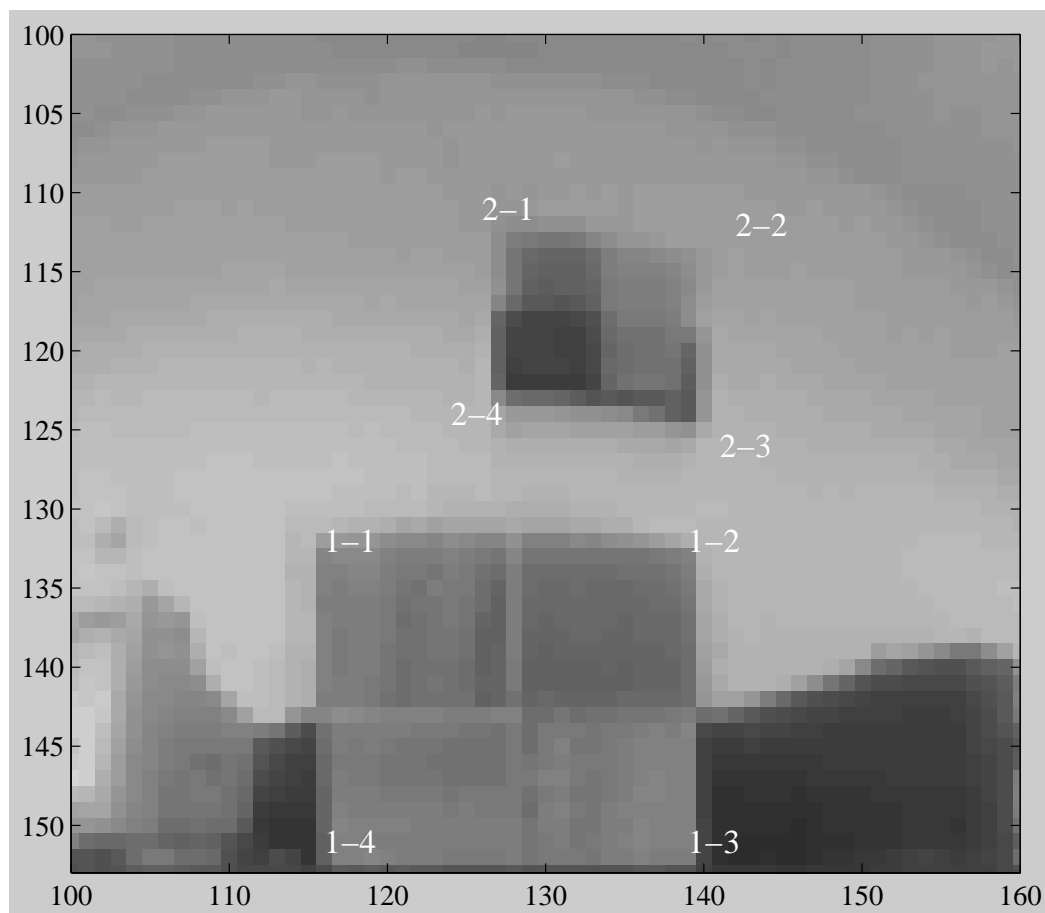


Localization error histogram

Localization from *simulated SVAVISCA* panoramic images of two fiducials distance to as well as the size of the fiducial = 60 cm, size of the

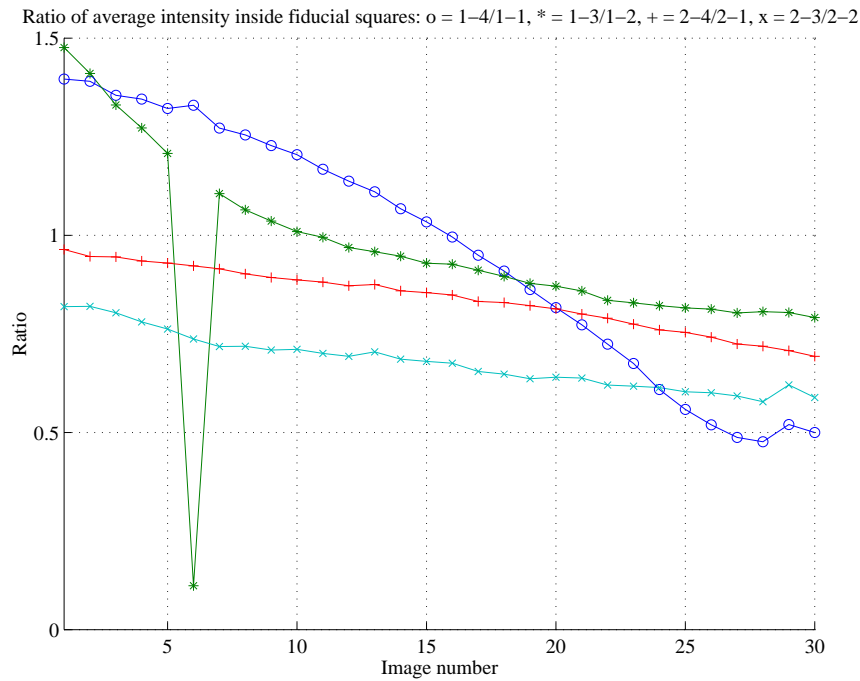


An image taken by a catadioptric panoramic camera with the SVAVISCA imager (simulation)

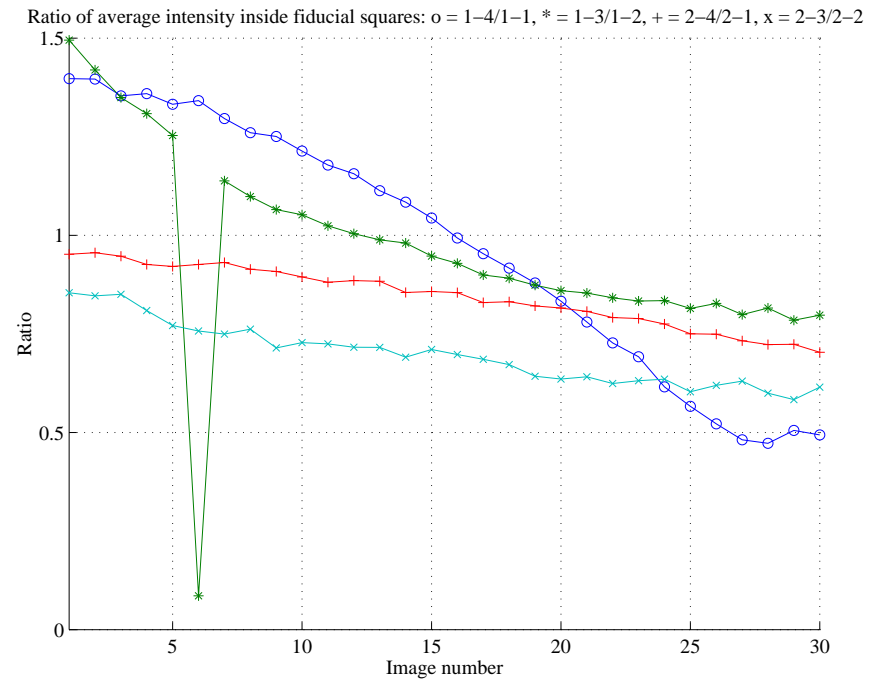


A detailed view of the fiducials in a SVAVISCA image (simulation)

Average intensities in fiducial squares as a function of the position



from conventional images



from SVAVISCA images (simulations)

should be (and are) the same up to resampling error.

Conclusions

1. two Agami fiducials are enough to localize;
2. based on the average intensity in an image area \longrightarrow low resolution OK;
3. works up to 3 meters for 60 cm fiducials and 110×252 SVAVISCA images.