Virtual Rigid Body
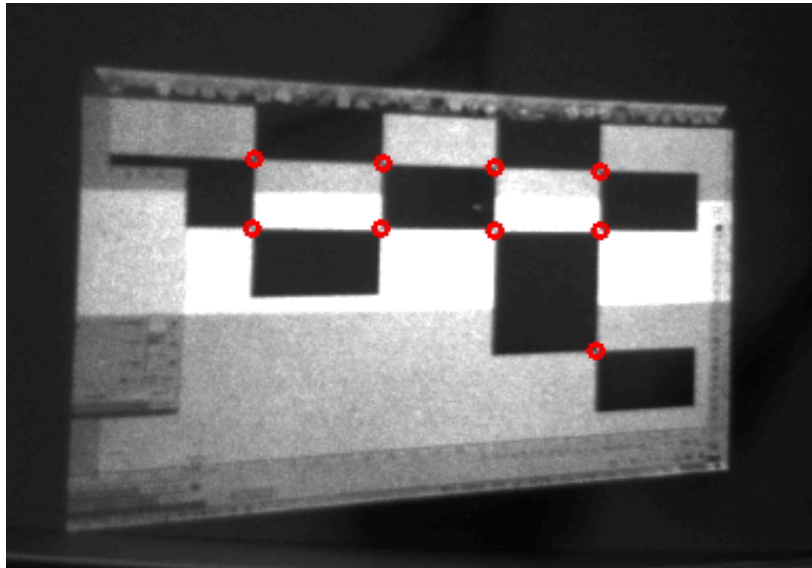
David Lee (dslee@cis.jhu.edu)
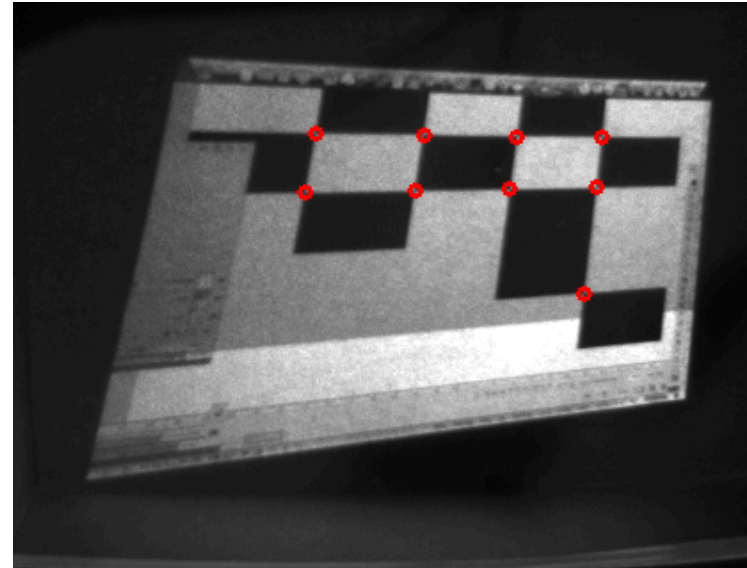Mentors: Alexis Cheng, Dr. Emad M. Boctor
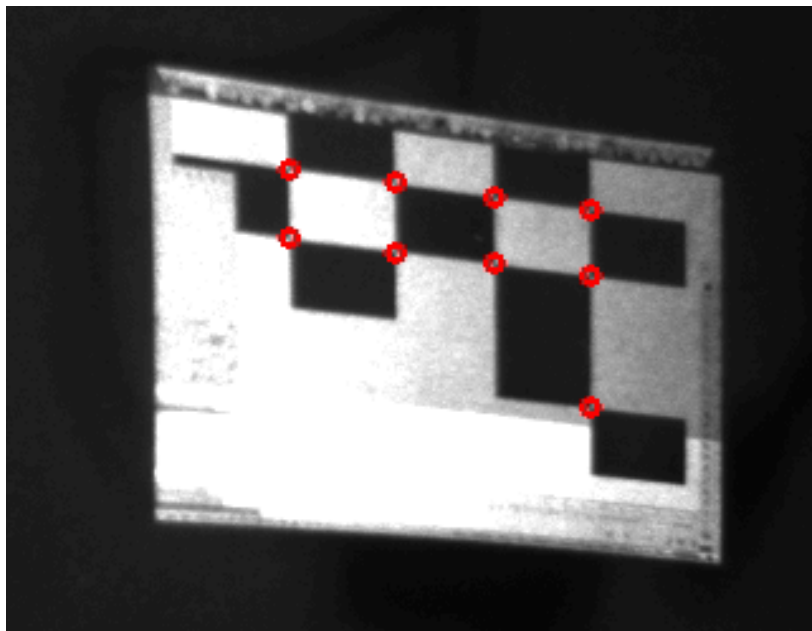
Mar. 15th, 2014

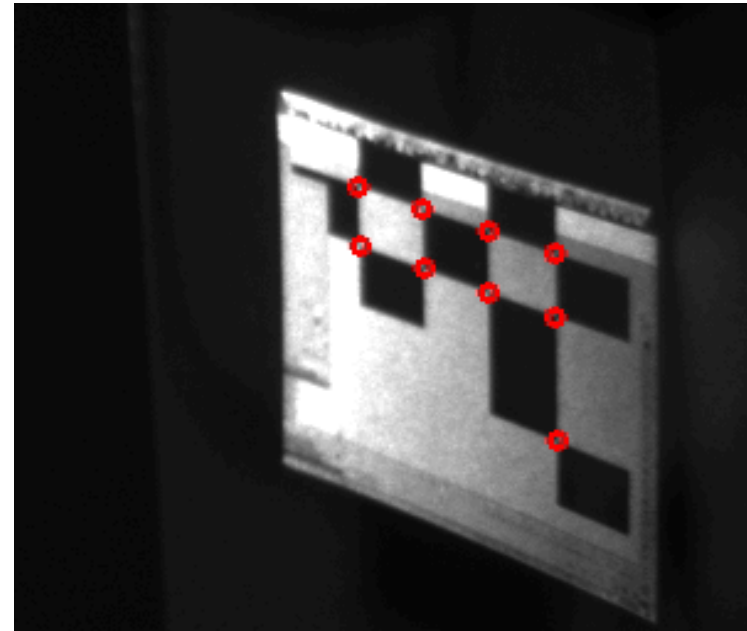# Slanted Detection - MicronTracker

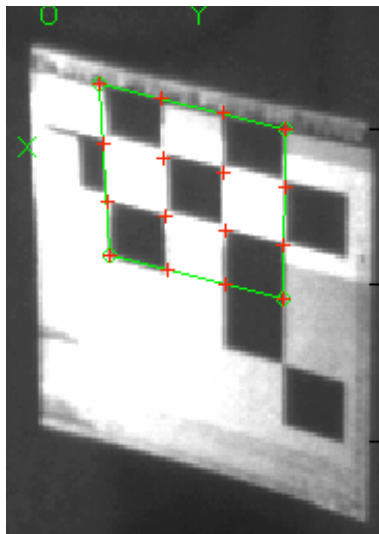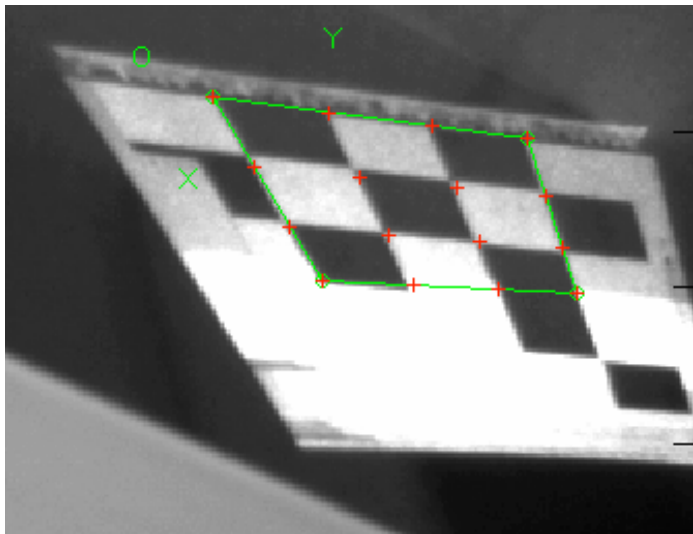Pretty much straight

Slanted

Slanted

Slanted

Appropriate exposure allows stable detection of reasonably slanted projections.

"Appropriate exposure" :
• Gain = 1.1 (minimum)
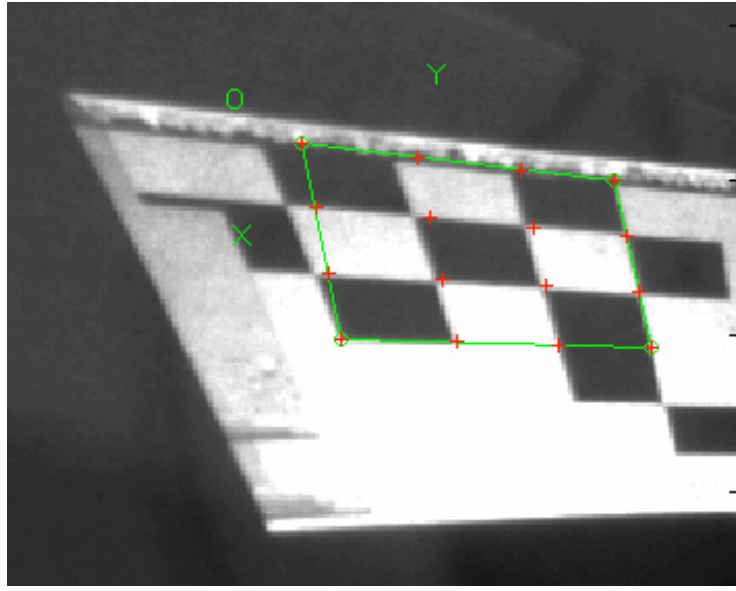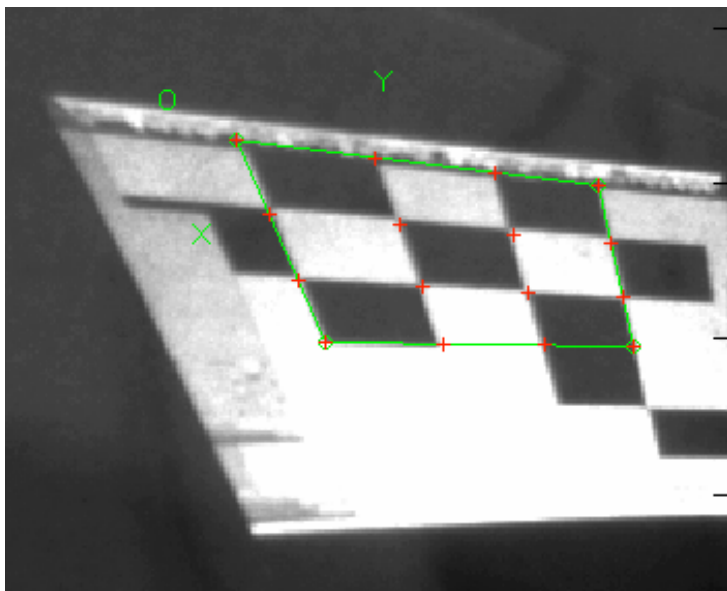• Shutter speed = 20ms (max)
• No histogram equalization

MicronTracker support team replied that as long as the "XLines" are straight, the points will likely be detected. Therefore, the surface of interest may have to be restricted to flat one.

(MicronTracker software)

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Slanted Detection - Calibration Toolkit

Pretty reasonable, but...

Very susceptible to initial assignment

(Caltech calibration toolkit)

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Reference point

Projected marker
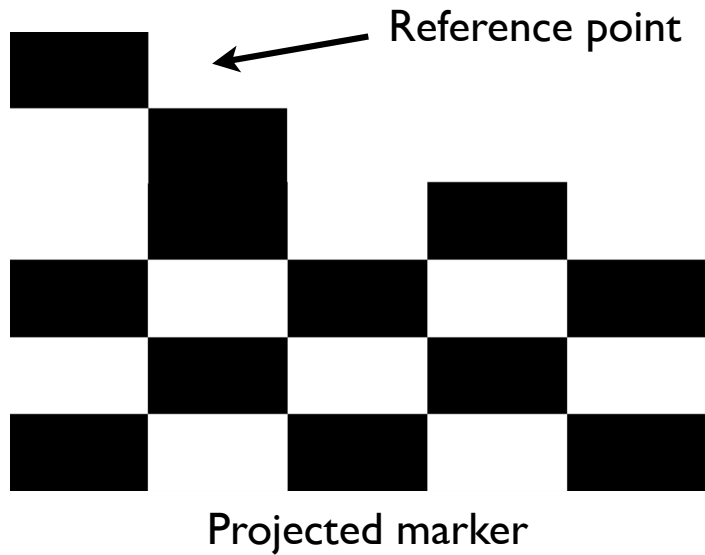
- Assumption : the surface of interest will be flat
1. Distance between all pairs of points were computed.
2. The point with the maximum shortest inter-point distance was detected as the reference (point 0).
3. Closest point from the reference was marked as 1.
4. Then on, the closest point from the current point was labeled sequentially.

Correspondence

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JOHNS HOPKINS
UNIVERSITY