

ReCap Photo

Photogrammetry

Equipment

- 12MP or higher sensor resolution
- Use high quality prime rectilinear lens
 - Fisheye is not supported.
- EXIF information should have lens information.
 - For Aerial, GPS tags are essential for geo-location.



GPS information:

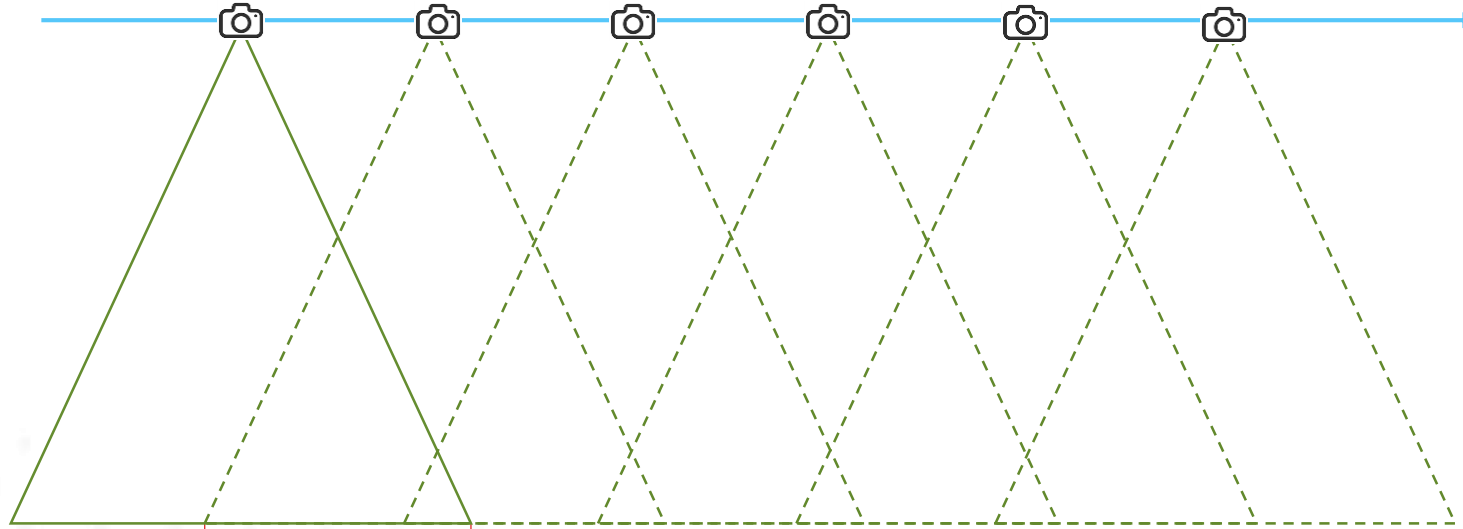
GPSLatitudeRef	N
GPSLatitude	36 3 19.799999 (36.055500)
GPSLongitudeRef	W
GPSLongitude	94 13 45.0 (94.229167)
GPSAltitudeRef	Sea level
GPSAltitude	436.21 m

Photogrammetry

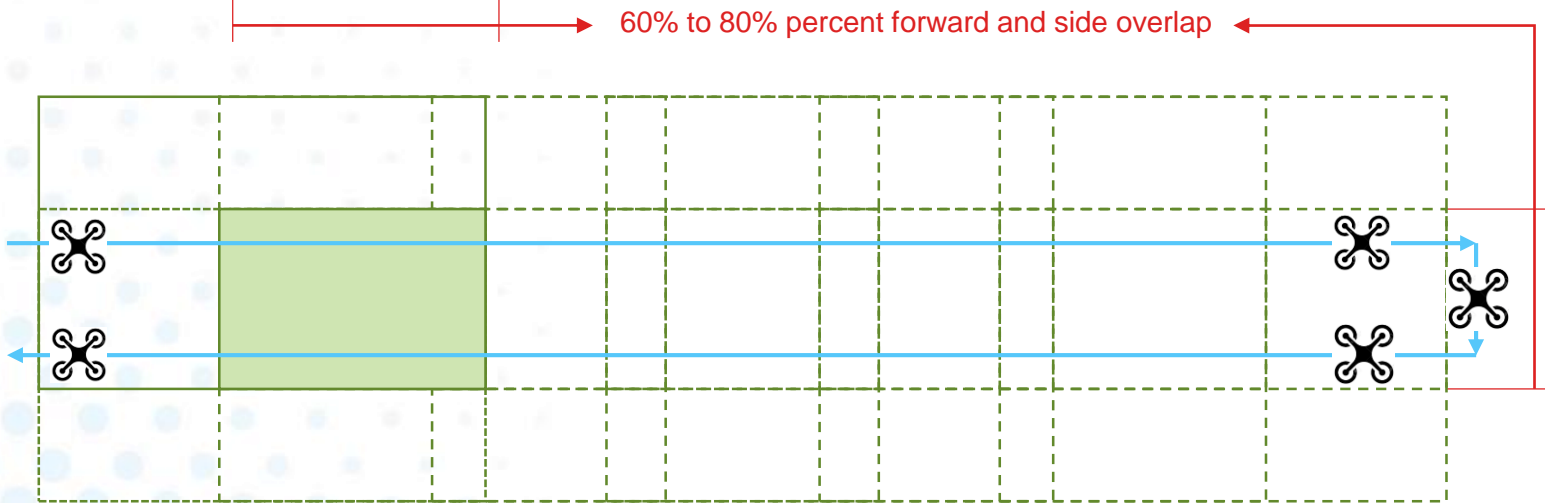
Image quality

- Forward and side overlap of 60 to 80% between the images.
- The object of interest should cover 60% or more in the image frame.
- Scene must be well lit (if possible, with uniform diffuse light). No harsh flashes.
- Set white balance to a fixed setting instead of Auto.
- Scene/object must be well textured (colour variation). Images of reflective, planar, repetitive structures/patterns, texture-less surfaces do not stitch well or will likely fail.
- The object should be in sharp focus and should not have motion or out-of-focus blur.
- ISO should be set to camera's base setting (typically 100 or 200 for most cameras).
- Post processing of JPG images is not recommended.
- If using a turn-table, make sure the back ground is completely texture less.

Aerial Photogrammetry



Front view



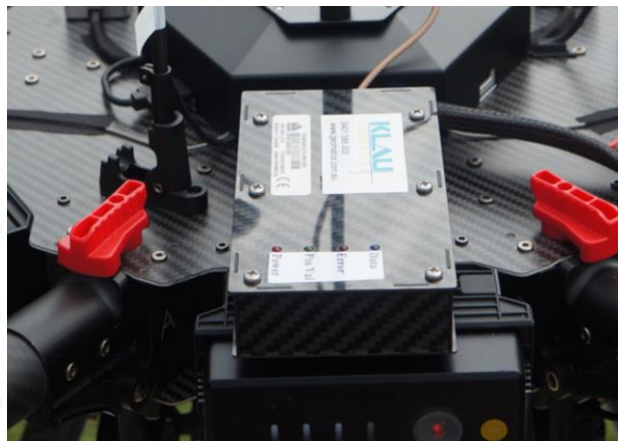
Top view

60% to 80% percent forward and side overlap

GCPs increases geo-location accuracy

Use Ground Control points for high accuracy

- At least 5 GCPs, spread across the scene and $\sim 1/5^{\text{th}}$ from the boundary
- Geolocation accuracy of the scene increases to within an inch irrespective of the site size
- RTK/PPK GPS increases absolute accuracy **across** the scene



Coordinate system: LL84

Photo Map Show camera locations Show address

Add row		Delete row		
GCP Name	Longitude (Degree)	Latitude (Degree)	Altitude (Meter)	Checkpoint
1	-94.23050805	36.05385835	374.001792	<input type="checkbox"/>
10	-94.23009449	36.05579335	372.535704	<input type="checkbox"/>
11	-94.23022523	36.05625867	371.630448	<input type="checkbox"/>
12	-94.23045892	36.05712844	372.35892	<input type="checkbox"/>
2	-94.22905904	36.05382857	374.977152	<input type="checkbox"/>
3	-94.23021657	36.0547764	373.44096	<input type="checkbox"/>
4	-94.23082121	36.05570222	372.87708	<input type="checkbox"/>
5	-94.229191...	36.05688534	372.368064	<input type="checkbox"/>
6	-94.23107838	36.05478624	373.422672	<input type="checkbox"/>
7	-94.229536	36.05386623	374.711976	<input type="checkbox"/>
8	-94.229815...	36.05481788	374.044464	<input type="checkbox"/>
9	-94.22994706	36.05529205	373.511064	<input type="checkbox"/>

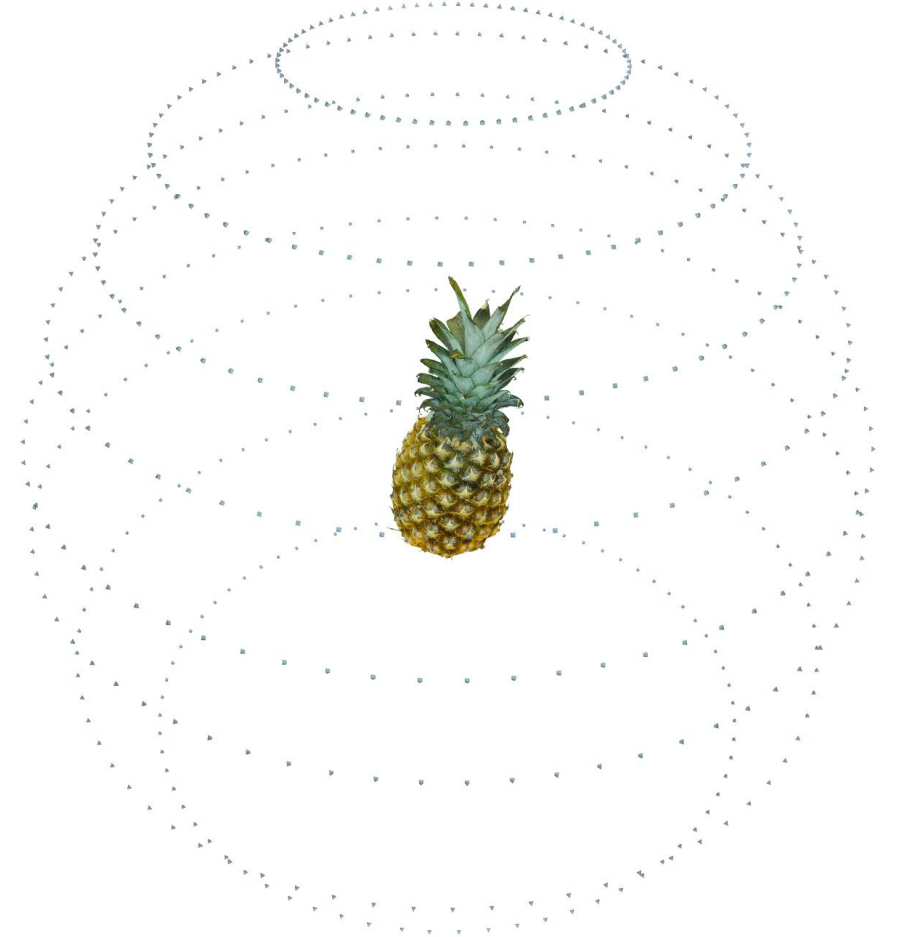
5057 W Colfax Loop, Fayetteville, AR 72704, United States

Close Range Photogrammetry

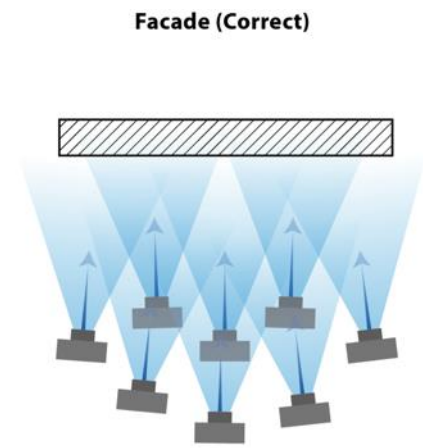
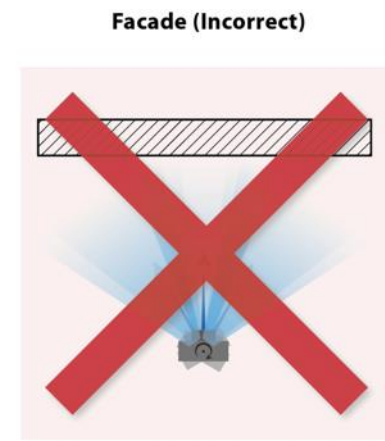
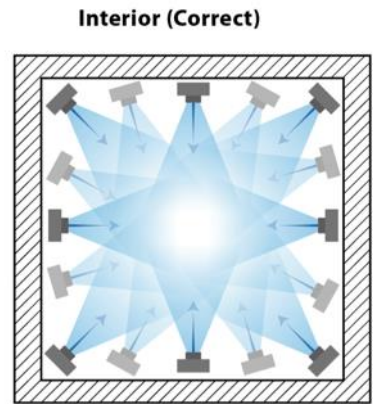
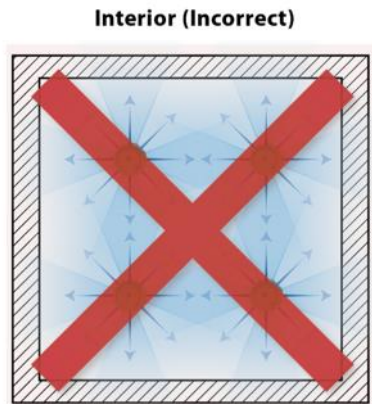
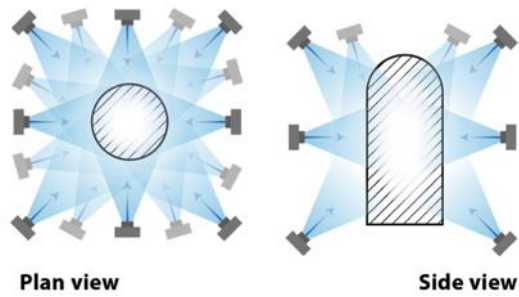
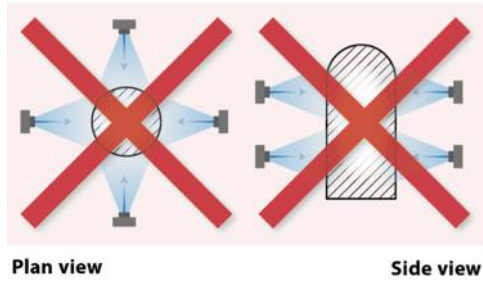
Freeform – Hand held or on Tripod



Automated – Turn table or 3D booths

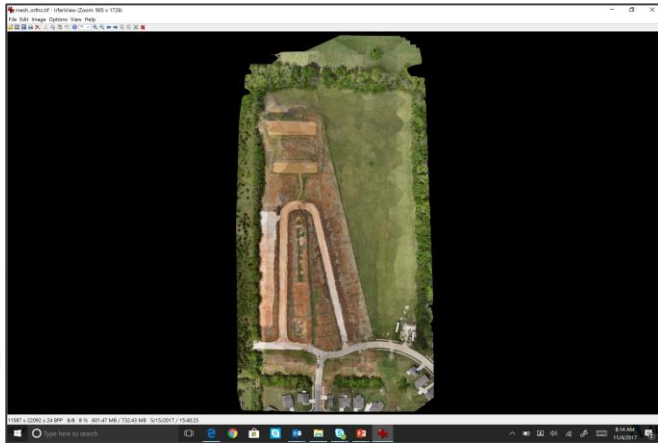
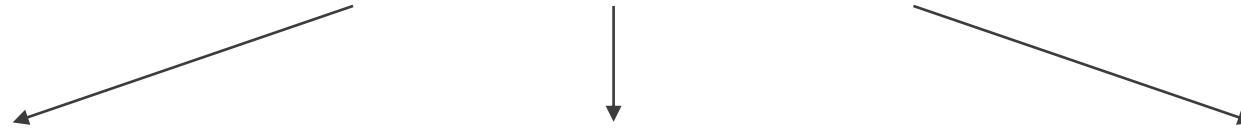


Close Range Photogrammetry

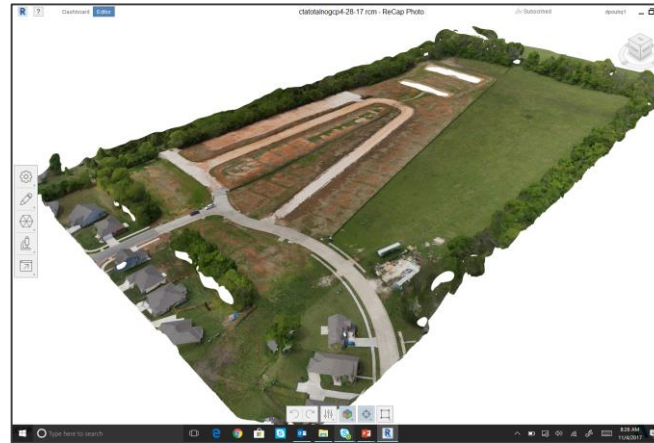


Results - Aerial

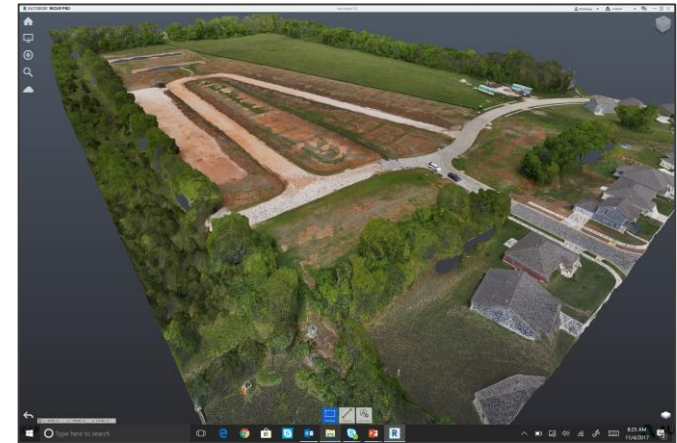
561 photos
40 acres



TIFF
615 MB
11,600 * 22,100 pixels



RCM
2,400 MB
20 million polygons



RCS
449 MB

Results – Close-range

850 cameras

- 120 million polygons
- 20GB file size
- 120 x 8K texture tiles





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