A Picture is Worth a Thousand Words: Aerial, Ground, and Lab Photogrammetry Applications Used in the Mobile Bay Bridge Project

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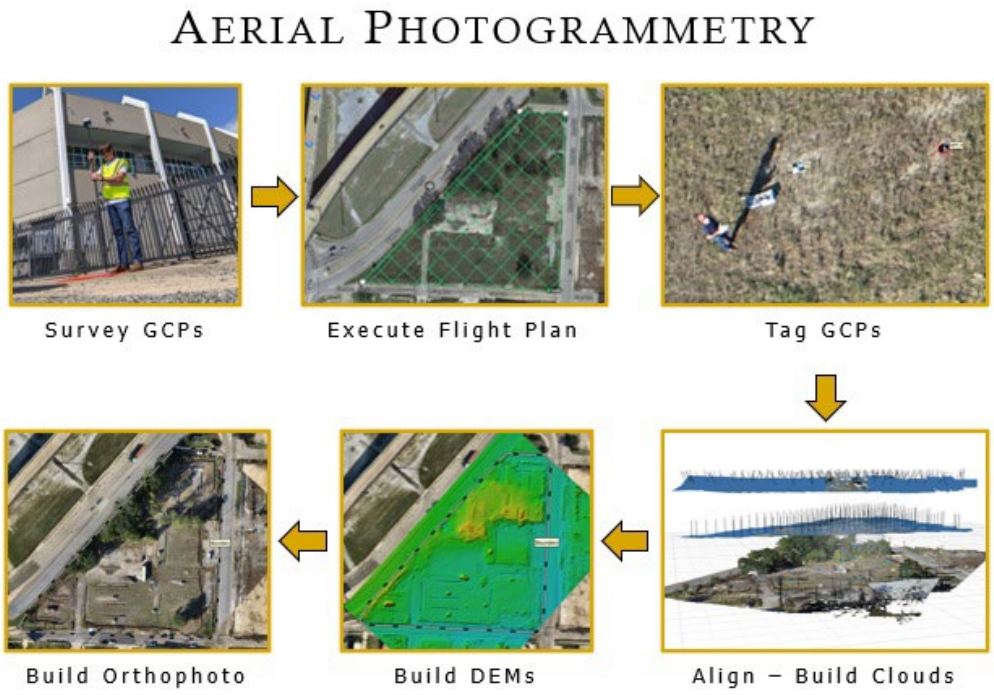
Recent advances in software and consumer-grade electronics have made photogrammetry more accessible to archaeologists and other scientists than ever before. Here we demonstrate photogrammetry data collection methods, processing workflows, and digital products from the Mobile Bay Bridge Project. To date, photogrammetry has been applied using drone-, ground-, and laboratory-based data collection techniques to produce time-specific orthophotos, digital surface and terrain models, 3-D models, point clouds, and more. Select products are readily shared amongst the archaeology team to archive observations and supplement interpretations - and also with the general public to support education and outreach.

Essential Equipment

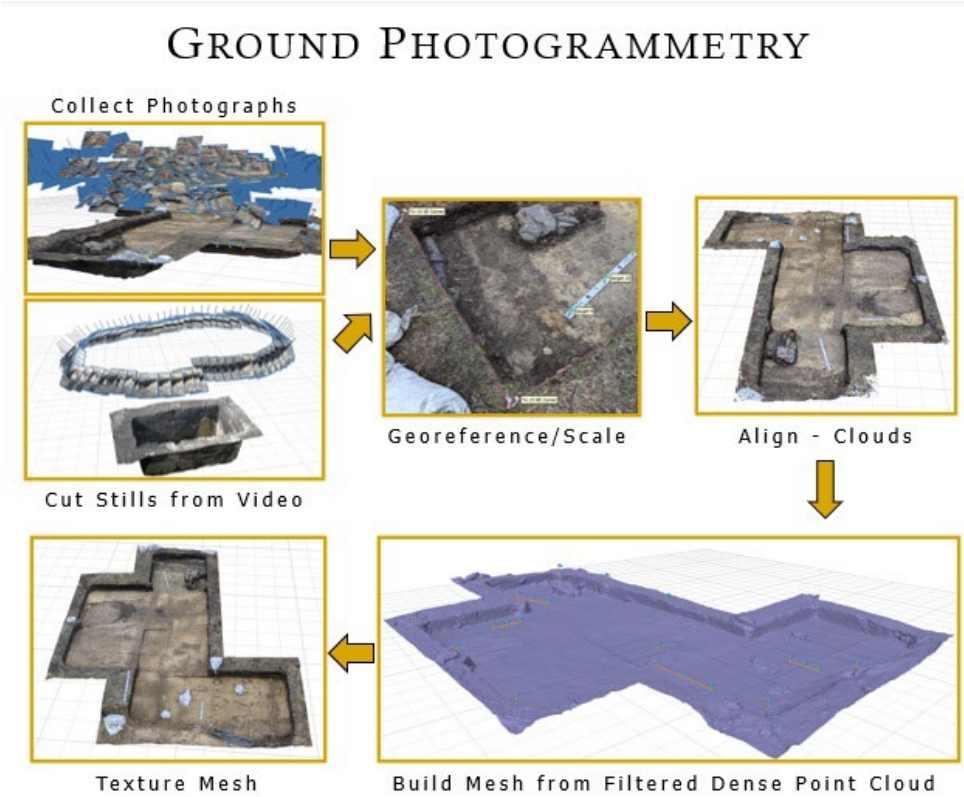
- DJI Phantom 4 Pro v2 (Aerial photographs)
- Emlid Reach RS2s (Surveying GCPs)
- Pixel 3a (Surveying, flight control, picture/video collection)
- Computer (Ryzen 5900, 32 GB ram, 3060ti, NVMe SSD)
- Bucket lids and marking paint (GCPs!!)

Preferred Software

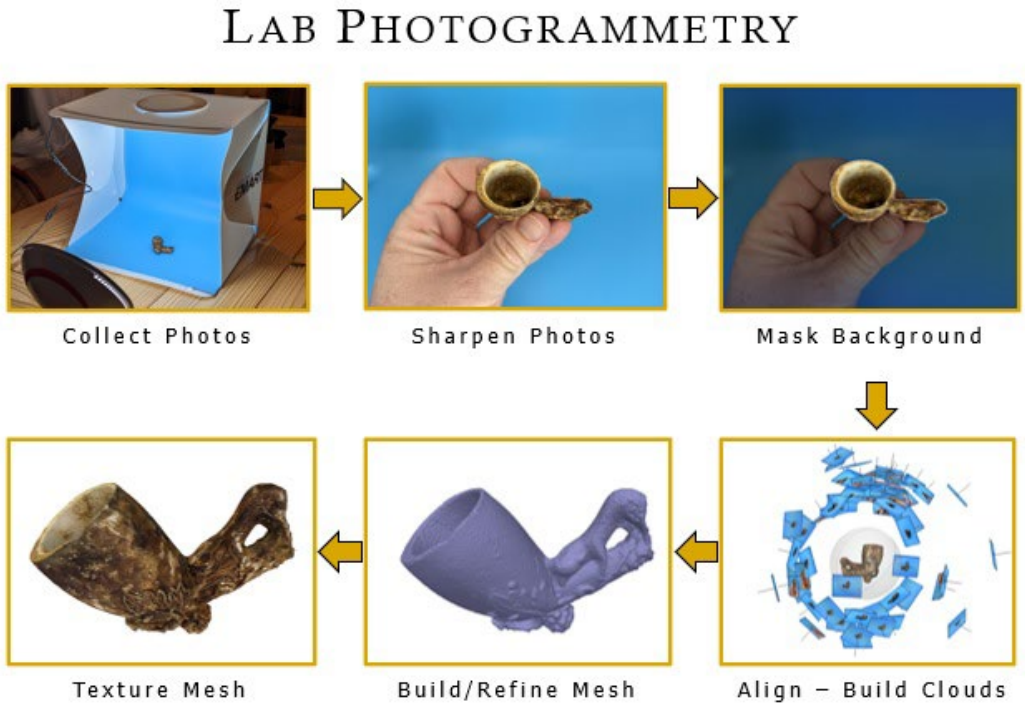
- MapitGIS (Surveying GCPs)
- Drone Deploy (Mission planning)
- Agisoft Metashape (Processing)
- QGIS (Post processing)
- Sketchfab.com (Hosting)



Aerial Photogrammetry Workflow

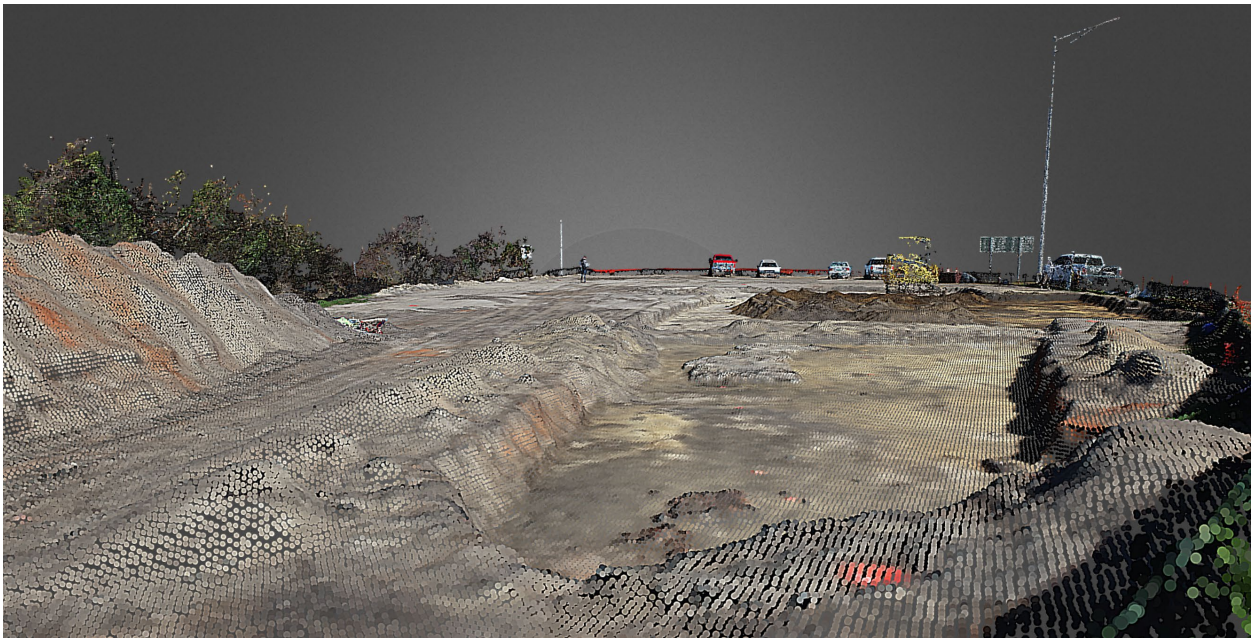


Ground Photogrammetry Workflow



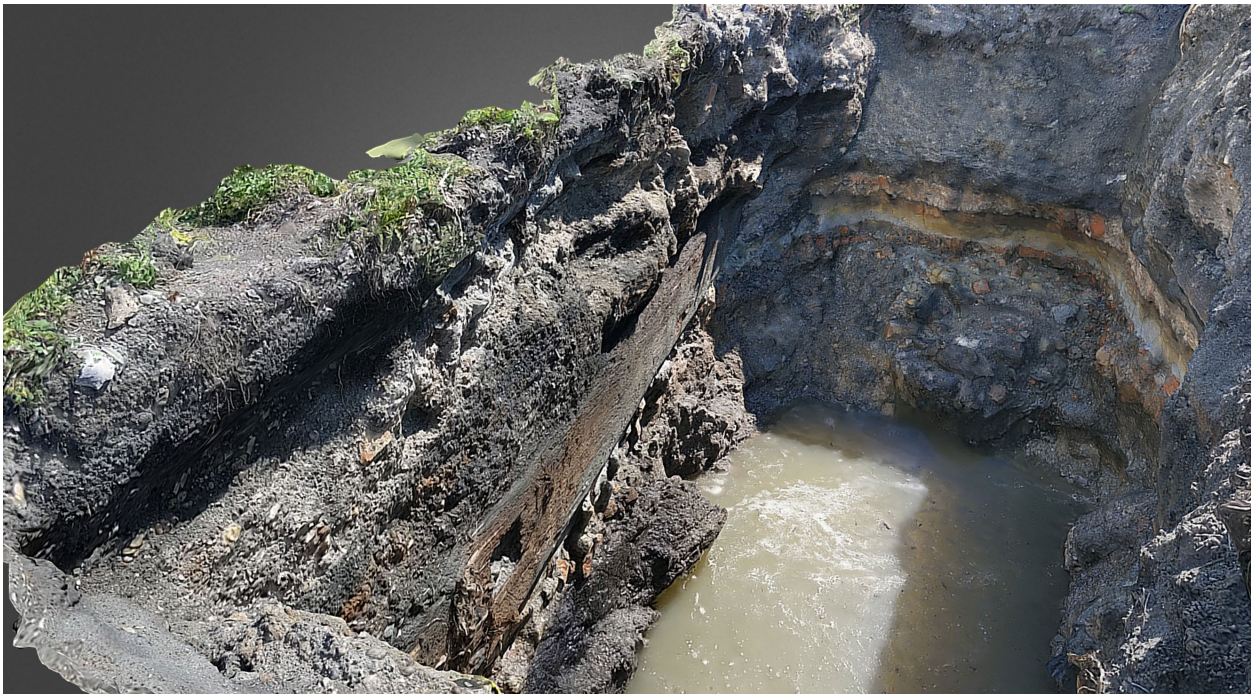
Lab Photogrammetry Workflow

Select Models



Dense Point Cloud (5-cm spacing)

Orthophoto vs. Google Earth



Model of Inaccessible Test Unit

Post-Processed Pipe

Scan the QR Code to visit our portfolio on Sketchfab!

SCAN ME

Links to: https://sketchfab.com/AlexBeebe/models