Photogrammetry in Transportation: Then and Now
Stereoplotters

1. Object is stationary
2. Camera is moving
3. Overlap between images
4. Scale (e.g. GNSS)

Image credit - Alnozom
1. No more heavy equipment training
2. Use existing workstation
3. Still manually intensive
4. Need to wear those funny 3D glasses

*Image credit - Cardinal Systems*
Multi-View Stereo

1. Object is stationary
2. Camera is moving
3. Overlap between images
4. Scale (e.g. GNSS)

*Image credit - Clemson University*
Tiepoints

3D Surface

All Tie Point Extraction Is Fully Automated!
Mission Planning

- Mission planning is as simple as drawing a polygon over the accident area and uploading the mission to the drone’s autopilot.

- Low-cost image processing.
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Platform

Sensor
Sensor:
Large Format Aerial Cameras
Large Sensors
High Flying Heights

$1,000,000
Sensor: Aerial Cameras (DSLR)
Long Focal Lengths (Telephoto)

$10,000
Drone: Drone Cameras
Short Focal Length
Low Flying Height

$500-$1000
Use Case: Enhancing Survey Data
Ground-Based Survey Data

UAV Data
Ground Based Survey Data

+ Orthomosaic

= Snapshot in Time
Use Case: Planning/Transportation
Component Images

Moving vehicles in and out of frame
Point Cloud Data
Point Cloud Data
Time at site: 11 minutes
Time to Process: 46 minutes
Cost: $600
Safety: No person within 200’ of roadway
Efficiency + Safety?

- How much 3D data do you collect in the planning stage?
- Are there instances where you may not be safe while working?
Use Case:
Construction
Progress Monitoring

Date A

Date B
Time at site: 31 minutes
Time to Process: 68 minutes
BENEFIT: Progress Updates without leaving the office
Turning images into 3D Data
DESKTOP-BASED PHOTOGRAMMETRY

TOO MANY STEPS.
Web-Based UAV Processing

PROCESS, ANALYZE, STORE, AND SHARE.
FROM ANY IMAGE SOURCE.
Web-Based Photogrammetry

- Automated
- Faster
- Better Security
- No Backup
- No Storage Limits
- Real-Time
- Collaboration
Web-Interface

Visualize.
Exploit.
Measure.

Image Set

Name
Railroad_Tess

Sensor
Add images to see a list of available sensors
LINE / VOLUME / POLYGON EXTRACTION

Extract actionable information from imagery.
Create accurate maps at scale in record time.
ORTHOMOSAIC (MAPVIEW)

Drape imagery and interact.
Costs to Start?

Talk to Chad Studer @ ADSK

Benefits

❖ Turn any camera into a 3D measurement tool
❖ Generates 3D models and data quickly, affordably, and accurately
❖ Scalable to massive image sets from any type of camera
Thank you for your time!
A BRIEF INTRO TO

PixElement