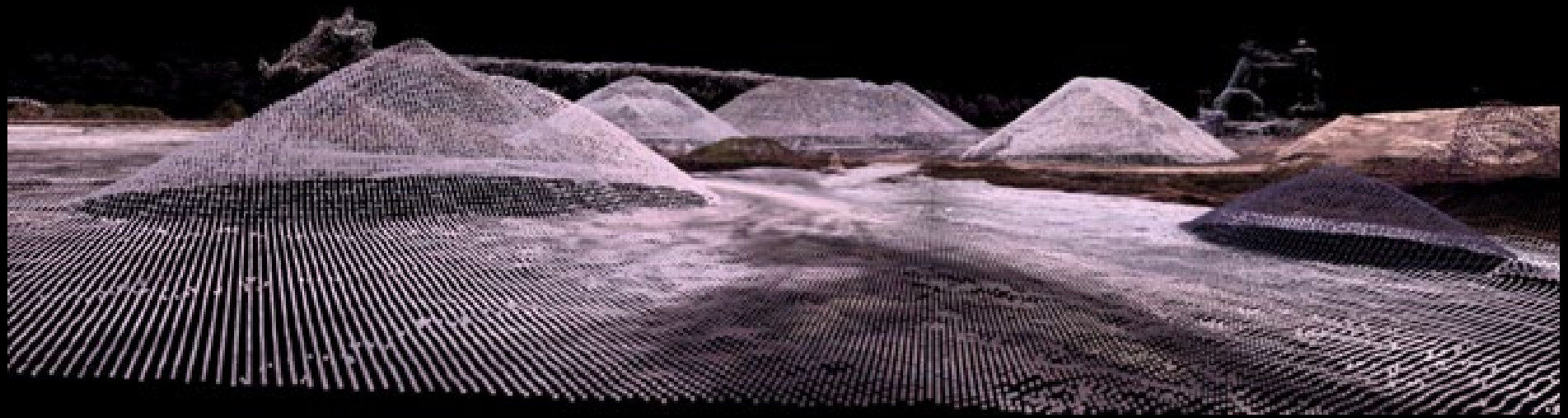
EveryPoint®

Innovation using imagery

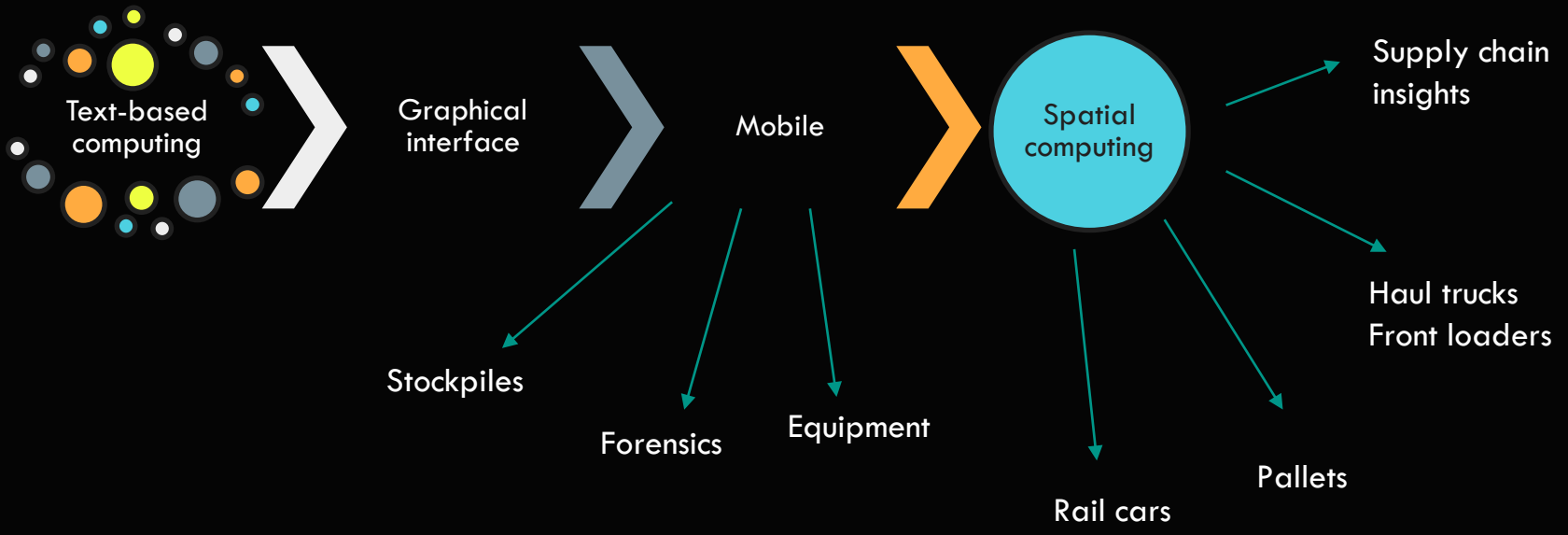
- Vision
- Evolution of computing
- Business case for digitization
- Digitized stockpile management
- iOS examples:
  - Stockpiles
  - Forensics
  - Telecom infrastructure
- Rail cars: leakage, volume and condition
- Pallets
- NeRFs

EveryPoint Vision

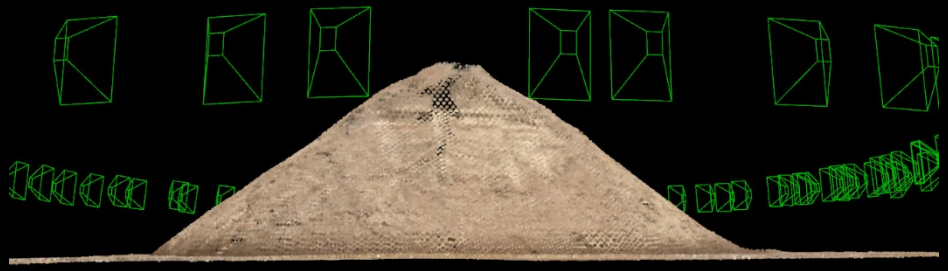


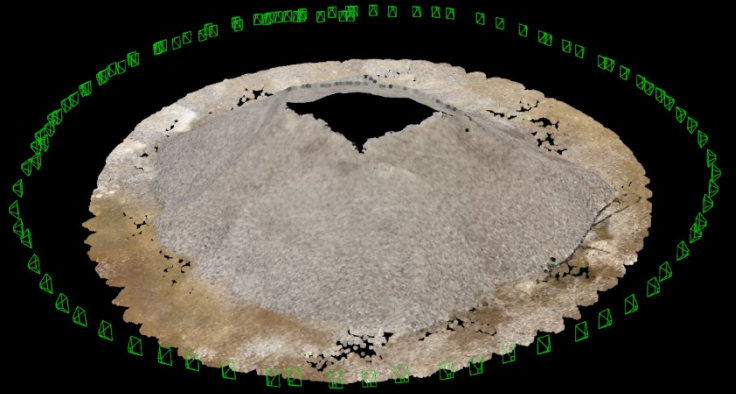
Every point on the planet will be digitized every second of every day

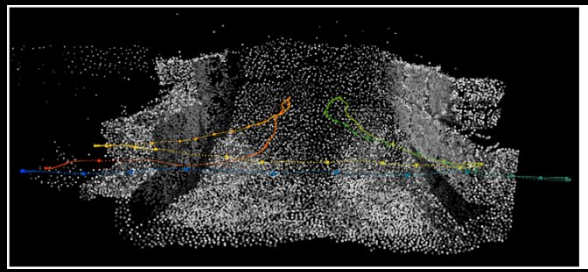
The evolution of computing: Image processing becomes digitization

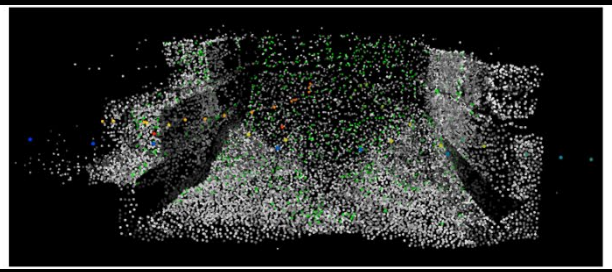


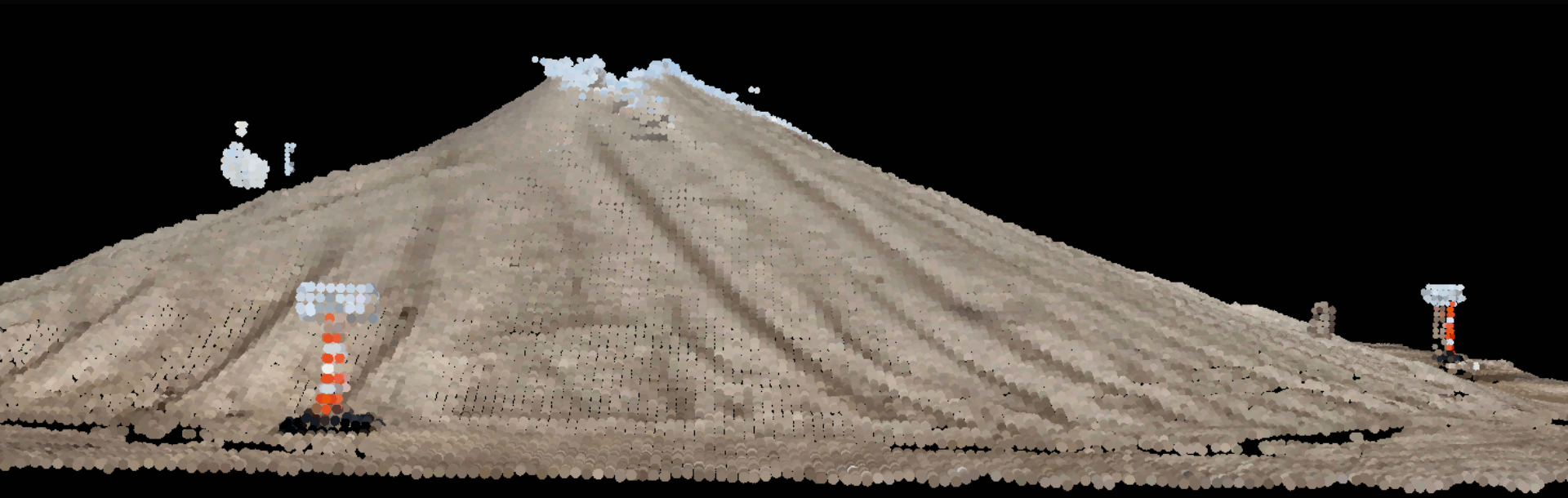
Digitized stockpile management: Using images to measure piles



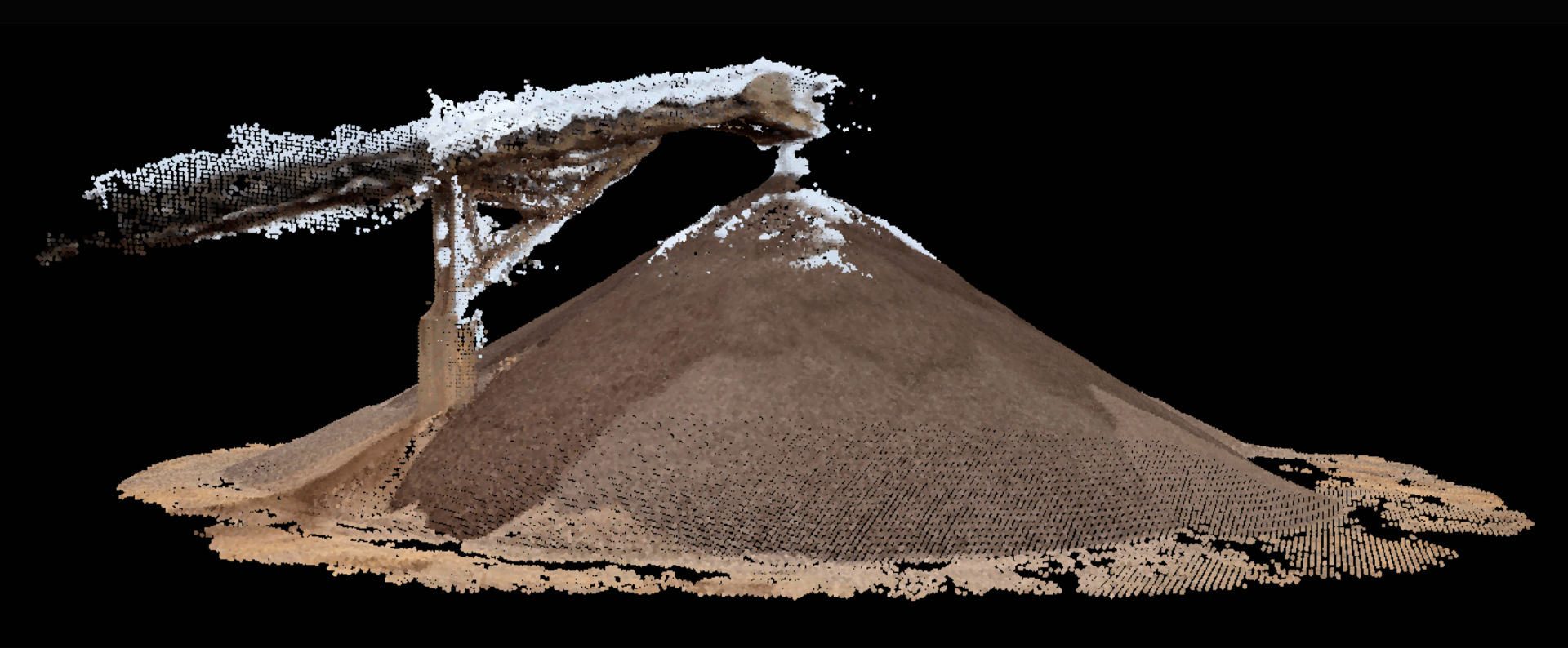




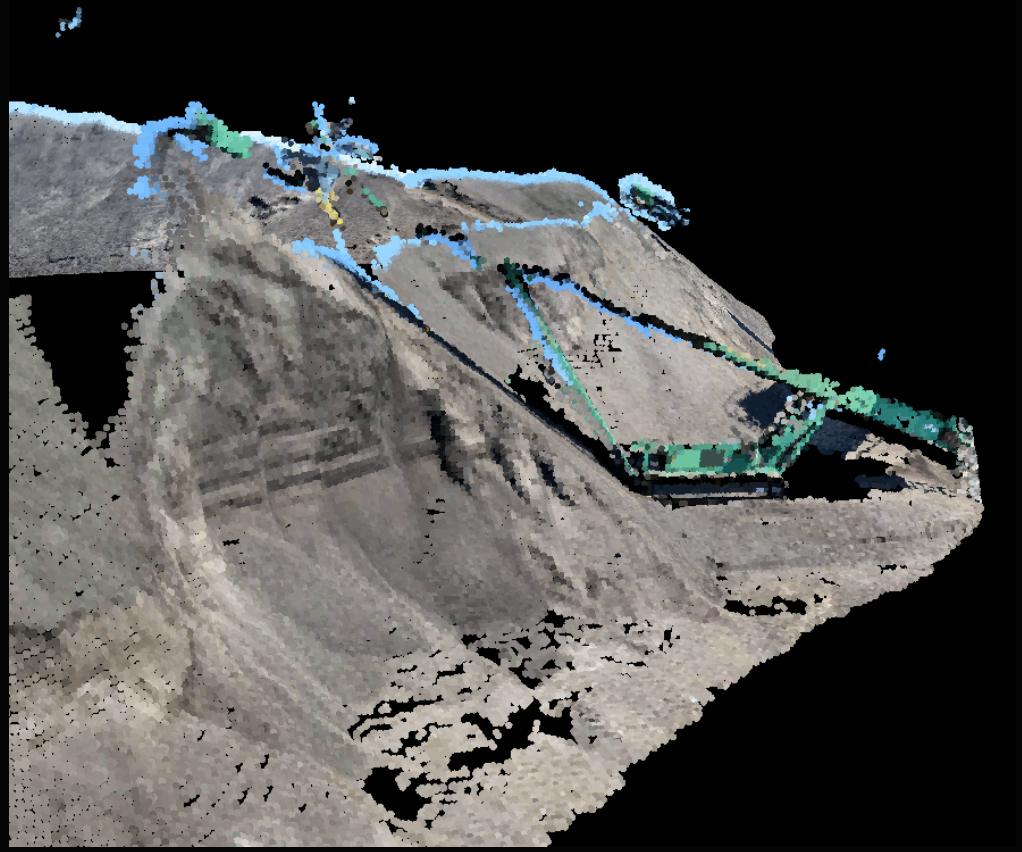




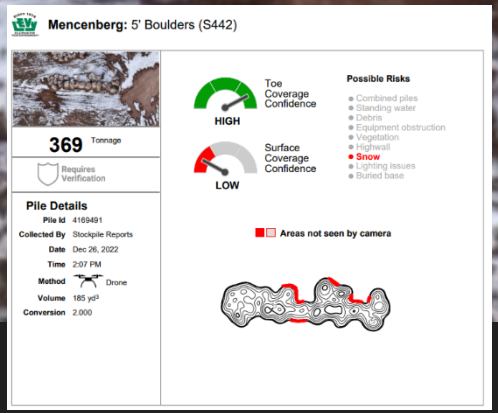
Improvements in point cloud filters and 3D reconstruction remove obstructions
Example: Cones removed

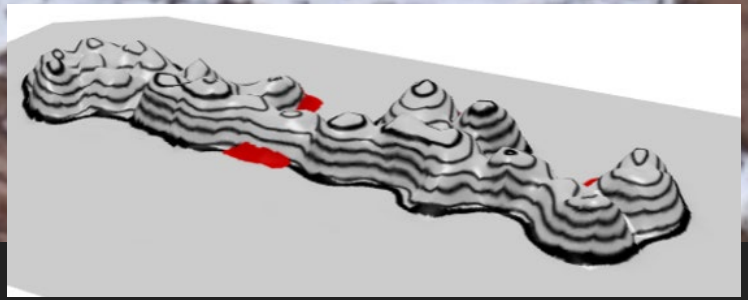


Improvements in point cloud filters and 3D reconstruction remove obstructions
Example: Side stacker removed



Example: Bunker walls removed

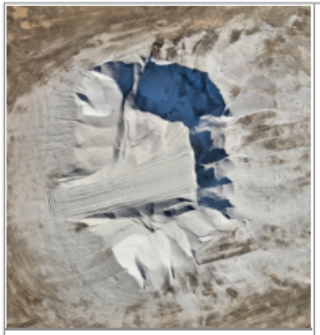




Example: Pile measured with snow

Example: Site and pile view

ACE Saginaw Port Huron: 5/8" Clear (1754)



1,219 Tonnage

Auto-verified

Pile Details

Pile Id	3916057
Collected By	Stockpile Reports
Date	Oct 27, 2022
Time	3:32 PM
Method	Drone
Volume	864 yd³
Conversion	1.410

Toe Coverage Confidence

HIGH

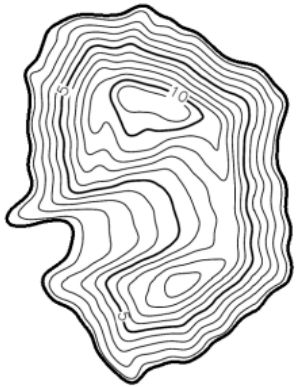
Surface Coverage Confidence

HIGH

Possible Risks

- Combined piles
- Standing water
- Debris
- Equipment obstructi
- Vegetation
- Highwall
- Snow
- Lighting issues
- Buried base

Areas not seen by camera



Plant 3: Other (Other)

9,226 Tonnage

Auto-verified

Pile Details

Pile Id	3166172
Collected By	Stockpile Reports
Date	Jun 28, 2022
Time	10:49 AM
Method	Drone
Volume	9,226 yd³
Conversion	1.000

Toe Coverage Confidence

HIGH

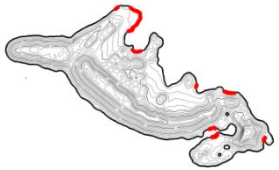
Surface Coverage Confidence

HIGH

Possible Risks

- Combined piles
- Standing water
- Debris
- Equipment obstruction
- Vegetation
- Highwall
- Snow
- Lighting issues
- Buried base

Areas not seen by camera



Charleston Mill Service: Other (Other)

3,057 Tonnage

Auto-verified

Pile Details

Pile Id	3909556
Collected By	Stockpile Reports
Date	Oct 26, 2022
Time	10:18 AM
Method	Drone
Volume	3,057 yd³
Conversion	1.000

Toe Coverage Confidence

HIGH

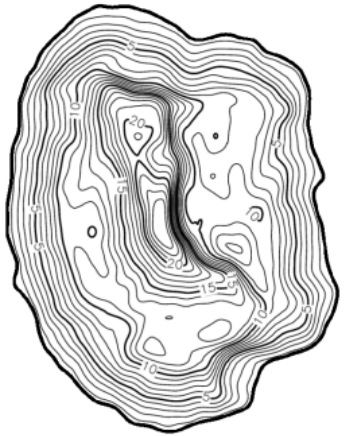
Surface Coverage Confidence

HIGH

Possible Risks

- Combined piles
- Standing water
- Debris
- Equipment obstruction
- Vegetation
- Highwall
- Snow
- Lighting issues
- Buried base

Areas not seen by camera

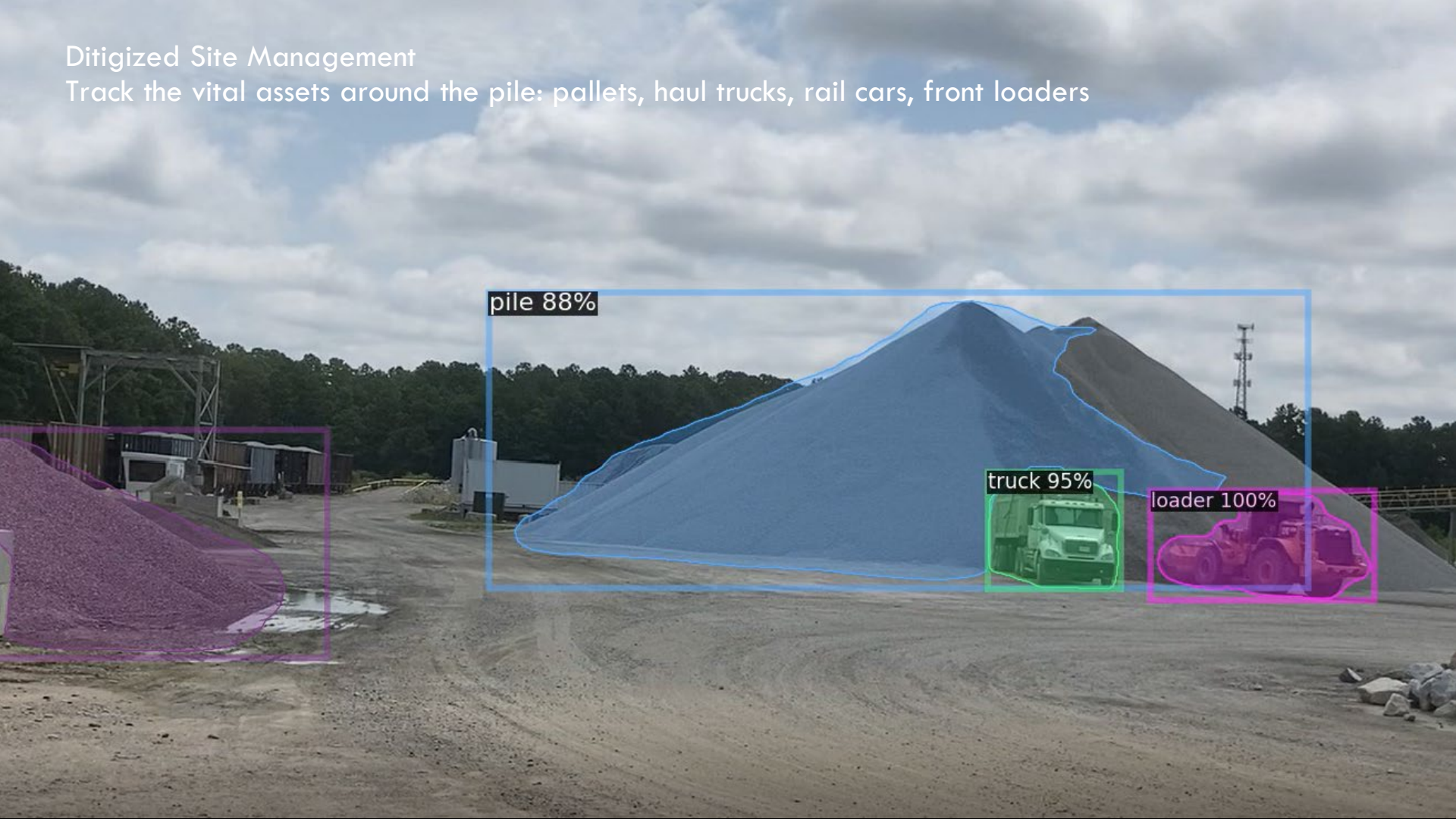


Continuous measurement of sites and life cycle of vital assets

What would you like to see in real-time?

- Inventory levels: Reduce waste by 30%
- Equipment condition: Avoid work stoppage by tracking defectgs
- Material movements: 5% fuel savings
- Safety: No reportables

Ditigized Site Management
Track the vital assets around the pile: pallets, haul trucks, rail cars, front loaders



Business case for digitization is compelling:
Bad data is costing the construction industry $2 trillion per year

- Over 30% of project data is 'bad'
- Bad data results in poor decisions more than 50% of the time.
- Perpetual inventory is a problem.
  Common variances 15-30%

Digitization improve sustainability and reduce waste

Automated measurements drives labor efficiency in inventory process

Reduce labor waste from manual tracking

Eliminates travel to locations for physical counts

Reduces labor waste from duplicate efforts to verify amounts

Know how much material is on hand

Confirm how much material has been produced or delivered

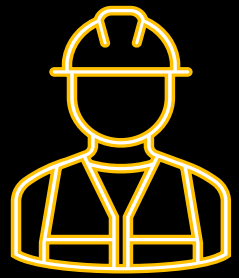
Prevent in unneeded quantities shipped to job sites

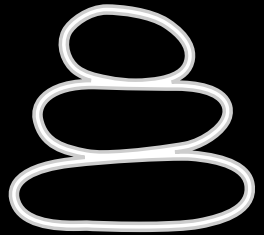
Reduce fuel consumption

Reduce equipment usage

Reduce product waste

Digitization sustainability and carbon footprint ROI





Reduce waste: Labor and routes

- Find 10 cents = 1% margin gain
- +10% back-office productivity
- -80% truck redirects

Safety: Risk management with men and women off the pile

Expand sales growth matching production to demand

- Reduce friction
- Use idle capacity = 1M tons per site

Reduce excess inventory

- Optimize DOH 10% = free 5% working capital

Journey from no digitization to AUTOMATION and then integrated industrial cloud: Construction industry will have all segments of the supply chain connected

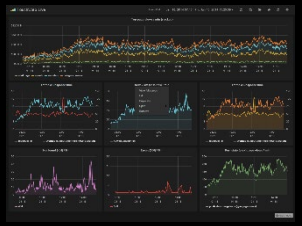
NASCENT

Limited visibility, not real-time

Descriptive, Excel based insights

Limited automation or collaboration

EMERGING

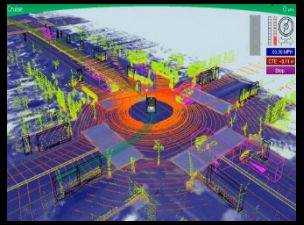


Real-time, end-to-end Supply Chain visibility

Predictive analytics, prescriptive guidance

Manual actions such as exception handling

AUTONOMOUS



Automated decision making

Automated workflows within company, e.g. smart robotics

All IT applications in cloud

INTEGRATED

Automated workflows across companies

Ecosystem open to all supply chain partners

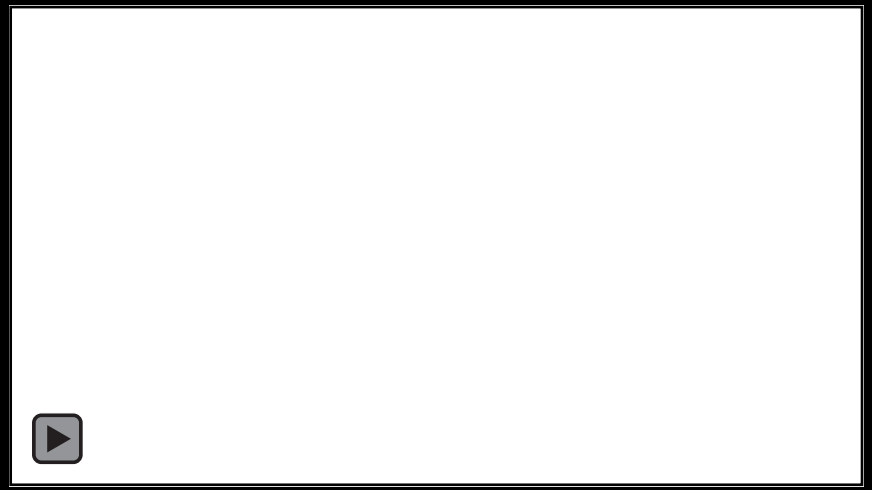
Industrial cloud

Mobile computing

SR Measure: Use the iPhone to measure stockpiles on-the-spot

Advanced computer vision algorithms
reconstruct the pile using images

How it works:
3 sensors on iPhone
(an accelerometer, a gyroscope, and
a magnetometer)
eliminate need for cones or ground control
or manual measurements



Example iOS use case: Recon3D: 1,000s of first responders, crime scene investigators, and forensics professionals document 100s of scenes daily with an iPhone

Example iOS use case: 100s of field workers document telecom assets, rooftops and towers with iPads rather than VLK laser scanners used to scan telecom assets, rooftops and towers

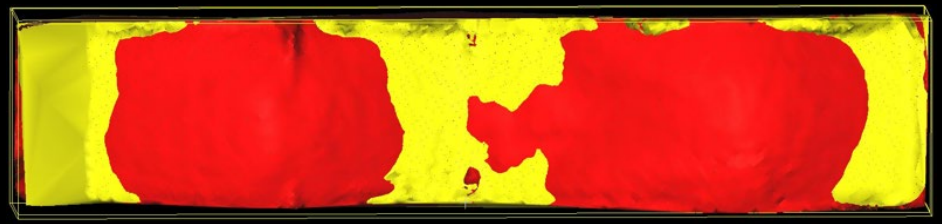
Point cloud reconstruction of rail cars

Use imagery for rail car analysis:
volume, leakage, car condition

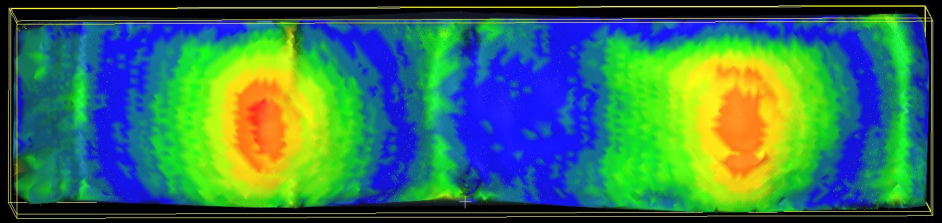
Example Rail Car #1

Example Rail Car #1: Heat map profile shows material shift, but no leakage

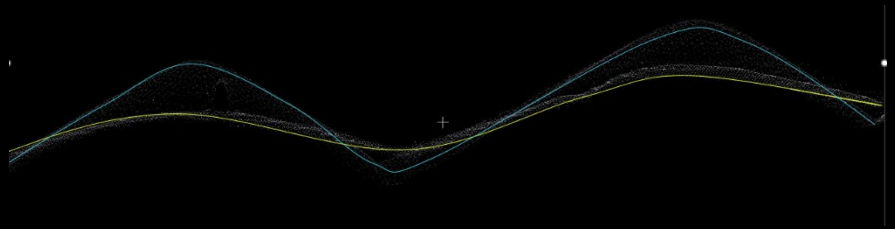
Outbound



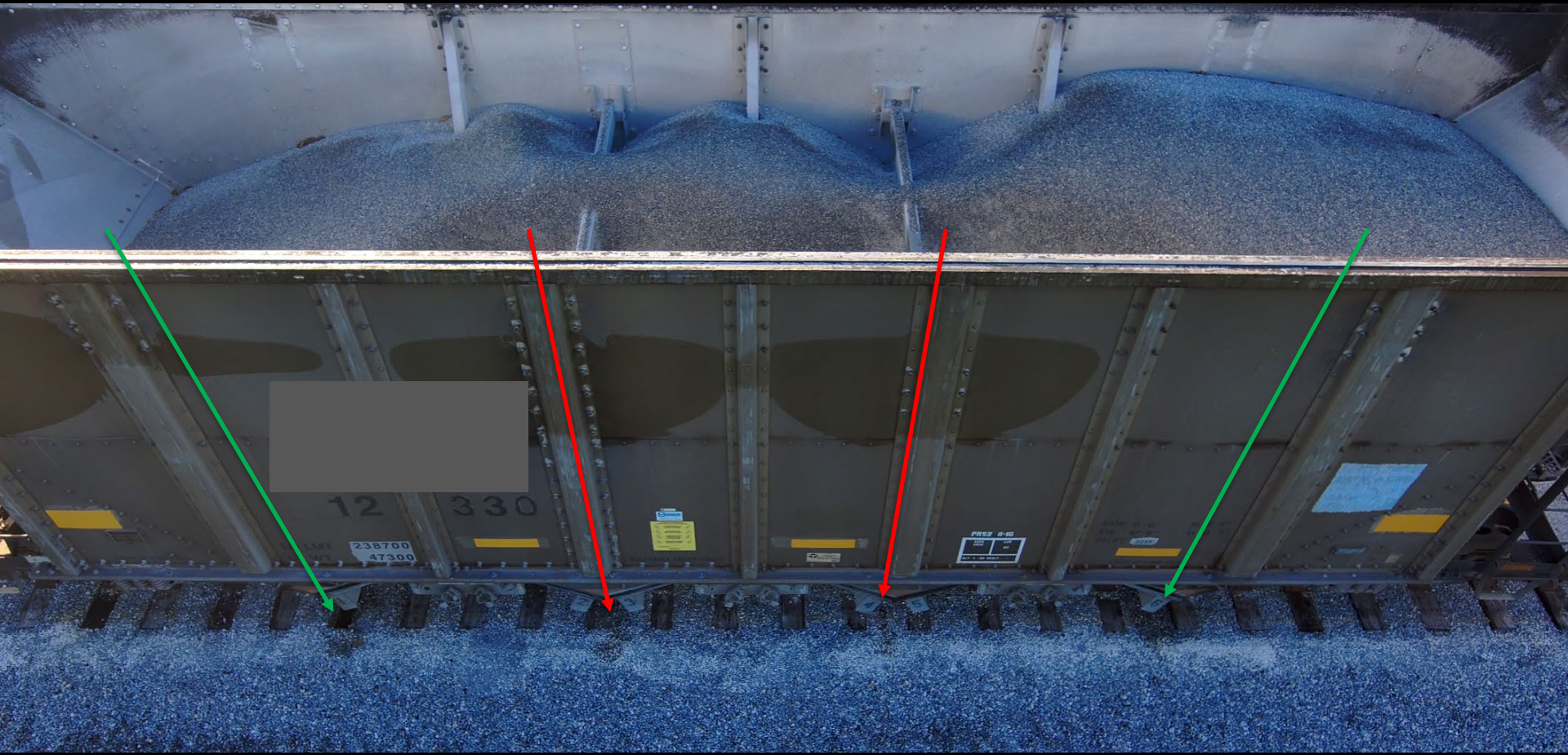
Inbound



Profile

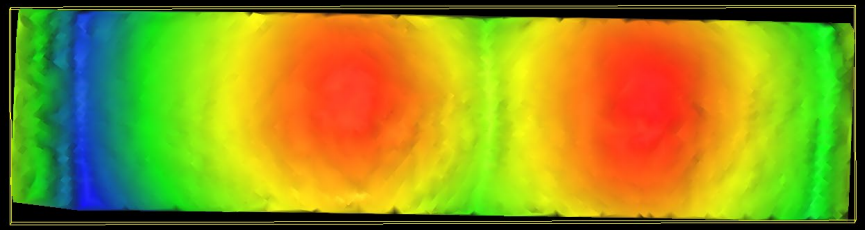


Example Rail Car #2

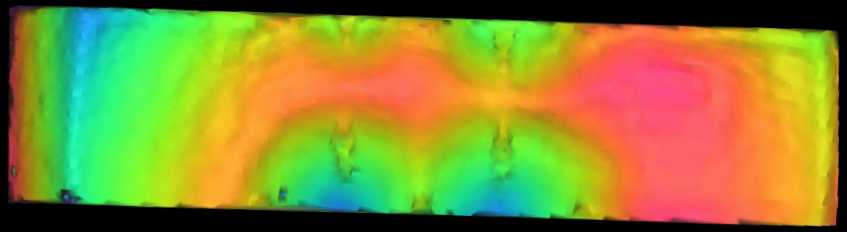


Example Rail Car #2: Heat map shows leakage due to door failure

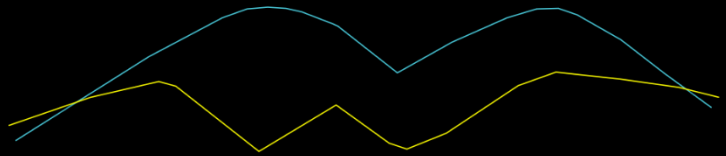
Outbound



Inbound

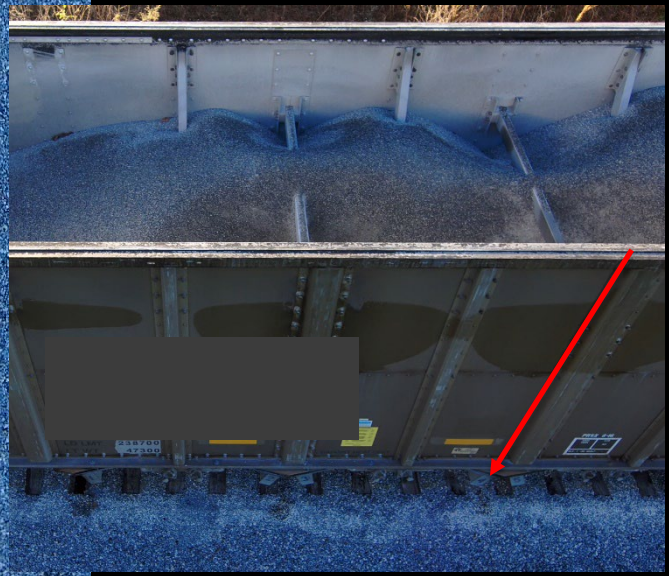


Profile



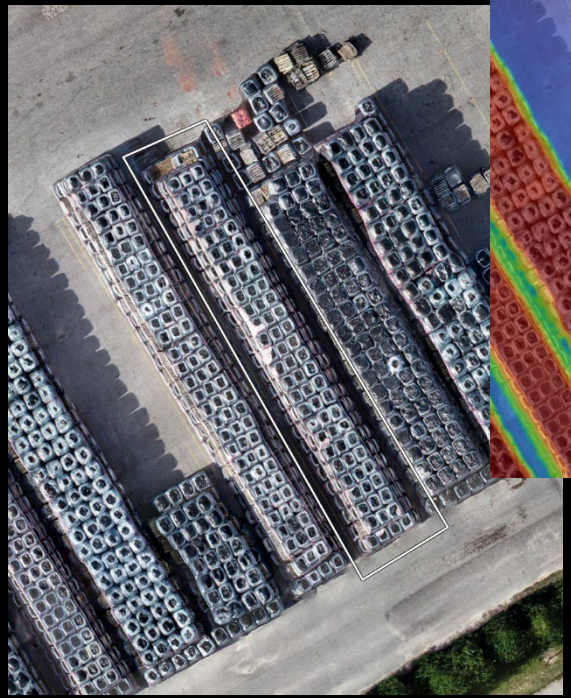
Example Rail Car #2

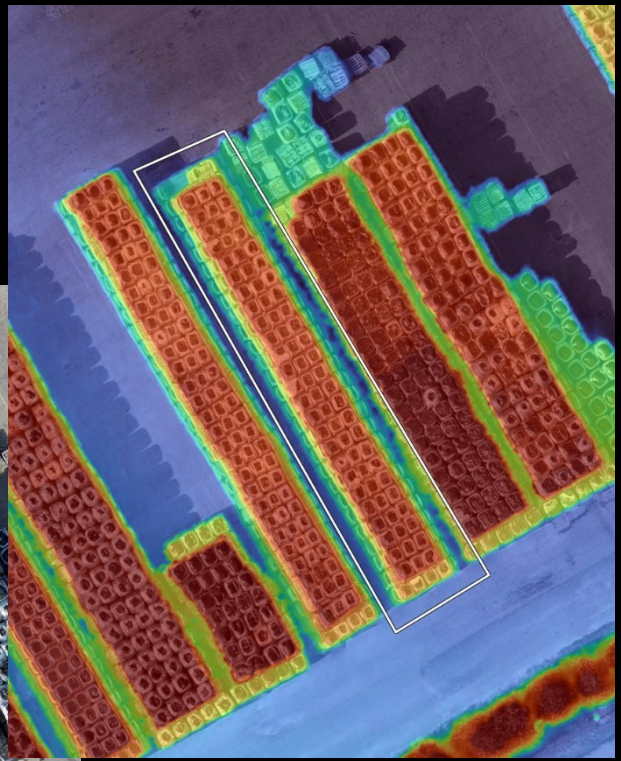
Irregularities in material surface indicate leakage



Digitized Pallet Counts

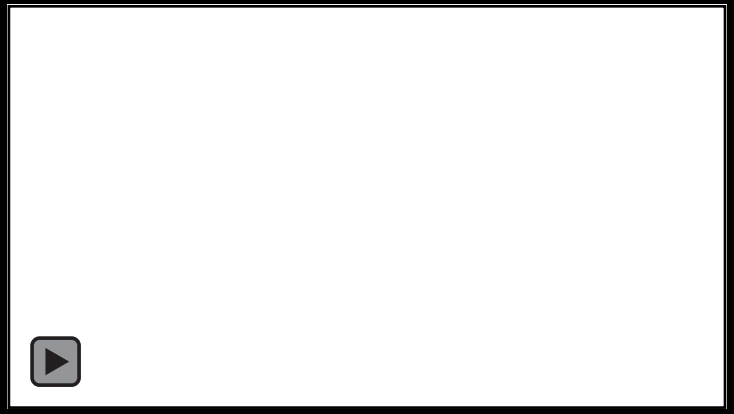
- Eliminated need for manual pallet count
- Massive business ROI:
- Reduce undetected inventory losses
- Eliminate production stoppages
- Labor savings: thousands of hours
- Safety



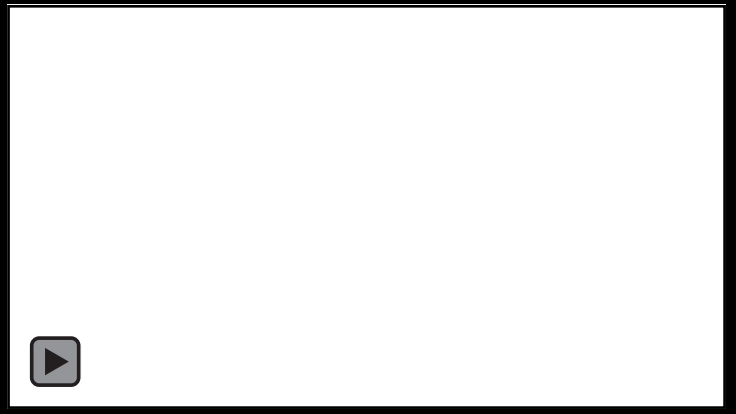


Tracking pallet movements

Autonomous drone



Cable cam



Front loader

Emerging remote capture methods

Rolling robot: continuous monitoring of pile activity

What if you could step into a site through an image?
Instant NeRFs: The next big thing?

NeRF = Neural Radiance Field

3D scenes are created
from 2D images

spatial location and
volumetric rendering

Realistic environments

Videos about EveryPoint

The Pebble
EveryPoint Knows
Stockpile Reports Answers
Discover EveryPoint