

Taking Flight with *RIEGL* LiDAR

Maximizing Your Efficiency on the Ground

My-Linh Truong

Division Manager | Unmanned Laser Scanning

RIEGL USA

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LiDAR is:

active sensing
daylight independent
inherently three dimensional
multi-target capability

each laser pulse provides
multiple returns per pulse



LiDAR Platforms

STATIC



MOBILE



AIRBORNE

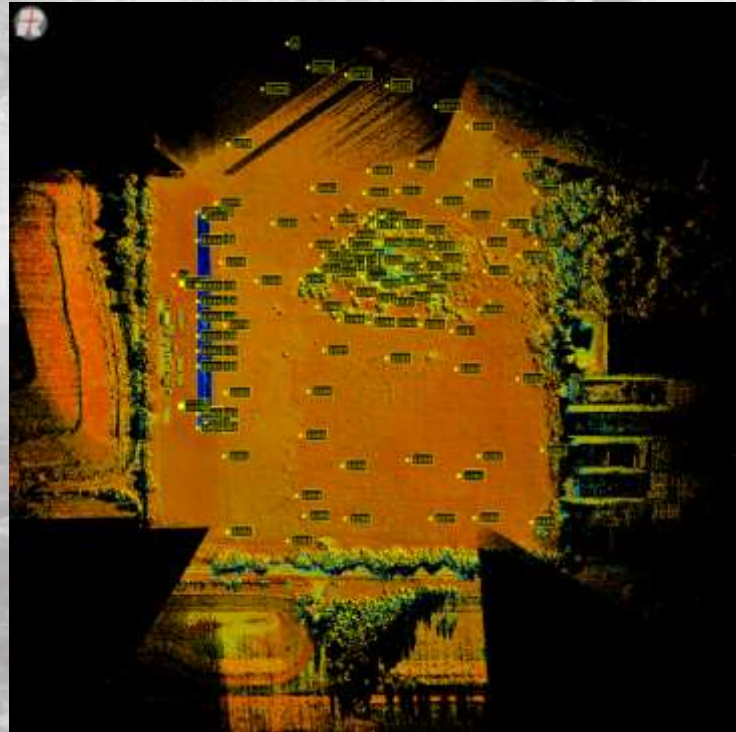


UAV



Benefits of UAV LiDAR for data capture

site: calibration field
site area: 60 acres
setup time: 5 min
scan time: 15 min
average dz: +0.015m



Benefits of UAV LiDAR for data capture

site area: 2800 acres
setup time: 5 min
average dz: +0.011m
minimum dz: -0.014m
maximum dz: +0.033m



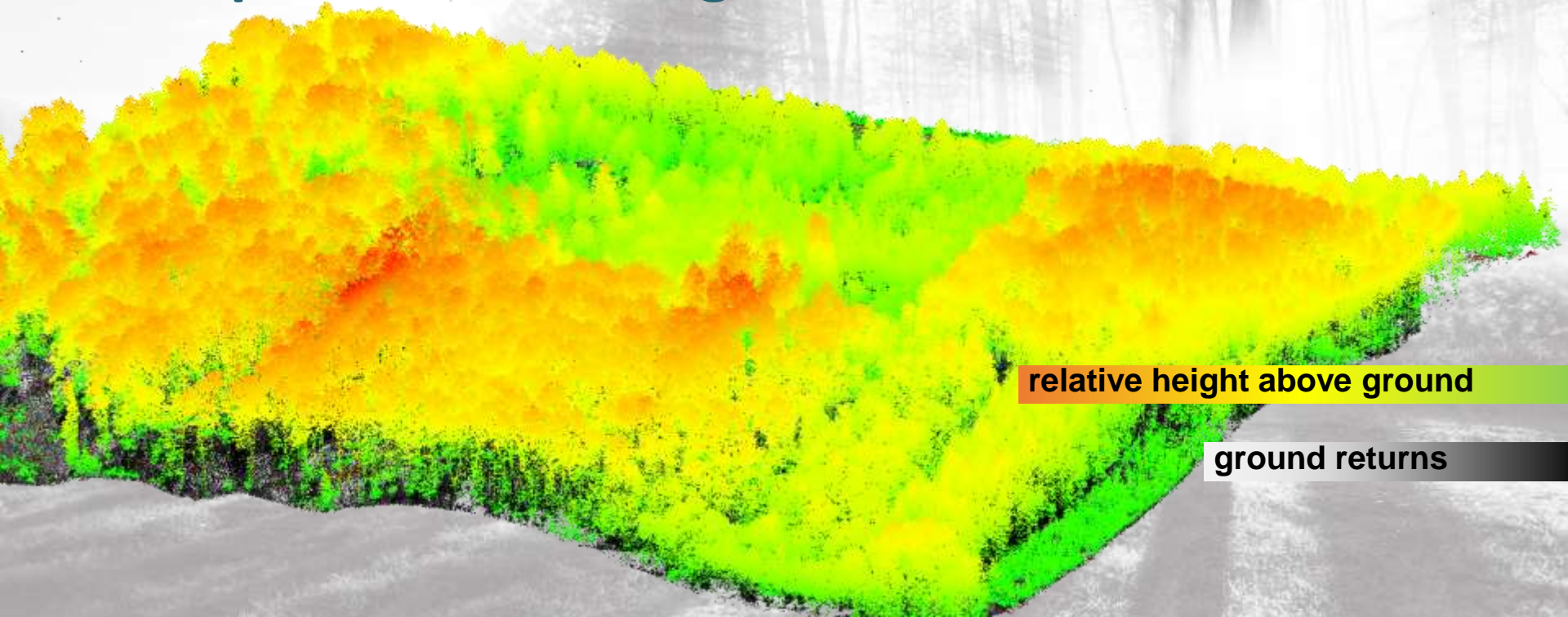
LiDAR Vegetation Penetration

Vegetation Points

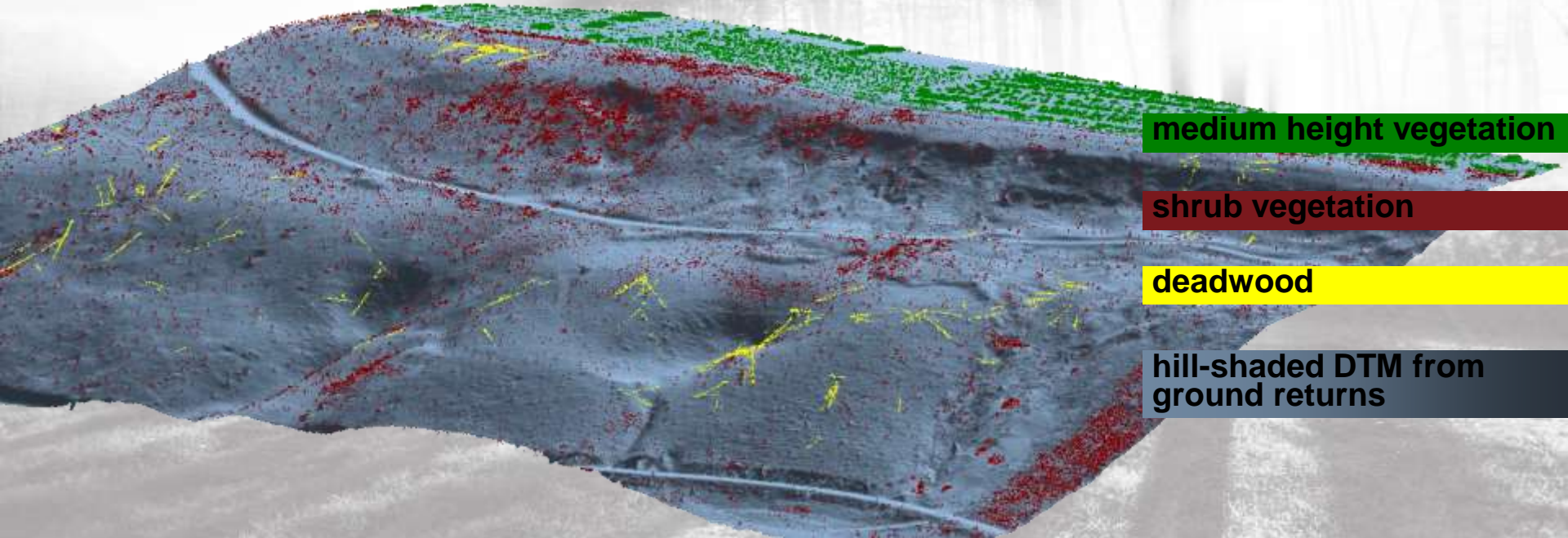


Ground Points

Multiple Returns – Vegetation Penetration



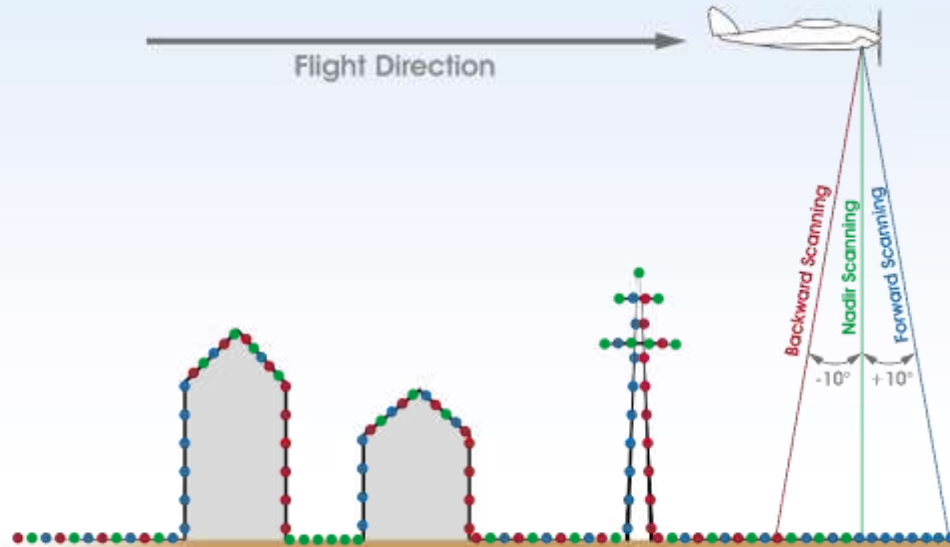
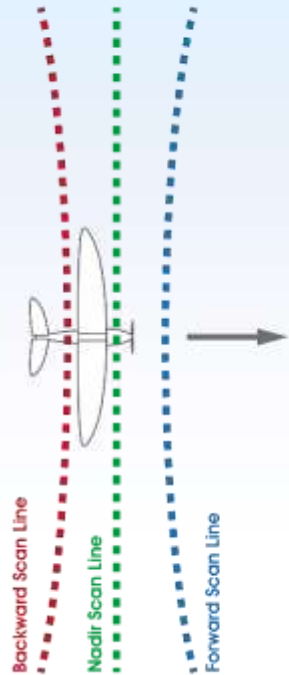
Multiple Returns – Foliage Penetration



Next-Generation *RIEGL* LiDAR: NFB Scanning for Complete Coverage

top view

side view

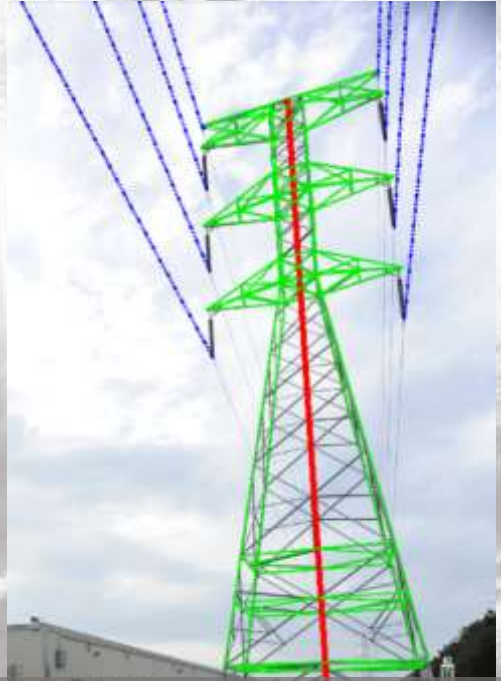




transmission tower



point cloud



CAD model

Vegetation Encroachment

calculate

powerline sag & sway

to prevent from

power outage

wildfires

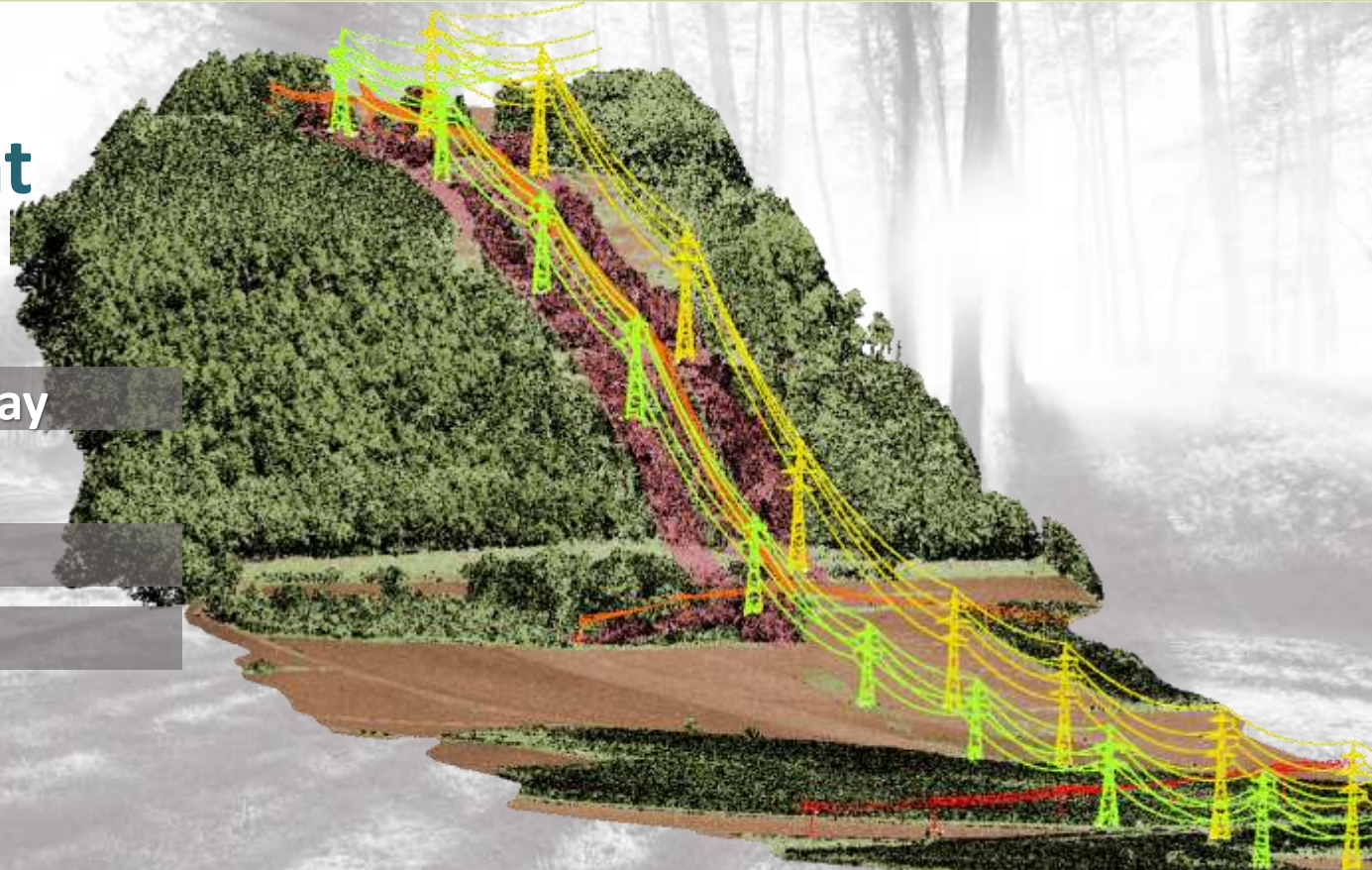




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Transportation

An aerial photograph showing a large-scale highway interchange under construction. The image is in black and white, highlighting the geometric patterns of the roads and the extensive areas of cleared land and construction equipment. The interchange features multiple lanes and a central area that appears to be a large, open construction site with some structures and equipment visible. The surrounding area includes some trees and existing infrastructure.



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Construction / As-Built Assessment

An aerial thermal image of a construction site. The image shows various structures, including a large rectangular building on the left, several smaller buildings, and a parking lot with several vehicles. The ground is a mix of yellow, orange, and green, indicating different temperatures and materials. A road or canal runs along the bottom edge of the site.



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Inspection / Critical Infrastructure

A 3D point cloud visualization of a complex industrial structure, likely an offshore oil platform or a large-scale construction project. The structure is composed of numerous interconnected beams and supports, forming a dense, geometric framework. The color scheme is a gradient from blue to red, representing different elevations or depths. The background is dark, making the structure stand out prominently.

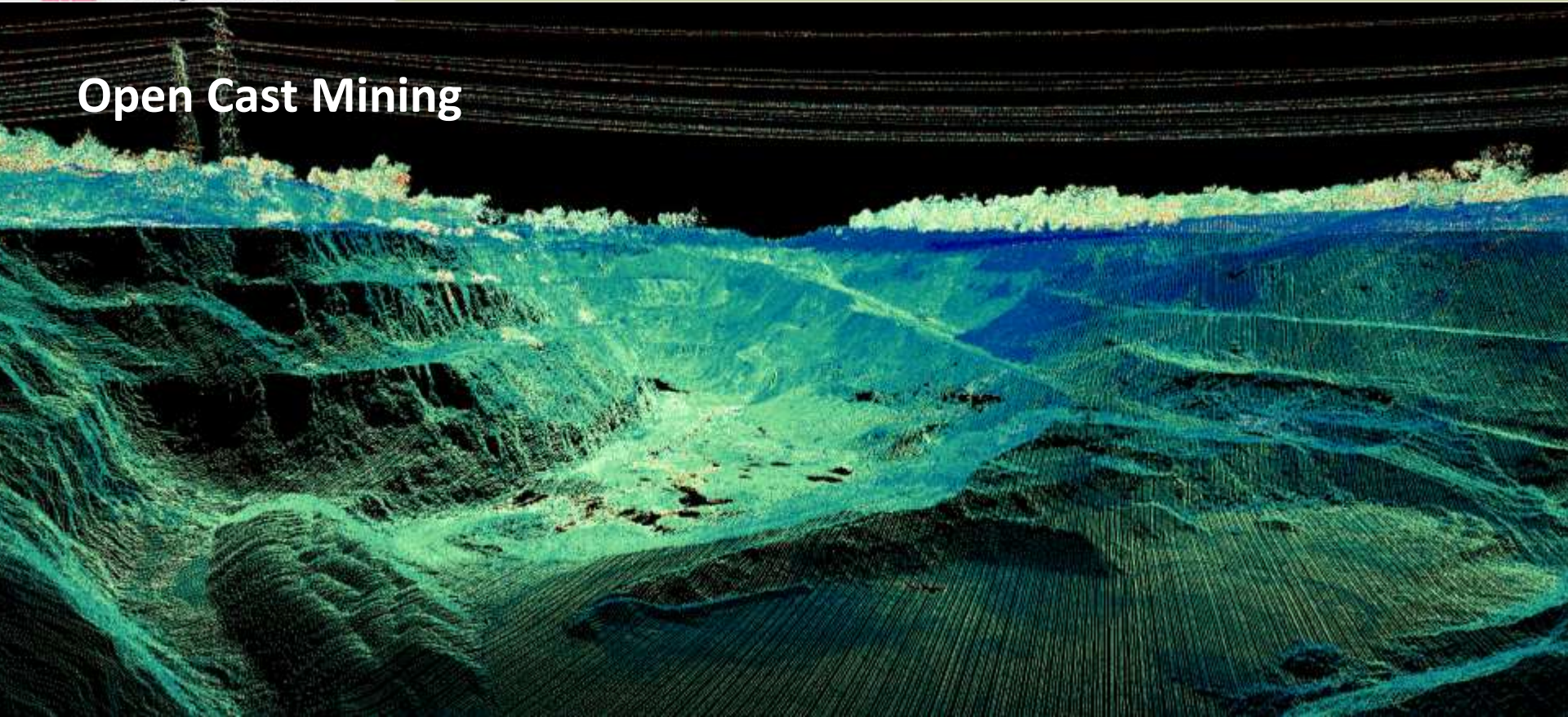


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Open Cast Mining



Geophysical Risk Assessment & Management

An aerial photograph of a rugged, rocky landscape. The terrain is characterized by large, reddish-brown rock formations and cliffs. Sparse vegetation, including small green trees and shrubs, is scattered across the rocky slopes. The overall scene suggests a high-altitude or semi-arid environment, likely a mountain range or a coastal cliffside.

Conclusion

- UAV LiDAR is another high-precision tool in a surveyor's tool belt
- increase efficiency and usability in the field
- to take you further and beyond with high performance, engineering grade surveying and mapping

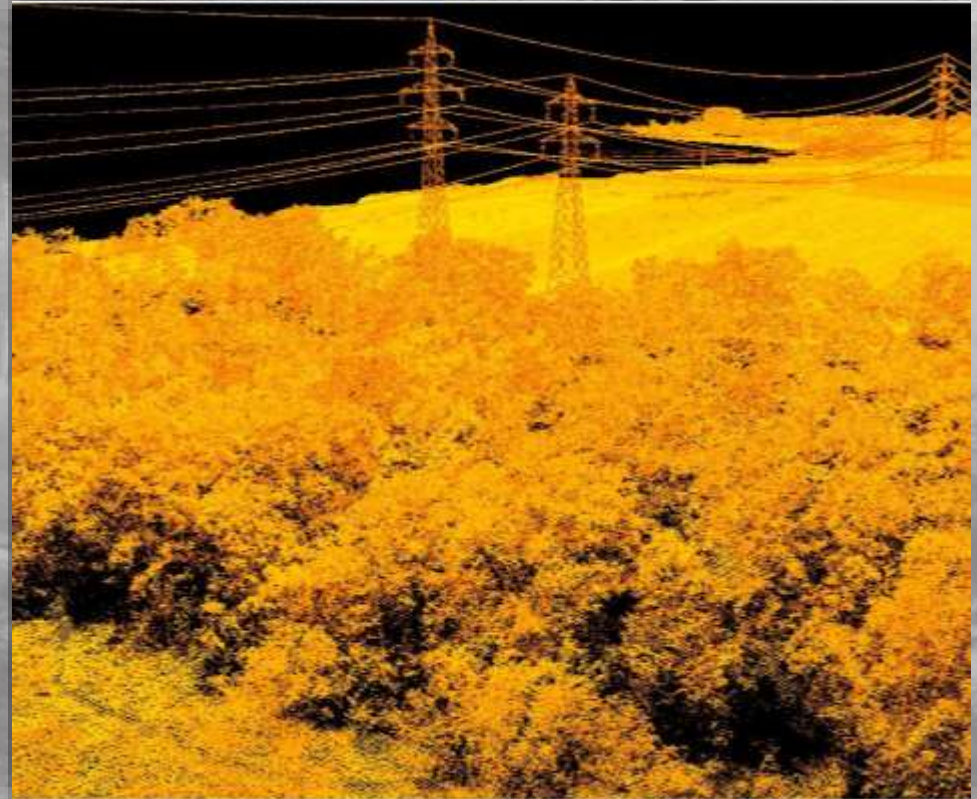




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Thank you for your kind attention!

My-Linh Truong

Division Manager | Unmanned Laser Scanning

mtruong@rieglusa.com | +1 407-600-7428

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