

SHARPER SHAPE

One flight many apps

The web platform for managing drone created data

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The Company

Founded in 2013 - Palo Alto CA, Grand Forks ND and Espoo, Finland

The world's only UAV-based automatic asset inspection solution

Sharper Inspection® cloud SaaS platform

- Data storage, analysis, organization

SHARPER *SHAPE* DISRUPTIVE TECHNOLOGIES

- High Accuracy, drone-based LiDAR
- Automatic detection of critical asset conditions
- Automated & optimized inspections

**FIRST TO MARKET FOR
DRONE FLIGHT
REGULATORY
APPROVALS**

Maintenance of infrastructure assets

Right of way industries

- Power distribution and transmission
- Transportation
- Oil and gas

Continuity of supply and regulations

- Efficiency and cost of inspection
- Detection, prioritization and budgeting of risks
- Management of maintenance data

Sharper Solution

AERIAL PLATFORM
SHARPER A6 with
SHARPER 4x4
telemetry

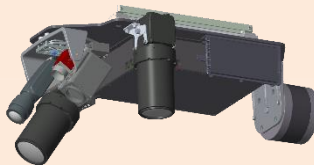


MULTI SENSOR
ACQUISITION



ASSETS TO INSPECT

SHARPERSCOPE 5.0
SENSORS



- LiDAR
- Front & Nadir camera
- Thermal camera
- UAV detector
- GNSS & IMU
- Onboard computer

Cloud

ENVIRONMENT
3D MODELING

DATA
MANAGEMENT,
SPATIAL AND
TEMPORAL





Sharper Drones





What makes drones different?

They go where it's

Too much hassle

Too difficult

Too dangerous

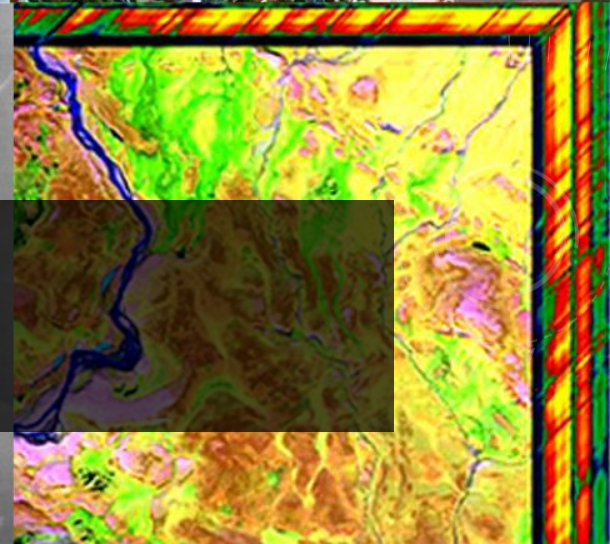
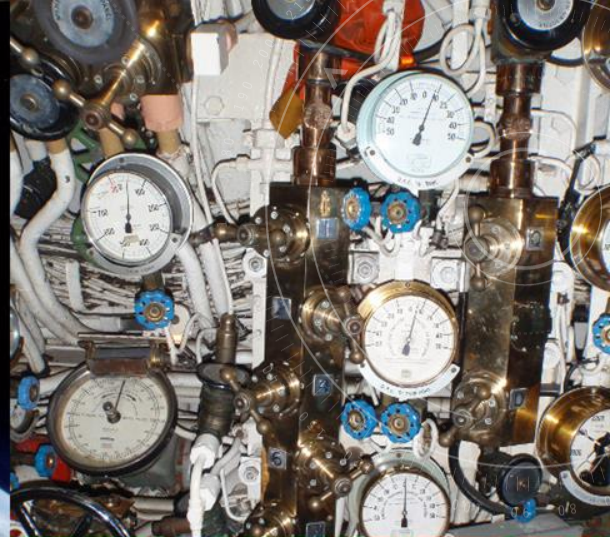
Too imprecise

Too intrusive

Too expensive

Too slow

4K



Modeling data

LiDAR modeling



Collected and analyzed over 1 trillion LiDAR points

Latest research in

- Computer vision
- Deep learning
- Geosciences and LiDAR analysis
- GPGPU computing
- Data mining and spectral methods

Proprietary algorithms in

- Pattern recognition
- Computer vision

LiDAR modeling

Target: Detect each individual

- Pylon
- Conductor
- Building
- Tree

Result: Full object model

- Centimeter precision
- Allows practically any analysis
- Perfect basis for optimization

... and do it fast!

A drone is flying in the upper center of the frame against a clear blue sky. Below it, a power line tower stands prominently on the right side, with several power lines stretching across the image. The sky transitions to a warm orange and yellow glow near the horizon, suggesting a sunset or sunrise. Overlaid on the right side of the image are several semi-transparent, futuristic circular UI elements, including concentric circles, radial lines, and numerical scales, resembling a radar or data visualization interface.

What do we do with the results?

Sharper Powerline Inspector

Sharper Inspection Scopes Messaa Logout

Inspection Review All assets Trajectory_1 1% 1

Forward images Backward images Nadir images

Inspection

Asset: 8

Conductor

- ☐ Unknown object on conductor/Fix the conductor
- ☐ Coating damage/Fixing the conductor
- ☐ Conductor too low/inspect the site

Other pole damage

- ☐ Woodpecker nest/Fixing the structure
- ☐ Tilted pole/Pole mounting, KL 1
- ☐ Tilted pole/Pole mounting, KL 2

Structures / wood storage on the corridor

- ☐ Inspect the location/Korjaus harkinnan mukaan

Grounding

- ☐ Pole vertical grounding damage/Fix the grounding
- ☐ Grounding damage/Fix the grounding

Too high voltage protection

- ☐ Mechanical damage/Replace the protection

Pole warning signs

- ☐ Missing yellow warning signs/Fix the warning signs
- ☐ Dangerous signs missing/Fix the signs
- ☐ Missing approach warnings /Fix the signs

Upper structures/isolators

- ☒ Broken isolator/Fix the isolator

Support wires

- ☐ Missing warning signs/Fix the sign
- ☐ Unfastened support wire/Fix the support wire
- ☐ Loose support wire/Tighten the support wire

Sag Images LIDAR

demo.sharpershape.com/#/

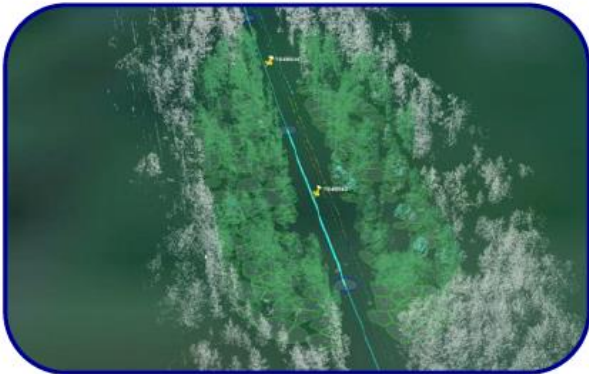
Rapid super-high quality zooming



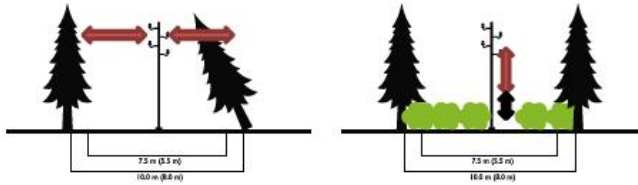
Sharper Clearance Analyzer

1

Detection



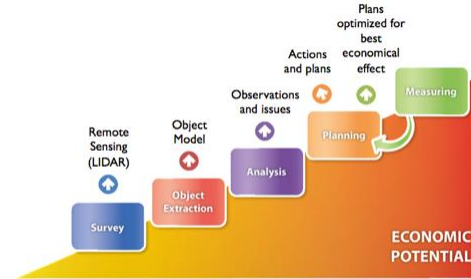
Fully parallel processing analysis



Automatic detection of critical conditions

2

Processing

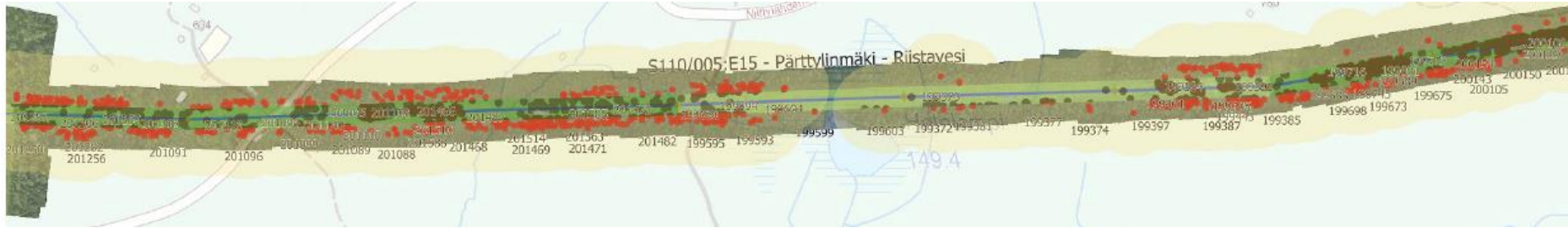


3

Reporting

- Over 20 tree and forest issue types
- Buildings, roads, waterways
- Future issue detection with individual tree growth predictions

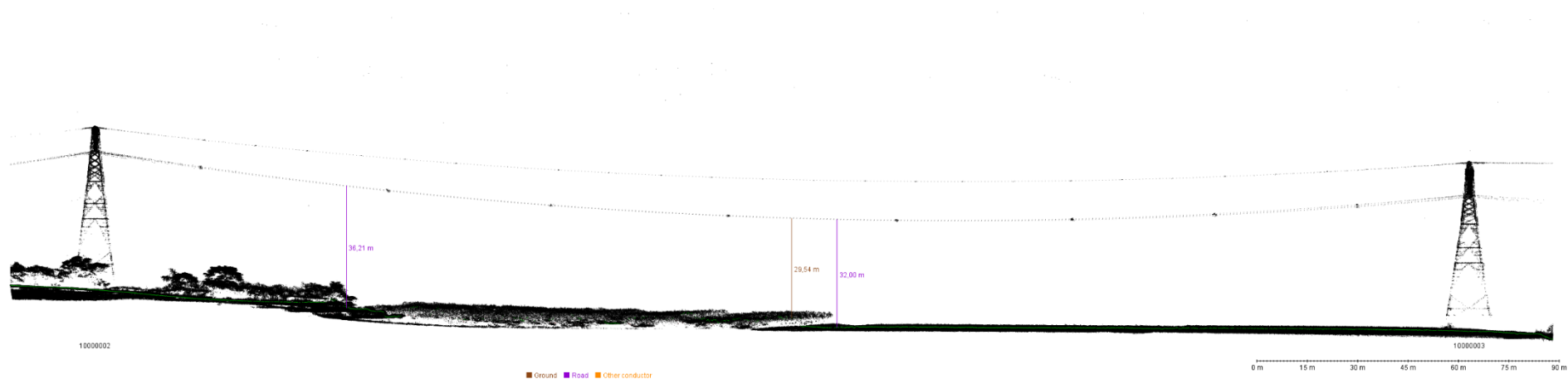
Clearance Analyzer results



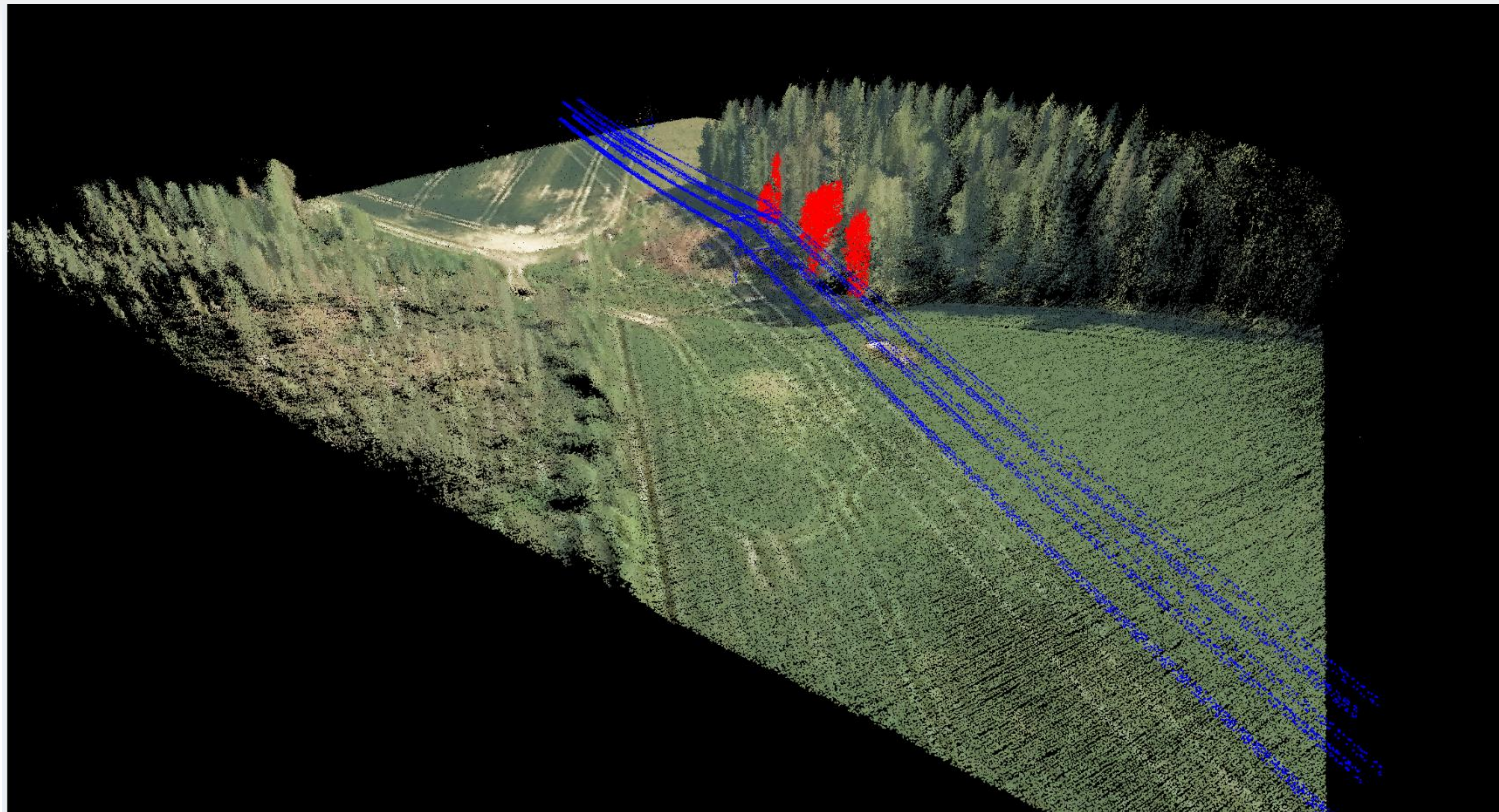
Legend

- Risk tree, located outside RoW
- Tree too close, located inside RoW
- Too high undergrowth, located inside RoW

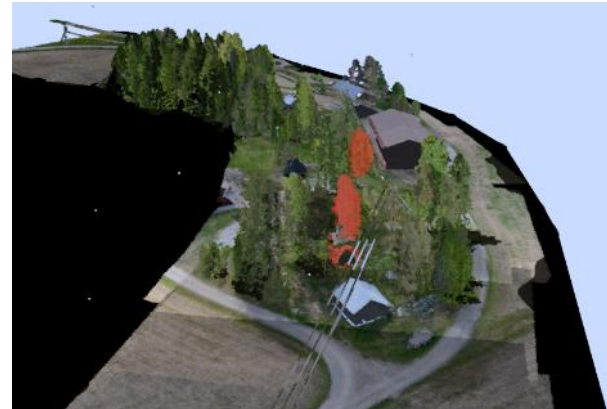
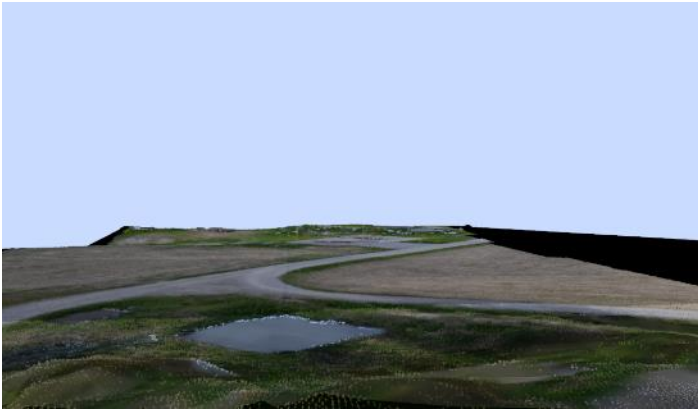
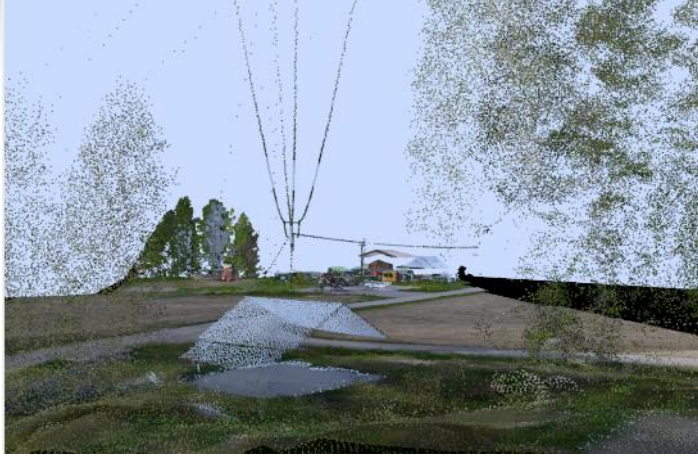
Clearance Analyzer profile view



LiDAR in Sharper Viewer



LiDAR in Sharper Viewer



A sunset scene with power lines and a river, overlaid with technical graphics. The sky is a mix of orange, pink, and blue. Several high-voltage power line towers are visible, with power lines stretching across the frame. In the foreground, a river reflects the lights from the towers and the sky. On the right side, there are faint, semi-transparent technical graphics, including a circular scale with numbers from 150 to 200 and some dashed lines. The overall mood is serene yet industrial.

It's not only LiDAR we use

Automatic pole detection



Automatic corrosion detection



Automatic broken insulator detection



A drone is flying in the center of the frame, positioned between the text and the landscape. The background features a clear blue sky with several power lines stretching diagonally across it. Below the sky, there are rolling hills and a valley with some vegetation and small structures. The overall scene is bright and clear.

Thank you!

Any tough questions?