



Addressing Vegetation Risks with Artificial Intelligence

Problem

A key challenge for the operational resilience of utility industries is effectively managing vegetation. Overgrown or hazard trees in proximity to power lines increase the risk of outages, safety hazards, and wildfires, potentially leading to substantial economic consequences.

The conventional approaches to vegetation management have inherent limitations. Primarily, their reactive nature leaves utility companies unaware of the dynamic changes along their grid, exposing them to unaddressed threats. Additionally, these methods also consume considerable resources and prove inadequate in addressing broader intensifying challenges like climate change. The need for an innovative solution is pressing—a comprehensive, data-driven approach to promptly identify, assess, and mitigate the risks associated with vegetation.

Solution Overview

LiveEO's Treeline solution combines cutting-edge satellite data and advanced AI to provide actionable insights for safeguarding linear infrastructures, such as electrical grids or rail networks, against vegetation-related risks. It offers:

Scalability. Treeline allows you to monitor your entire grid, no matter how vast or dispersed. This capability surpasses traditional methods and even aerial-based approaches like LiDAR. Notably, Treeline effectively complements LiDAR by filling in the gaps between its scans, leveraging the strengths of both approaches.

Timeliness. Delivering near real-time intelligence, Treeline helps identify emerging risks before they even occur, enabling prompt and proactive responses.

Holistic approach. Treeline offers comprehensive insights by evaluating diverse vegetation aspects—height, health, species, density, and growth patterns—providing a nuanced understanding of risks to your infrastructure.

Accuracy. Leveraging advanced remote sensing capabilities, Treeline identifies and classifies vegetation risks with great precision in a standardized way, overcoming the limitations of error-prone ground-based or manual observations.



Features

- **Clearance risk mitigation.** Manage a safe distance between your network and vegetation to prevent encroachment. Our 2D analysis evaluates grow-in risks horizontally, while our 3D analysis assesses grow-in risks from the sides and below, as well as fall-in risks.
- **Hazard trees identification.** Gain in-depth insights into the health of vegetation along your network, empowering you to proactively identify and manage potentially hazardous trees. These are trees exhibiting signs of vitality decline, posing a higher risk of falling and potentially causing outages.
- **Species classification.** Obtain a complete understanding of species distribution along your network, allowing for strategic risk prioritization that specifically targets fast-growing species while nurturing slow-growing ones.
- **Work order management.** Achieve optimal task management through a centralized system that not only organizes work orders but also provides robust tools for prioritization and intuitive visualization.



Key Benefits



Enhanced operational efficiency

By optimizing cycle length, ensuring accurate contractor procurement, precise treatment and cutting prescriptions, and minimizing expenditure on manned aerial patrols and surveys, a substantial improvement in operational efficiency can be achieved, resulting in reduced operational costs.



Increased system reliability

Near real-time monitoring of vegetation around your utility infrastructure enables the early identification of potential risks, such as trees encroaching on power lines, preventing outages. Proactive management based on accurate and timely data enhances your SAIDI and SAIFI metrics.



Improved safety measures

Monitoring your network remotely reduces field visits and manned aerial flights. This reduction in hazardous activities consequently lowers the risk of Lost Time Incidents and fatalities, thereby fostering the safety and overall well-being of an already scarce workforce.



Commitment to sustainability

Precisely identifying the areas that require attention allows you to lessen the environmental impact of your vegetation management activities. This targeted approach helps achieve sustainability by reducing unnecessary tree removal and minimizing disruptions to natural habitats.

How To Get Started

We offer a pilot program which involves an analysis of a subset of your network, field validation, and a thorough business case analysis. This pilot aims to demonstrate the technical and business feasibility of the use of satellite analytics for a full network rollout.

If you want to learn how our solution works, sign up for a free demo [here](#).



LiveEO

SATELLITE-BASED INFRASTRUCTURE MONITORING

LiveEO is a leading provider of Earth Observation technologies and solutions that revolutionize asset monitoring. We use artificial intelligence to generate actionable insights from satellite data to safeguard linear infrastructures such as power grids, railway networks, and pipelines against potential risks, enhancing their safety and reliability.

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