

The Netherlands

Cadastre, Land Registry and Mapping Agency

Applying GeoAI to detect forest trails for Dutch topographic data production

“By applying GeoAI carefully and responsibly, we strengthen the quality and continuity of our topographic work.”

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the Netherlands' Cadastre,
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The Netherlands' Cadastre, Land Registry and Mapping Agency, Kadaster has assessed how GeoAI can be applied to detect forest trails and improve the efficiency and accuracy of topographic data production.

High-resolution LiDAR-based Digital Elevation Model (DEM) was used to uncover what lies beneath the forest canopy. By filtering the LiDAR points, Kadaster digitally removed the vegetation points and exposed the underlying ground surface, including the forest trails running through it.

These newly uncovered paths – from historical tracks to long forgotten routes – served as training data for GeoAI models to automatically detect similar features nationwide. The results are being manually validated and refined to ensure that they reflect real, accessible paths, and Kadaster is now evaluating how they could be applied to its official topographic data.



Forest trails on the Veluwe in the Dutch Key Registry TOP10NL

Benefits

- Improves the quality and completeness of topographic maps by uncovering forest trails that remain invisible when just using aerial imagery.
- Reduces time and resources spent on manual interpretation, allowing specialists to focus on expert validation.
- Establishes a flexible workflow that can easily adapt to automatically detect other features, such as storage tanks, greenhouses, and solar fields.
- Strengthens Kadaster's ability to meet future demands, including more frequent updates and rising data complexity.
- Creates opportunities to share knowledge, methods, and lessons learned with other National Mapping and Cadastral Agencies (NMCAs).