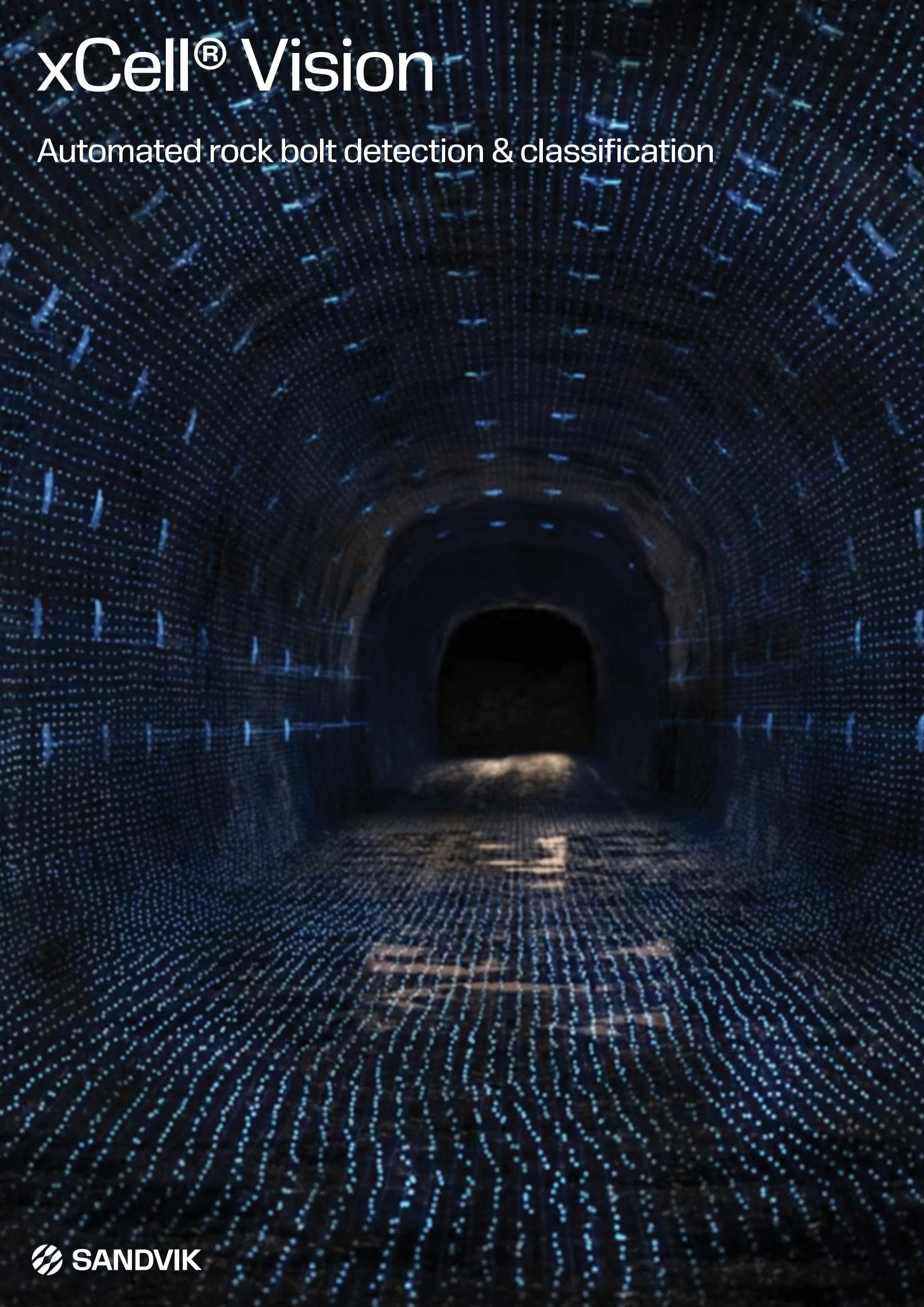
xCell® Vision

Automated rock bolt detection & classification



SANDVIK

xCell® Vision - Automated analysis of rock bolt installations

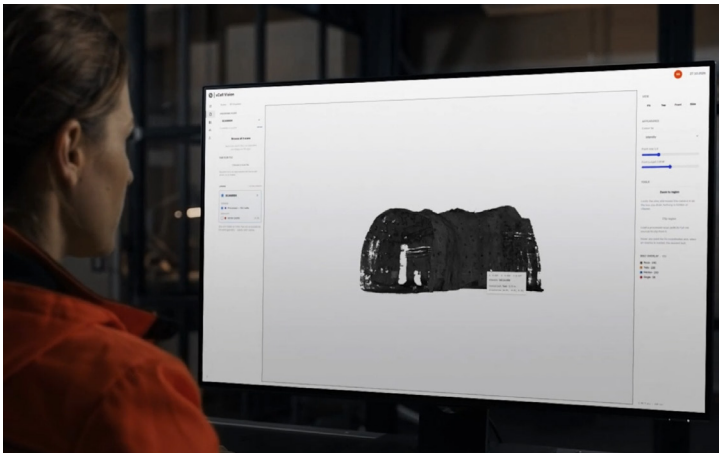
Using LiDAR data and advanced AI technology to help mining organizations getting a fast, comprehensive, and detailed overview of their ground support.

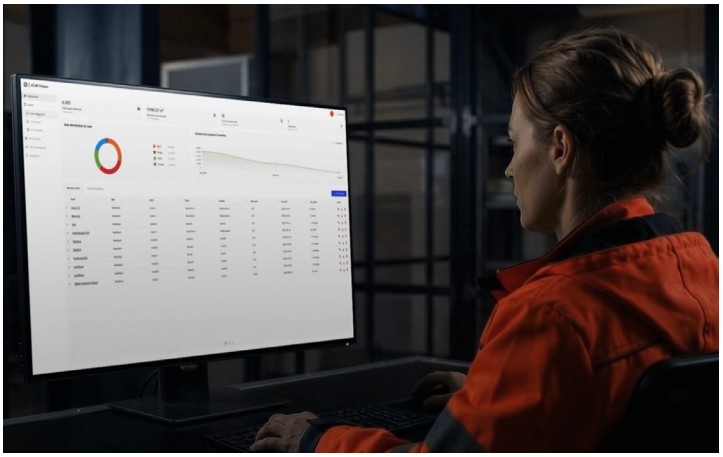
xCell® Vision transforms rock bolt inspection from a manual, labor-intensive process into an automated, data-driven workflow. It uses computer vision to analyze LiDAR scan data and to detect the installed bolts. The result is higher productivity, improved safety for personnel, and lower operational costs, while enabling mining companies to make faster and more informed decisions regarding ground support management.

Advanced QA/QC reporting

But xCell® Vision not only detects a bolt. It also classifies the bolt type and provides exact data regarding bolt count, density, tail length, spacing, and orientation. This fast and fully automated solution provides more in-depth QA/QC metrics than manual inspections, enhancing productivity and safety. Engineers receive accurate QA/QC metrics automatically, allowing them to focus on interpreting results and making decisions. The platform is cloud-hosted, easily accessible through a web interface, and integrates seamlessly with the Deswik Rock Bolt Spacing Tool.





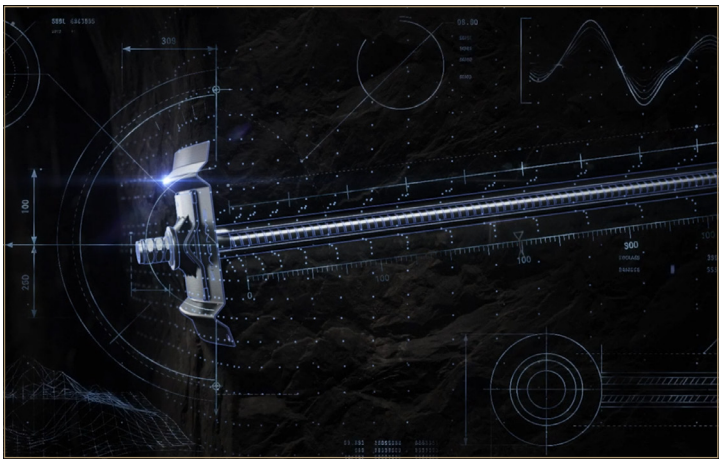


Automated workflow

From scanning the tunnel, uploading of the scans, AI/ML evaluation, to reviewing the results, all steps follow an automated workflow. No matter if the LiDAR scans are from a handheld, stationary, or machine mounted scanner, just drag-and-drop the files and the automated processing starts. The system is hosted in the Sandvik cloud environment and delivered as a Software-as-a-Service (SaaS) solution, eliminating the need for any software installation on your computer.
Even already existing, historic open-format LiDAR point clouds can be uploaded and processed.

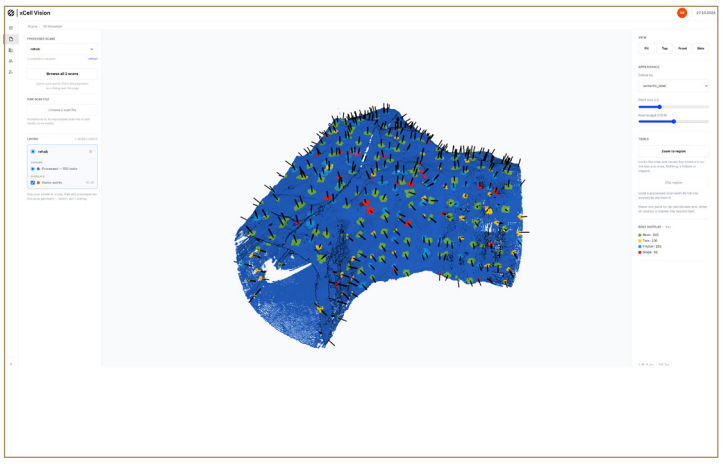
Automated processing

Directly after the upload, the automated processing of the data starts. The whole processing runs in the Sandvik cloud, using advanced AI/ML (machine learning) technology to automatically detect and classify a wide range of pre-trained bolt types, including MD/MDX Bolts, resin bolts, cable bolts (single and twin), and friction bolts. Additional bolts can be trained on demand.



QA/QC results & 3D data visualization

The software automatically provides key installation metrics for every scan, including bolt count per bolt type, bolt density (bolts/m²), average bolt spacing, surface area, tail length, and tail angle. Engineers receive accurate QA/QC metrics automatically, improving the consistency and quality of inspections while also reducing the risk of human error.
A special feature is the included 3D visualization, showing a 3D point cloud of the scanned tunnel with the detected bolts. These visualizations show the bolts in different colors, based on the bolt type, and allow easy zooming in for a closer look.



Latest element of the Digital Ground Support Platform

xCell® Vision is the latest element in the Digital Ground Support Platform. Several other modules, including solutions for pull test reporting, digital monitoring of consumed capacity of rock bolts, and rock mass monitoring, are already part of the platform, providing mine operators with comprehensive data & analytics to enable safe, efficient, and productive mine development.

All dimensions, weights, quantities, and specifications are those applicable at the time of this publication and may be amended from time to time. Please contact your local representative for final confirmation of any key specifications.

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