DataCloud

DigitalGeology™ Solution Revolutionizes Blast Planning

New DataCloud Solution Enables Mine Operators to Clearly Identify Joint Sets, Fracture Spacing, and Discontinuity Distributions

DataCloud's new DigitalGeology™ solution leverages readily available image data to identify important blast-critical rock features that were historically unaccounted for during blast planning.

Third-party photogrammetry is a sufficient source of data, but where this is unavailable, DataCloud personnel can collect required image data with unmanned aerial vehicles or scanning tools as needed.

These important geologic features are subsequently populated in DataCloud's MinePortal™ platform where they can be integrated with measurement-while-drilling data, seismic-while-drilling information, and the mine's block model to enable differential blast planning and deliver desired fragmentation profiles.

DigitalGeology™ identifies the following rock properties:

- ▶ Fractures
- ▶ Joint sets and spacing
- ▶ Discontinuity distributions
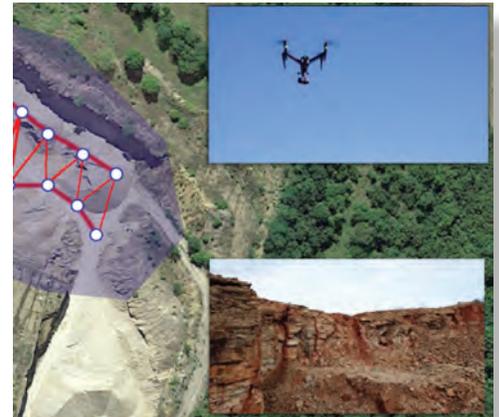
DataCloud personnel can collect required image data from unmanned aerial vehicles if other images are not available.

DigitalGeology™ Image Interpretation Technology

DigitalGeology™ is a turnkey image processing and interpretation solution that provides mine site geologists and engineers an intuitive method of understanding fracture networks and block size distributions in their rock. It makes use of powerful cloud computing capabilities, sophisticated processing algorithms, and artificial intelligence to quantify key geological parameters and optimize blast planning.

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Frame extraction
Threshold image
Local gradient
Block identification
Segmentation
Block quantification

IMAGE ANALYSIS

Data mining → Image tagging → Machine learning → Results
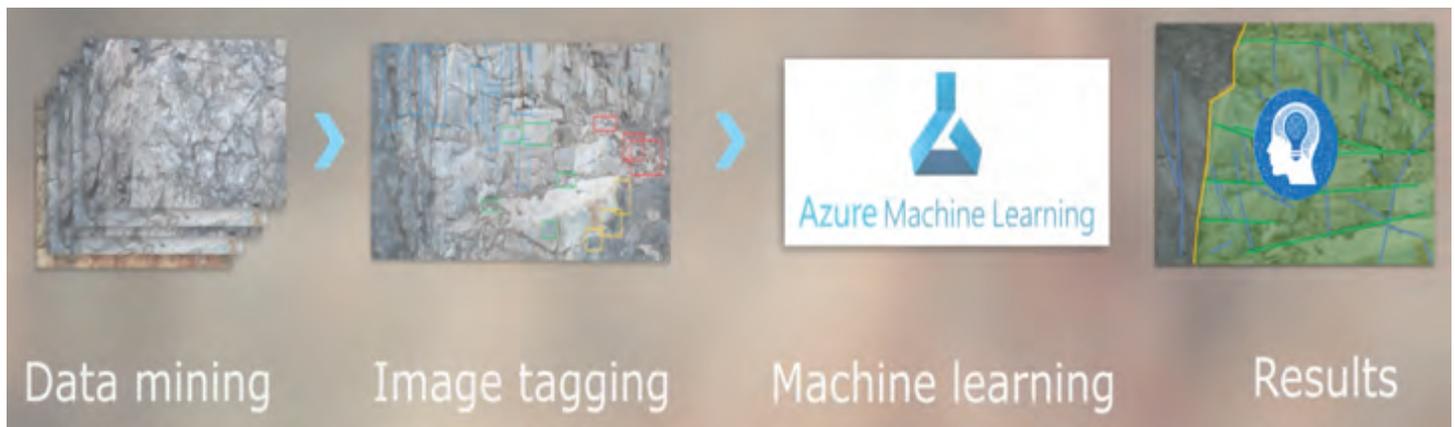
Unlocks Vital Insights to Optimize Burden and Spacing

From third-party or DataCloud-collected image data, DigitalGeology™ enables you to develop a complete 3D reconstruction from a defined study area.These high resolution pictures of benches and free faces are then analyzed using preprocessing techniques that extract geological discontinuities, and particularly, joints and fractures, to better predict how a blast pattern will respond to explosive energy and detonation sequencing.

To unlock these insights, a pure preprocessing image analysis step extracts features before deep learning classifications are finalized. This workflow identifies naturally fractured blocks and obtains oriented discontinuity families throughout the site, before blasting.

The entire DigitalGeology™ process is powered by an intuitive user interface that lets mining professionals adapt the algorithm parameters for each project.

About DataCloud: Helping Mining Companies to Grow and Own the Future

At DataCloud, our mission is to create powerful new geoscience technologies like DigitalGeology™ and leverage breakthrough blasting techniques that empower mine operators to fully capitalize on the historic growth opportunities in today's global mining industry.

DataCloud helps operators conduct the cleanest, most efficient mineral extraction possible, dramatically improving mine performance and productivity. Equally important, this also reduces the environmental impact of mining operations and improves safety.

By mastering the subsurface, DataCloud enables mining companies to transform their economics and own the future.
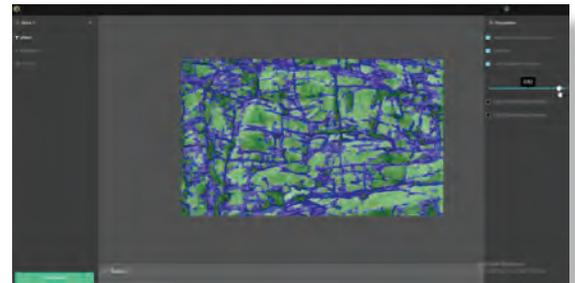
An image generated by DigitalGeology™ from DataCloud that indentifies critical rock properties of the defined study area.

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