

Blast Vision

A System Designed for Blasting Evaluation

Target

&

- Evaluate Blasts Qualitatively

- Slungshot

- Smoke

- Fragmentation

Path

- Value Oriented

- Algorithm Driven

- Project Based

- Code Reusing

- Parameters Optimizing

- Extendibility

Video Preprocess

- Image Enhancement
 - Contrast
- ROI Crop
 - Target Tracking
- Stabilization
 - Optical Flow
 - Frame Diff
 - VidStab lib



Think Before

- Extracting Information from Frames of Video
 - Deep Learning based
 - YOLO V8,9,10,11
 - FastCNN
 - Classic Algorithm based
 - Frames Differencing
 - Optical Flow



Structure

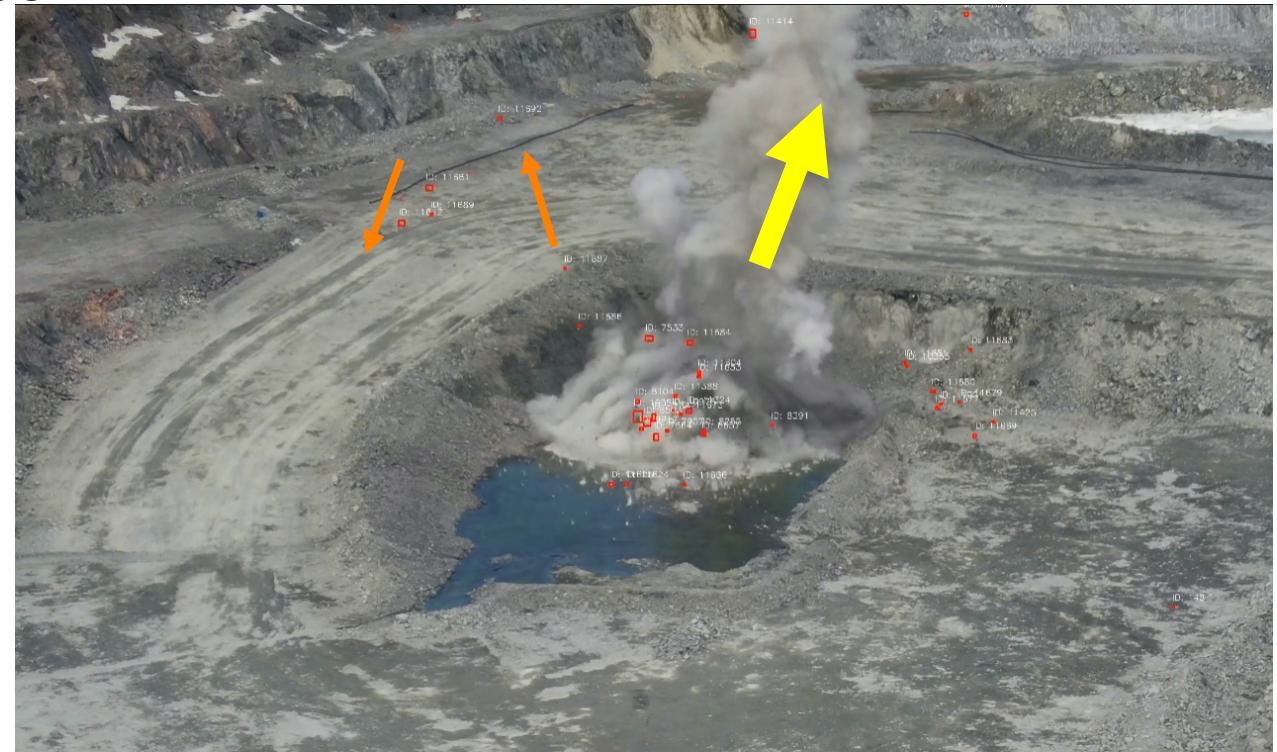
- Slungshot Analysis
- Smoke Analysis
- Fragmentation Analysis



Blasting
Evaluation

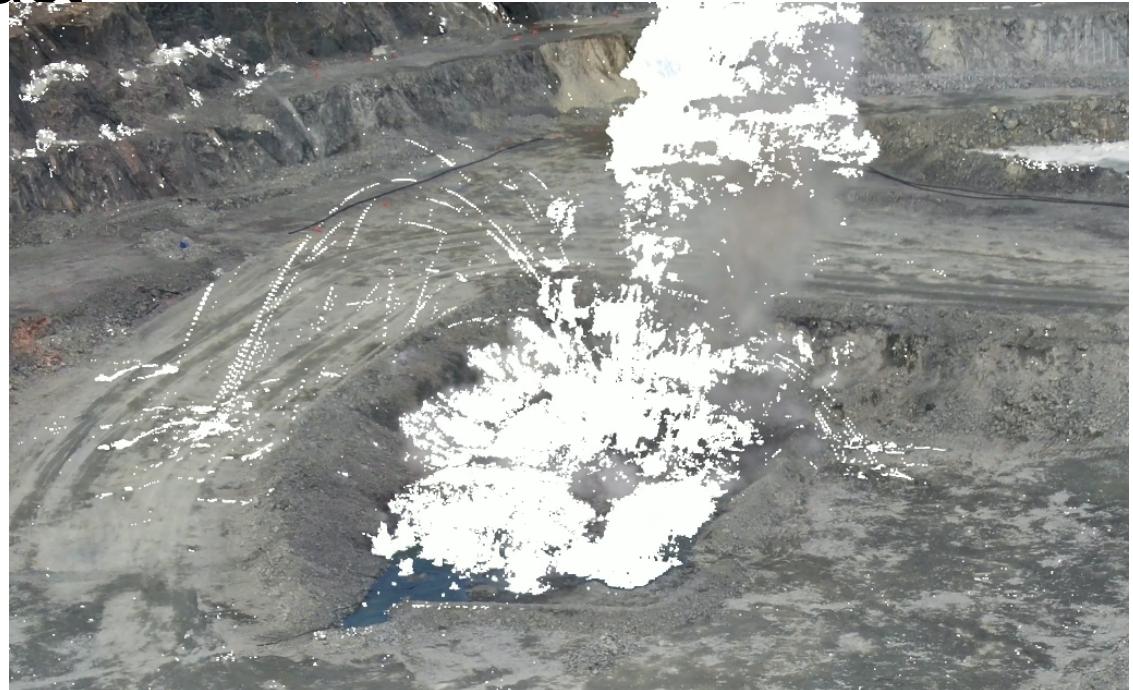
Slungshot Analysis

- Detection
 - Frames Difference
 - Optical Flow
- Tracking
 - ByteTrack
 - StrongSORT
- Results Processing



Smoke Analysis

- Contour
 - BackgroundSubtract
- Analysis
 - Colour



We Also

- Recompiled the opencv-python library to have the CUDA support and GPU acceleration.
 - Optical Flow
 - And more
- Built the Web UI
 - Analysis management
 - File management and preview
 - ROI and shapes drawing
 - Real time processing monitoring

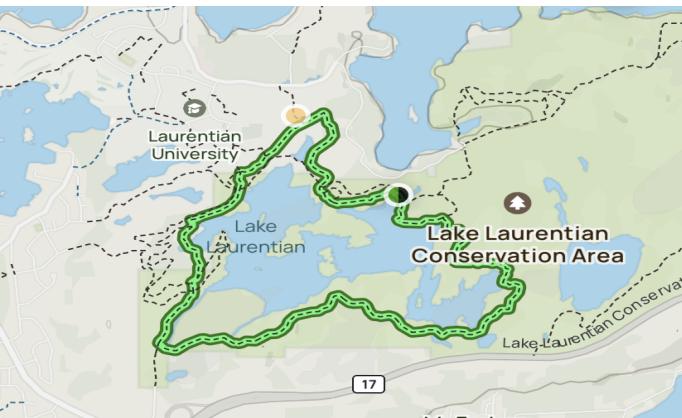
Improvement and Fine tuning

- More Algorithms and Models introduced for
 - Video preprocessing
 - Object detection
 - Object tracking
- Evaluation reports

A lot of things

And Maybe

- Camera Calibration
- 3D modelling



test_20250107_2

123

test_20250107_1

test_20250106_1

test_20250106

Draw

1933

503

circle

point

clear

Save



[video info](#)

Thank you !



- Stabilize Vidsta
 - Crop ROI
 - Set Pixel
 - Slungshot
 - Fragmentation
 - Smoke

C1 340 102 edited SetPixel

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with

Choose File No file chosen

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340_102_clip1.mp4

340_102_clip1_crop.mp4
340_103_clip1_crop_StabVid.mp4

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340_102_clip1_crop_StabVid_Slu

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340_102_clipped.mp4
340_102_clipped_crop.mp4

340_102_clipped_crop_Slungshot