

## AI AND 3D LIDAR FOR INFRASTRUCTURES

# Automated Measurements

## Why choose The Cross Product?



### PRECISE TOOLS

High precision, an advantage over manual solutions



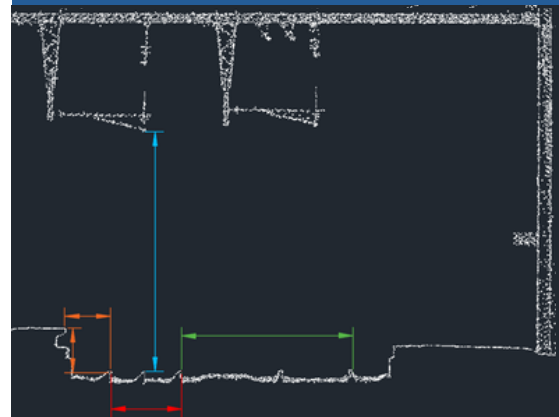
### SPEED OF EXECUTION

Automation for cost reduction and time savings



### CLOUD PLATFORM

Integration into processing chains. Calculations performed on the cloud



kilometric_point	X_track_axis	Y_track_axis	Z_track_axis	horizontal_mid_chord_offset_20m	vertical_mid_chord_offset_20m	vertical_slope_20m	superelevation
0-000.000	-44.9574	59.1067	-3.0757	0.0011	0.0002	0.0057	0.0000
0-001.000	-44.1232	58.5552	-3.0702	0.0011	0.0002	0.0057	0.0038
0-002.000	-43.2892	58.0038	-3.0646	0.0021	0.0004	0.0057	0.0040
0-003.000	-42.4552	57.4517	-3.0591	0.0030	0.0005	0.0057	0.0043
0-004.000	-41.6213	56.8998	-3.0535	0.0036	0.0006	0.0057	0.0046
0-005.000	-40.7875	56.3477	-3.0479	0.0041	0.0008	0.0057	0.0048
0-006.000	-39.9539	55.7955	-3.0423	0.0046	0.0009	0.0057	0.0048
0-007.000	-39.1203	55.2432	-3.0367	0.0046	0.0009	0.0057	0.0049
0-008.000	-38.2868	54.6907	-3.0311	0.0046	0.0010	0.0057	0.0050
0-009.000	-37.4533	54.1381	-3.0254	0.0046	0.0011	0.0057	0.0050
0-010.000	-36.6199	53.5855	-3.0198	0.0043	0.0011	0.0057	0.0050
0-011.000	-35.7866	53.0328	-3.0141	0.0040	0.0011	0.0057	0.0050
0-012.000	-34.9532	52.4800	-3.0084	0.0036	0.0012	0.0057	0.0049
0-013.000	-34.1199	51.9273	-3.0027	0.0030	0.0012	0.0057	0.0047
0-014.000	-33.2866	51.3746	-2.9970	0.0026	0.0012	0.0058	0.0046
0-015.000	-32.4533	50.8218	-2.9912	0.0023	0.0012	0.0058	0.0044
0-016.000	-31.6199	50.2691	-2.9854	0.0019	0.0012	0.0058	0.0042
0-017.000	-30.7867	49.7163	-2.9796	0.0016	0.0012	0.0058	0.0040
0-018.000	-29.9534	49.1634	-2.9738	0.0013	0.0011	0.0058	0.0039
0-019.000	-29.1202	48.6105	-2.9679	0.0010	0.0010	0.0058	0.0037
0-020.000	-28.2870	48.0576	-2.9620	0.0007	0.0009	0.0059	0.0036
0-021.000	-27.4538	47.5046	-2.9560	0.0004	0.0008	0.0059	0.0036
0-022.000	-26.6206	46.9516	-2.9501	0.0002	0.0006	0.0059	0.0034
0-023.000	-25.7874	46.3987	-2.9442	0.0001	0.0004	0.0059	0.0034
0-024.000	-24.9542	45.8457	-2.9382	0.0000	0.0004	0.0059	0.0033
0-025.000	-24.1210	45.2928	-2.9323	0.0000	0.0002	0.0059	0.0033
0-026.000	-23.2878	44.7399	-2.9263	0.0000	0.0001	0.0059	0.0032
0-027.000	-22.4545	44.1871	-2.9204	0.0000	0.0001	0.0059	0.0032
0-028.000	-21.6212	43.6343	-2.9144	0.0000	0.0000	0.0059	0.0031
0-029.000	-20.7879	43.0815	-2.9085	0.0000	0.0000	0.0059	0.0031
0-030.000	-19.9546	42.5287	-2.9025	0.0000	0.0000	0.0059	0.0030

# A SOLUTION ADAPTED TO YOUR BUSINESS

## Responding to your needs

• Carry out several automated measurements such as:

- 3D position of rails
- 3D position of track axis (center line)
- Track gauge
- Rails superelevation
- Twist and Wrap
- Horizontal mid-chord offset over 20 m
- Vertical mid-chord offset over 20 m
- Vertical slope
- Distance from running rail to platform edge
- Overhead (contact) wire height and stagger
- Distance from center line to platform edge
- Distance to closest track axis

We propose an algorithm combining **artificial intelligence** and **professional knowledge** to accurately carry out measurements on a railway infrastructure.

The **3D polylines** of the rails, the track axis, the platform edge and the overhead wire make it possible to automatically carry out the different measurements on the 3D point cloud.

Our solution is **100% automated, reliable** and **fast** to meet the needs of predictive and corrective maintenance.

An algorithm adapted to the **linear networks**, capable of processing several measurements on the same 3D point cloud.

Products	Railway	Highway	Industrial Site
Classification	Semantic & Panoptic	Semantic & Panoptic	Semantic & Panoptic
Vectorization	Rails and Track Axis	Ground markings, safety barriers	Overhead wires and equipment
Professional Application	Clash Detection Reverse Engineering Measurements	Clash Detection Reverse Engineering Compliance	Safety distance verification

### Input Data

- 3D polylines (SHP/DXF)

### Output Data

- Measurements report (CSV)

### Compatibility

- Platforms (API)
- Any device with a web browser and an internet connection

Can be integrated into point cloud processing platforms

Large-scale use throughout railway network

Pricing by kilometer or by subscription

Accessible on:



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# The Cross Product

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