

3D Point Clouds in a Nutshell

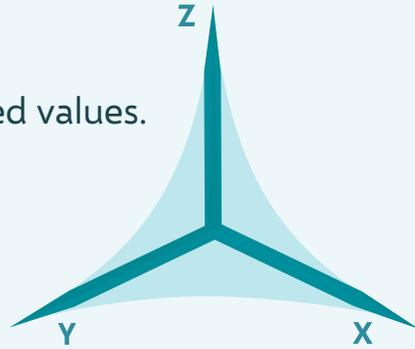
Answers to 4 “W” Questions that describe
3D Point Clouds and their Status Quo



POINTLY
POINT OUT WHAT MATTERS

W1 - What is a 3D Point Cloud?

A point cloud is a 3D data set out of n points that have individual measured values. A point usually consists of x, y and z coordinates.



There are several different file formats in which point clouds can exist, where .xyz is the simplest. Other formats →



Point clouds can be generated during:

- Laser-based distance scanning (LiDAR)
- From several images (photogrammetry)
- With the help of RGB-D cameras

Point clouds are created as measurement results of e.g.:

- UAV scans
- Stationary laser scans
- Robotic control
- Quality control
- Satellite based InSAR images



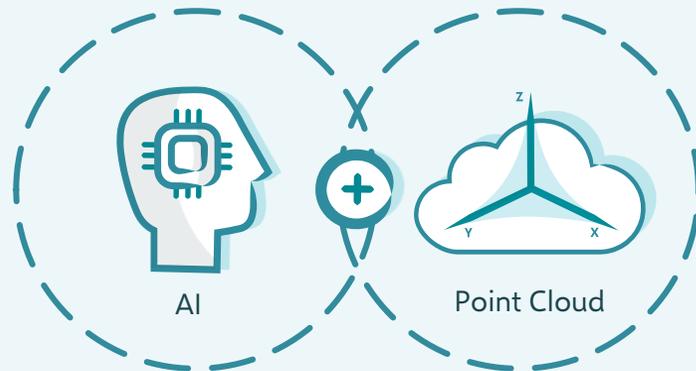
W2 - Who can make use of 3D Point Clouds?

There is a wide field of users, because the applications of point clouds are diverse. The potential of a 3D point cloud goes by far over virtual site inspections. Hence some examples, where they are a key technology in the digitisation:

- Construction
- Forestry
- Urban and landscape planning
- Mining
- Robotics
- Autonomous driving
- Energy Supply

W3 - Why does Artificial Intelligence play a role for 3D Point Clouds?

Point clouds require an analysis to obtain valuable information about contained objects and spatial properties. Advances in neural network architectures now allow us to process 3D data directly, combining the analytical capabilities of deep learning with the information richness of 3D point clouds.



Artificial Intelligence (AI) can provide active support to accelerate and automate planning and control processes in various application areas.

AI needs to be trained by example (training data) and initially humans need to provide these examples.

W4 - When should I start to implement AI strategies for 3d point clouds?

The key to a successful 3D AI strategy is data that can be used to train the AI. For 3D point clouds these are classified point clouds.

Large amounts of training data are needed to train a robust AI and classifying is very time-consuming.

This is where Pointly comes in with intelligent editing tools that allow training data to be generated faster and easier than before.

The larger the data set and the higher the quality, the better the performance of the AI that can be trained on it.

Start now.

Companies which start to collect training data early will be pioneers in the future. On the one hand, because they can make more data available for the AI. On the other hand, because they have been training their AI for a longer period.

