

Open Point Cloud Maps

Explorative Level of Detail

Edward Verbree
Delft University of Technology

NCG Symposium
2 November 2017

Open Pointclouds.nl 'map'

The screenshot displays the 'Open Pointclouds.nl' web application interface. The browser address bar shows 'ahn2.pointclouds.nl'. The main view is a 3D point cloud of a city, with a prominent tall spire (St. Lawrence Church) in the center. The point cloud is color-coded by height, with a vertical color scale on the right ranging from 0 to 20 meters above sea level. A settings panel is visible in the bottom-left corner, showing options for Point, Measurement, Demo, and Misc. The settings are currently set to: Points(m) 10, PointSize 0.3, Color type height, and Quality ULTRA. The bottom of the interface features a toolbar with icons for download, settings, help, and a briefcase, along with logos for ahn, Science center TU Delft, and Potree.org.

Settings

Point Measurement Demo Misc

Points(m) 10

PointSize 0.3

Color type height

Quality ULTRA

20
15
10
5
0
-5
meters above sea level

ahn Science center TU Delft Potree.org

Explore – Explorative

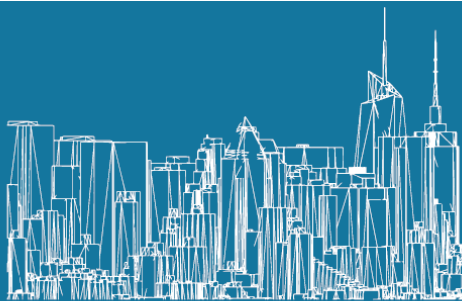
<https://en.oxforddictionaries.com/definition/explore>

- Travel through (an unfamiliar area) in order to learn about it.
 - *'the company has been granted licences to explore for petroleum'*
- Inquire into or discuss (a subject) in detail.
 - *'he sets out to explore fundamental questions'*
- Examine by touch.
 - *'her fingers explored his hair'*

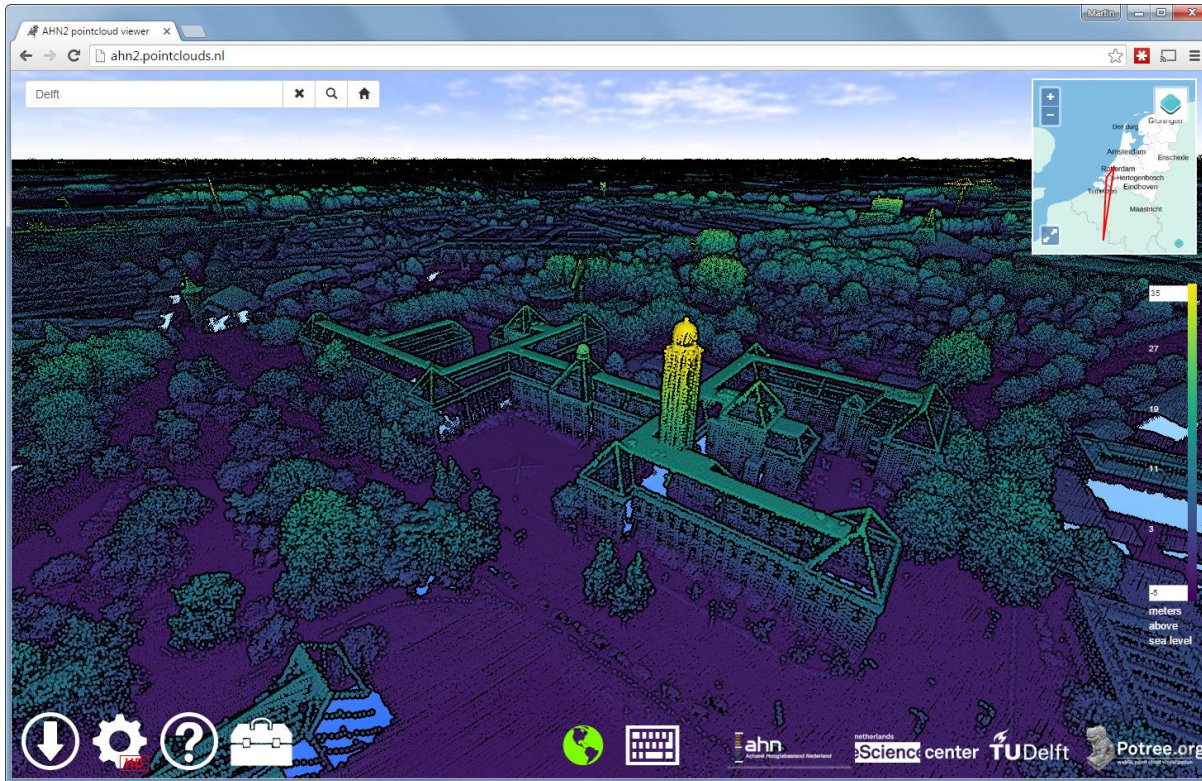
Level of Detail (LOD)

<http://filipbiljecki.com/phd/dissertationFilipBiljecki.pdf>

- The amount of detail that is captured in a 3D model, both in terms of geometry and attributes, is collectively referred to as the level of detail (LOD), indicating how thoroughly a spatial extent has been modelled.
- As a result, the LOD is an essential concept in geographical information science (GIS) and 3D city modelling.



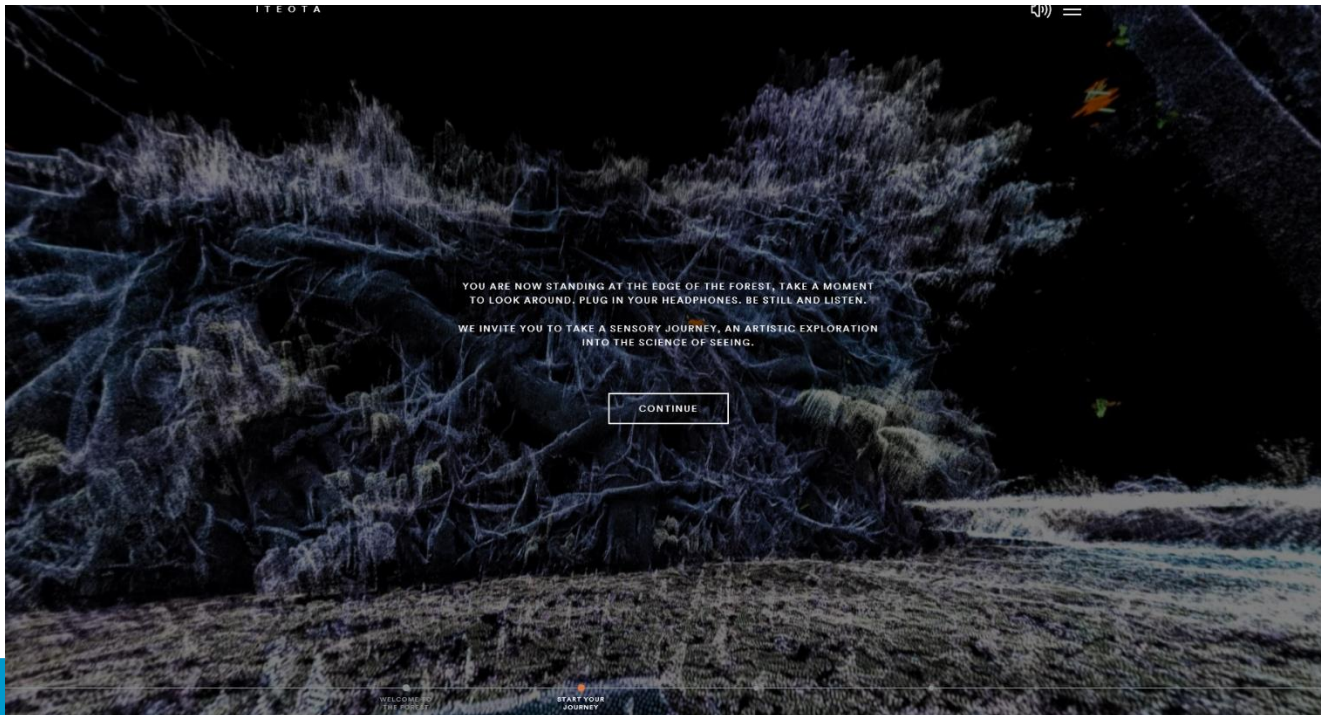
AHN2 Viewer & Open Point Cloud Map



In the eyes of the animal

<http://iteota.com/experience/welcome-to-the-forest>

- We invite you to take a sensory journey, an artistic exploration into the science of seeing.



Explore Scenes

Explore, measure, comment and share. Find the endless possibilities of the modern media for 3D data.

<https://pointscene.com/explore>

POINTSCENE

EXPLORE

PLANS

UPLOAD

SIGN IN »

Haller in Monschau/Germany 

by 3dsscan



OPTIONS



Are Point clouds going away?

<http://geospatial.blogs.com/geospatial/2017/04/are-point-clouds-going-away-.html>

GEOFF ZEISS



About the Author

« [Mixed reality in the construction industry is becoming a reality](#) | [Main](#) | [Democratizing 3D scanning to non-surveyor professionals](#) »

April 19, 2017

Are point clouds going away ?

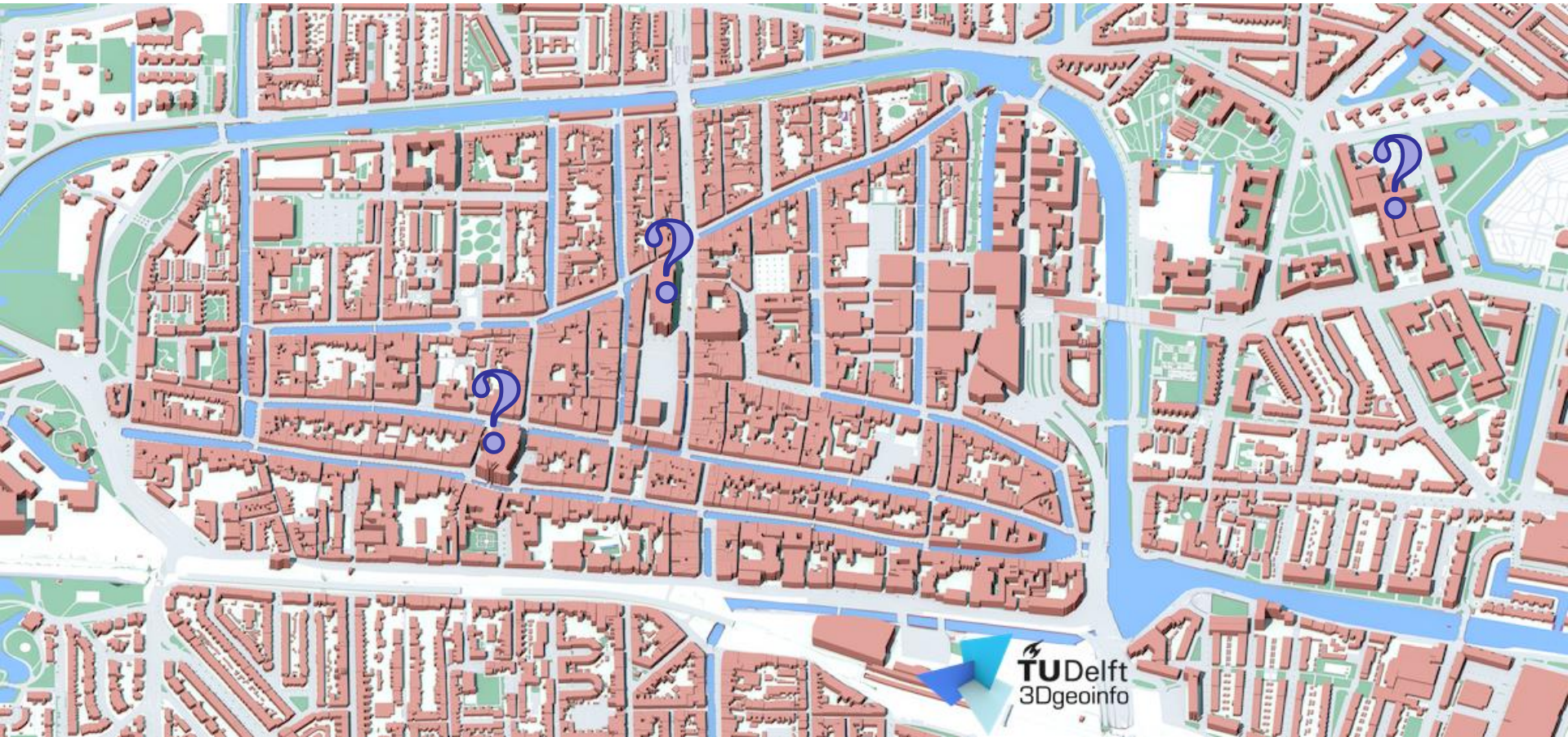
At the [SPAR3D 2017](#) conference in Houston, one of the interesting questions posed to a panel comprised of Greg Bentley (CEO of Bentley), Burkhard Boeckem (CTO of Hexagon Geosystems), and Shabtay Negry (Senior VP at Mantis



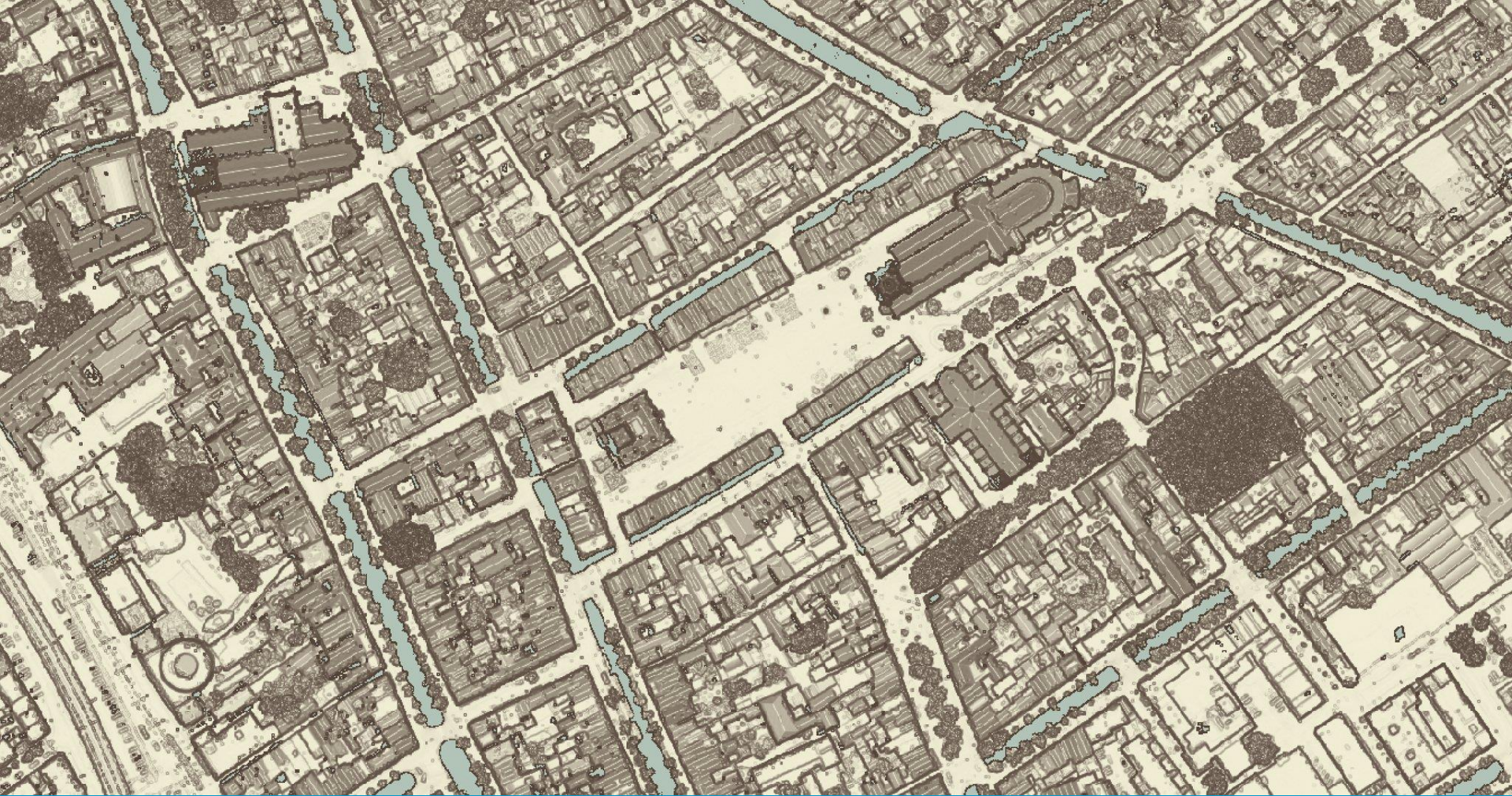
Vision) is whether point clouds, whether from digital photography or LiDAR, will effectively disappear, being replaced by meshes for most reality modeling applications. Meshes are mathematical constructs, typically 3D triangular networks, that are smaller and much easier to manipulate than point clouds, which are typically huge and a challenge to edit.



3DFier: Takes 2D GIS datasets and "3dfies" them by lifting each polygon to its height (obtained with LiDAR)



@Geogeroe ; @rhuybrec
Erik Meerburg; Roel Huybrechts



Point Cloud deluge

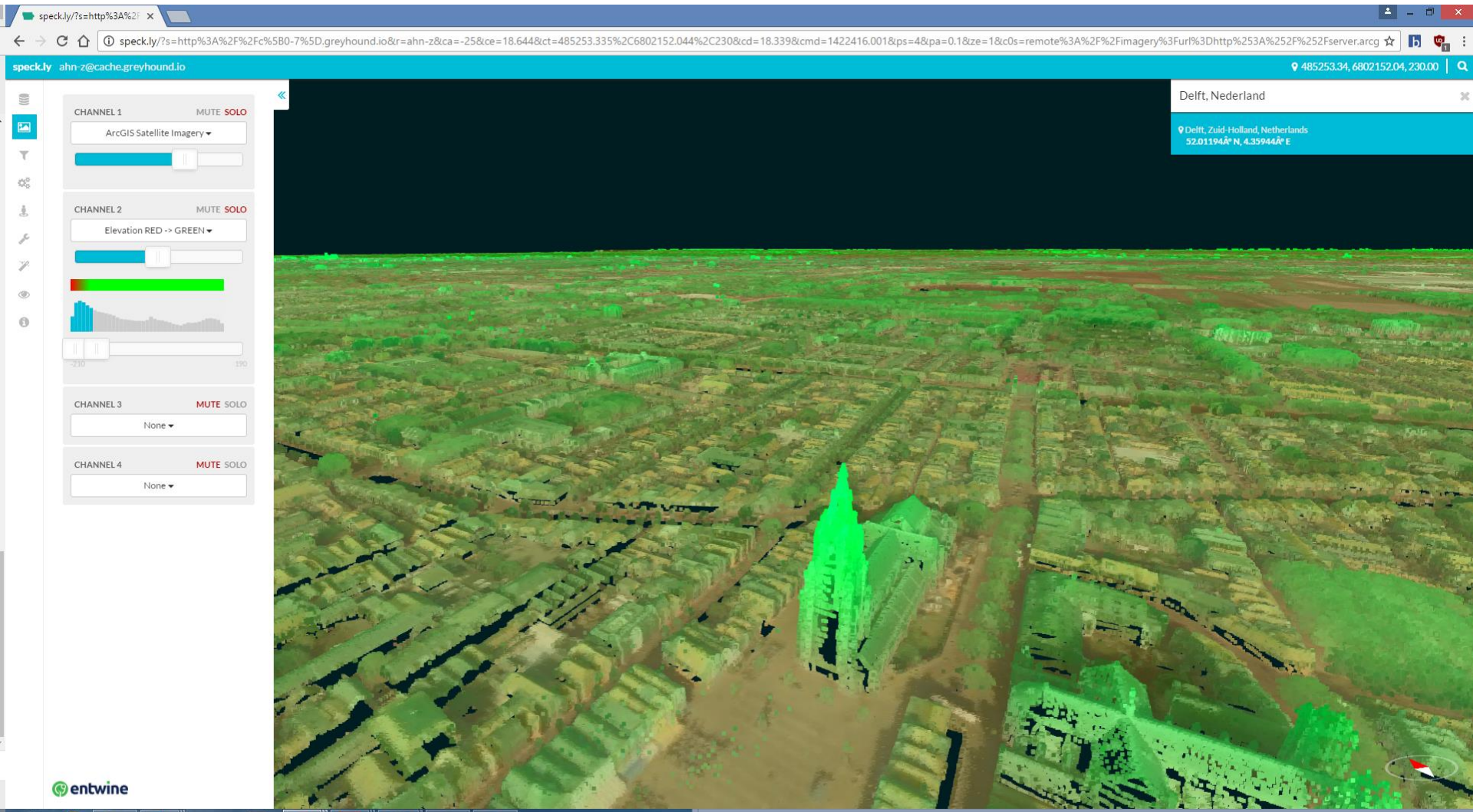
Howard Butler

<http://howardbutler.com/the-coming-point-cloud-deluge.html>

- Point cloud data, unstructured masses of irregularly-spaced points with other attributes such as color or intensity, are going to be another layer of water in which we will find ourselves soon swimming.

Howard Butler

Point Cloud Web Services with Entwine and Greyhound Speck.ly



Potential of Point Cloud Data

- Decision making processes
- Many expert-users from different professions
- Strong urge to access the original measured data
- Interactive visualisation tools
- Visual interaction

“Every time I walked through I found something I have not seen before.”

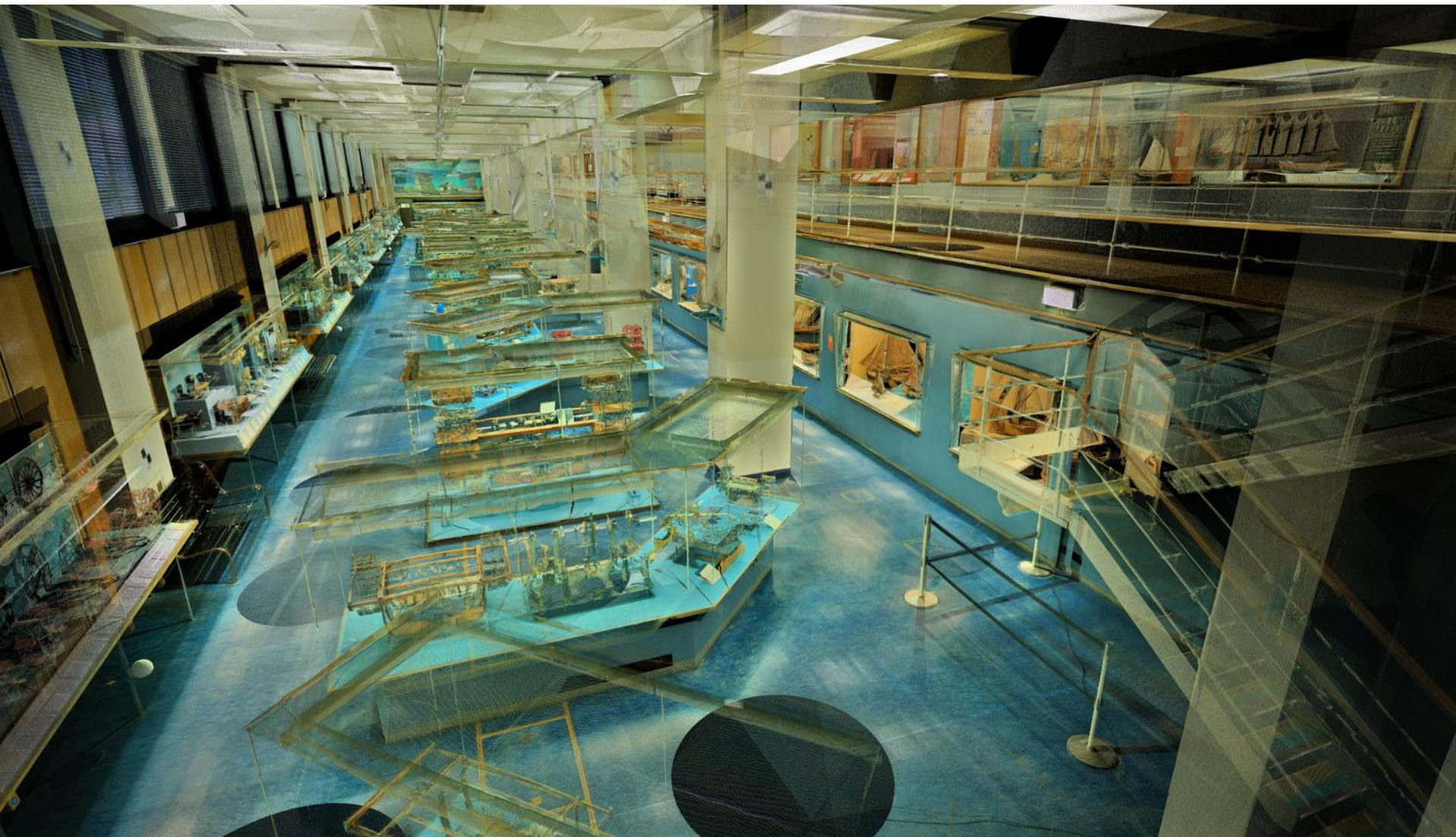
David Rooney

<http://youtu.be/gDTbFhFZI9I>

- Science Museum - The Shipping Galleries 3D Model



Science Museum



Powered by Esri

<http://www.arcgis.com/home/webscene/viewer.html?webscene=a4d5f30880f840bd8fc7ece2f9c8cefd>

ArcGIS ▾ Zuivering Ritthem Ⓢ

Ⓐ Aanmelden



Kaartlagen

Legenda ✕

Zuivering Ritthem points - Zui...



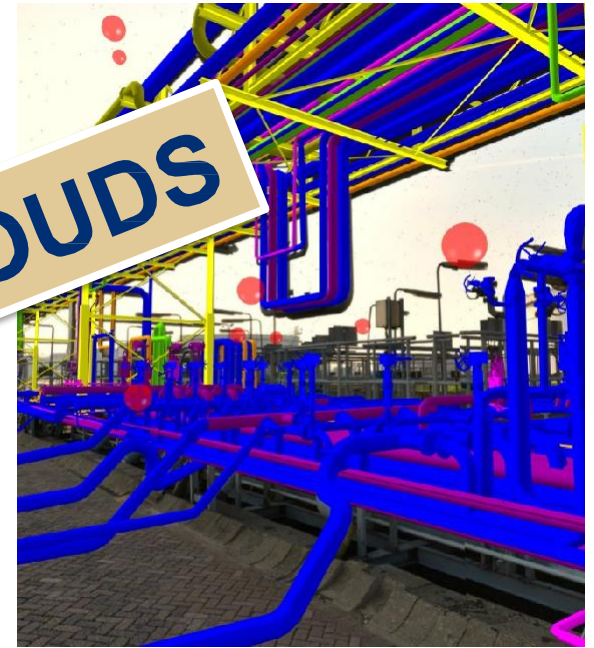
Fugro: Asset Integrity



Power



Rail and road infrastructure



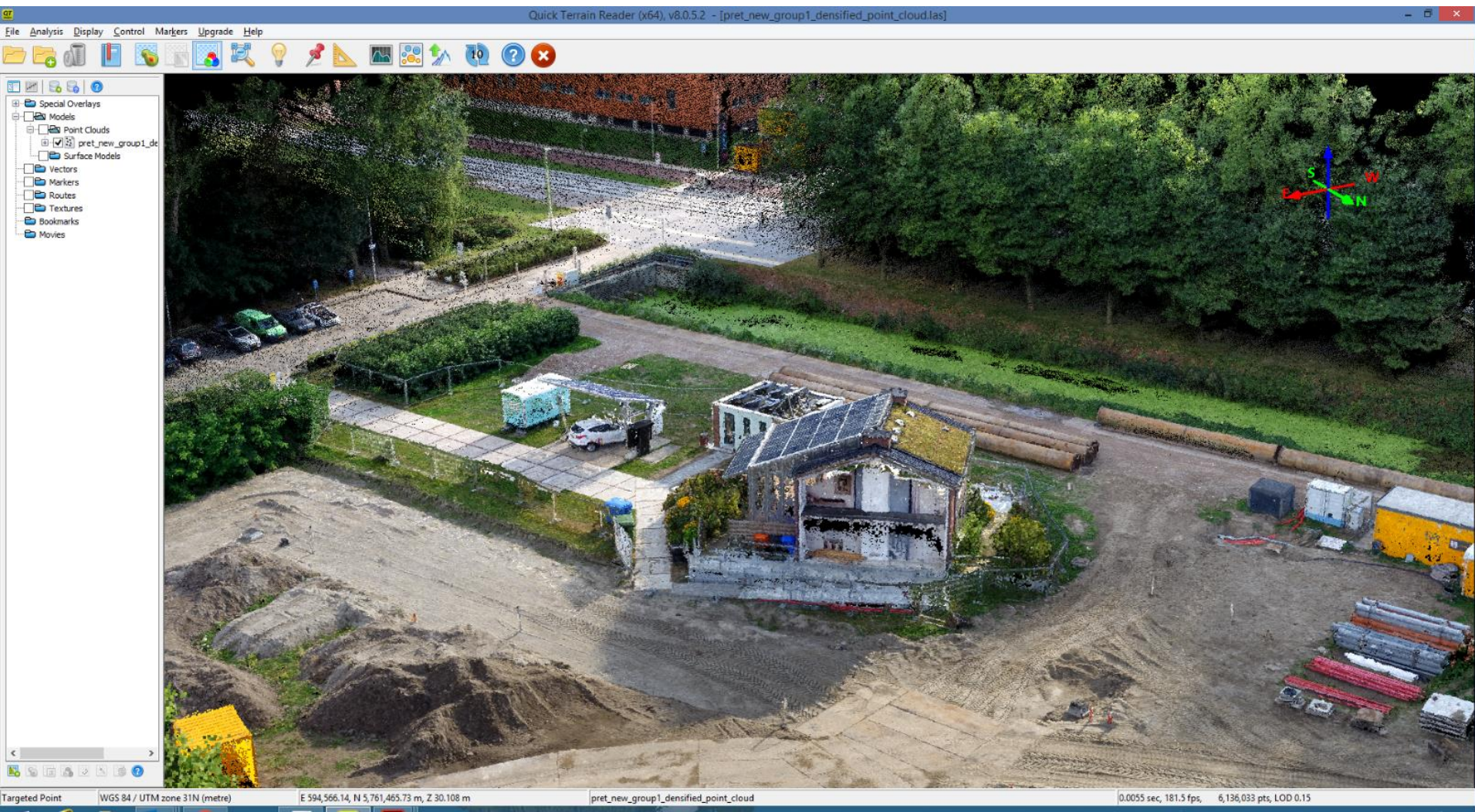
Oil & Gas Digital Plants

WE MAKE POINT CLOUDS

Create your own Point Cloud Here, there and everywhere



LOD1, LOD2, LOD3, LOD4, LOD*



Explorative LOD Point Clouds

Technology that shapes our society

“The world is its own best model.

It is always exactly up to date.

It always has every detail there is to be known.

The trick is to sense it appropriately and often enough.”

- Rodney A. Brooks, Elephants don't play chess, In Robotics and Autonomous Systems, Volume 6, Issues 1–2, 1990, Pages 3-15

Questions?

