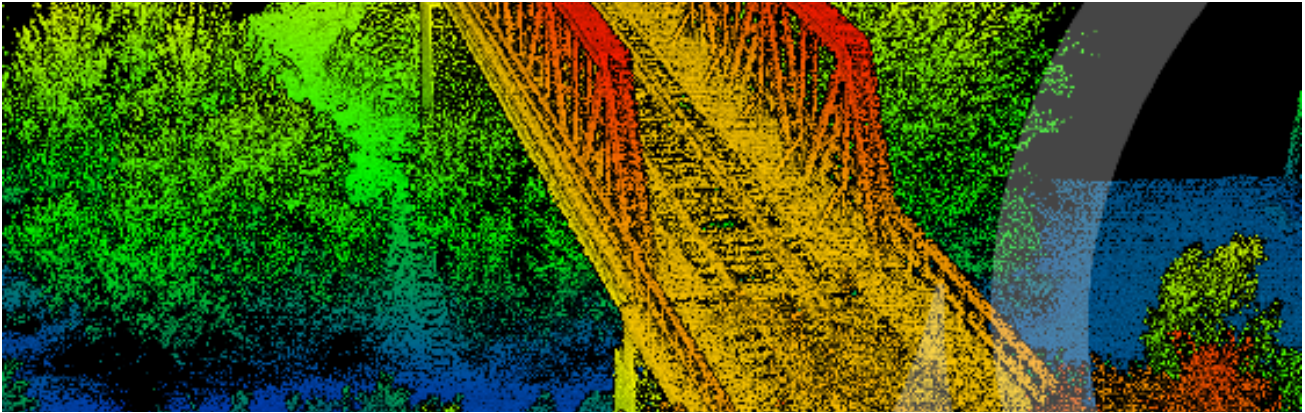


## HANDLING LARGE POINT CLOUDS FOR TABLETS AND VR



With LiDAR and other 3D scanners we can gather a lot of spatial point-cloud data on objects and spaces. These scanners yield large amounts of data, from millions to billions or more data points with 3d location and (optionally) color. These datasets cannot easily be loaded by normal computers, let alone hardware like smartphones, tablets or stand-alone VR systems.

This is why we need your help. What are the different methods, algorithms, libraries, we can apply to load relevant parts of these large data sets to visualize the data on less powerful hardware to be explored in real-time? See the task description below for an idea of what the approach could be. Solutions will be implemented in Python or Unity (C#).

This is a project by the Industrial Reality Hub, which is a group of companies. In this particular project, you will get to see 4 companies: Connec2, PTC, Total Reality and KeyGene. Every month there will be a sprint demo at one of the partner locations, where you will also get feedback from these companies. You will work at the XRlab, and be coached by Ambient Intelligence and the XRlab who both have slightly different expertise in this field.

### TASK DESCRIPTION

- Understand and define the **criteria** for the different use cases
- Create an **overview** of potential solutions for handling large point-clouds (considering different parts of the pipeline from file to render)
- **Select** the most suitable directions of solutions to work on for your graduation
- Design and develop a (or multiple) reusable **library**
- Design and develop a **proof of concept** showcasing the library (or libraries)
- **Evaluate** the effect of your solution

### PRACTICAL INFORMATION

- **Student profile:** HBO-IT Software Engineer or CMGT Engineer graduate student
- **Contact person(s):** Danny Plass ([d.plass@saxion.nl](mailto:d.plass@saxion.nl))
- **Industrial Reality Hub**  
<https://industrialrealityhub.com/en>
- **eXtended Reality lab**  
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- **Research group Ambient Intelligence**  
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