



## OBJECT LOCALISATION FROM HIGH-RESOLUTION MULTI-VIEW IMAGES

Digital twinning is an emerging trend where a digital version of a real world system is generated. The availability of a digital twin has many benefits, it represents the true situation, maintenance can be planned effectively and it can be used for validation. Our client, Strukton Rail, is interested in a digital twin of the rail environment for planning the upgrade of the current rail network such that it complies with European rail safety standards.

Goal of this assignment is to determine the location of objects in world-coordinates based on multi-view images. A nadir (top-down) image and an oblique (at an angle) image are available, images are very-high resolution with a file size of around 120MB and 30MB each respectively. A deep learning algorithm needs to be trained for detecting objects. Furthermore some coordinate transformations and plane projections are required to obtain the world-coordinates.

Images are from the recently launched SpoorInBeeld platform: <https://spoorinbeeld.nl>

## TASK DESCRIPTION

- Select an appropriate well-established deep-learning model for object localisation
- Label a small dataset
- Find a suitable approach for dealing with these large images, e.g. downscaling or tiling
- Determine a transformation from image coordinates to world coordinates

## PRACTICAL INFORMATION

- **Student profile:** HBO-ICT, ACS, EE, Bachelor assignment, individual assignment
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- **Lectoraat Ambient Intelligence:** [saxion.nl/ami](https://saxion.nl/ami)
- **Involved client:** Strukton Rail