

Research in autonomous driving for trains (iX-Rails) Advanced Virtual Environment for Railway Condition Simulation

The iX-Rails project focuses on the development and optimization of detection systems through a software simulator that virtualizes track conditions and enables test runs in a virtual environment. This simulator is a key tool for generating data necessary for training neural network detection units.



Key features of the product or service:

iX-Rails represents a revolutionary tool for railway transport simulation. The simulator allows the creation of a 3D virtual environment of the railway track and simulates the movement of railway vehicles under user-defined conditions. This tool is crucial for generating realistic data essential for training detection algorithms.

Key features

- **Realistic Data:** The simulator enables the acquisition of data from crisis events and various weather conditions, which are difficult to obtain in real operations.
- **Automation:** The virtual environment automatically generates data, significantly reducing the time required for training neural networks.
- **Wide Range of Scenarios:** Simulations include dangerous events such as accidents, obstacles on the track, and various weather conditions.

Technical specifications and product details

- **3D Modeling:** Utilizes Blender software for realistic scene rendering.
- **Powerful Hardware:** Uses IT4I supercomputer for rendering complex scenes.
- **Advanced Sensors:** Simulations include data from infrared cameras, LIDAR, and GPS.



Reference

<https://starfos.tacr.cz/en/projekty/FW01010274>