ConSLAM: Periodically Collected Real-World Construction Dataset for SLAM
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ConSLAM: Periodically Collected Real-World Construction Dataset for SLAM
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Challenges
- The digitization of the geometry of existing infrastructure assets is a crucial step for creating an effective Digital Twin.
- SLAM algorithms utilized by mobile scanners are not yet accurate enough to meet the requirements of demanding use cases in the construction industry.
- Available datasets for SLAM algorithms were not collected on construction sites hence we do not know what their performance there is.
- There is no dataset collected periodically which would reflect real-world use cases such as progress monitoring.

Our Approach
We used our prototypical hand-held scanner to collect the five sequences of data and a static Terrestrial Laser Scanner (TLS) to collect corresponding ground-truth scans.

During scanning, the recorded streams of data were time synchronized and monitored.

The Dataset

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</table>

Practical Application (1/2): Evaluation of SLAM trajectory
We extend a popular software package (evo) to automatically measure the accuracy of SLAM algorithms against our trajectory and we show that A-LOAM and LIO-SAM (two popular odometry/SLAM algorithms) are subject to drift.

Practical Application (2/2): LiDAR projected onto images
LiDAR points can also be projected onto the corresponding images because we provide extrinsic calibration matrices between our sensors.

During scanning, the recorded streams of data were time synchronized and monitored.