

**3D Reconstruction of Railway Track-side Environments
Using Forward-Facing Smartphone Videos Captured on a Train**

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To address labor shortages and an aging workforce, this study investigates the use of train forward-facing videos captured by smartphones for efficient railway track maintenance. For this purpose, 3D spatial models of tracks and surrounding infrastructure were reconstructed using SfM-MVS techniques. The results suggest that these models have the potential to serve as low-cost, alternative or complementary tools for labor-intensive tasks, such as track alignment maintenance and construction surveying of railway facilities.