

Master Thesis

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2 Introduction

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3 Theory

4 Analysis

5 Conclusion and summary

A Dynamics

A train traversing a railway bridge creates actions in longitudinal, lateral, and vertical directions. Braking and traction from a passing train causes longitudinal forces Rocking, or rotations around an axis parallel to the longitudinal axis of the bridge, and vertical dynamic forces are created by structure-track-vehicle conditions and interactions.

A.1 Rocking and vertical dynamic forces

Lateral rocking of moving vehicles provide amplification of vertical wheel loads. This amplification increases the stresses in the members supporting the track.

Superstructure-vehicle interaction creates a vertical dynamic amplification of moving loads, which will result in vibrations causing additional stresses in members supporting the track.

The unloaded simply supported beam frequency $\omega_1 = \frac{\pi^2}{L^2} \sqrt{\frac{EI}{m}}$

B Bibliography

[1] J. Doe, *The Book without Title*. Dummy Publisher, 2100.