Title: Assessing Railroad Crossing Safety: A Machine Learning Approach

Abstract
This research assessed safety at railroad crossings by employing machine learning techniques to model factors affecting crash severity and frequency. The study utilized regression analysis to explore how certain variables influence these incidents. It compared various factors to identify those with a significant impact on crash frequency and injury severity at railroad crossings, incorporating traffic, geometric, and railroad-related factors. Additionally, the research involved a detailed statistical analysis of these variables, examining their interactions and effects on safety. The findings, presented in this paper, reveal that elements such as pavement markings, railroad symbols on the pavement, stop lines, advanced warning signs, terrain, daily train frequency, maximum train speed, the number of traffic lanes at the crossing, and the crossing's proximity to urban areas significantly influence crash occurrence rates.