

## ABSTRACT

This dissertation aims to study a method to estimate the speed of railway vehicles using video processing. The use of cameras along the railways not only enabling the monitoring of traffic, but whose video captured pose be used to obtain estimates of the speed of trains traveling through it. Such system would be used regardless of the control systems already used by the operator of the rail system, allowing the drivers may have a second analysis in case of failure of the first, as a model to assess the speed of rail vehicle along the route .

Different methods of tracking algorithms were employed for this purpose. The results were confronted with empirical data to determine the one with the best answer given. The algorithm presented the best results were the one that employs a single reference block, kept in a fixed position over all quadros compared. The similarity metric responsible for determining which blocks are more or less similar within the universe of search set is the sum of absolute differences.

The results obtained with the proposed system had errors smaller compared to those obtained by the current system, presenting itself as a viable and cost-effective when compared to the techniques currently employed to measure the speed of trains.

Keywords: Motion Detection, SAD, Train Velocity