

## **Application Of Kriging Metamodeling In The Prediction Of The Gross Vehicle Weight For Bridge Weigh-In-Motion Of An In-Service Highway Bridge**

**Pablo AGÜERO-BARRANTES, Richard CHRISTENSON, Sergio LOBO-AGUILAR**

Technological advancements can support infrastructure managers and engineers to provide the best information for timely and efficient decision-making. For the purpose of pavement and bridge preservation, different methodologies have been developed for the detection of overweight vehicles. Bridge Weigh-In-Motion (BWIM), involves instrumenting the structural members of a bridge and to use the bridge itself as a calibrated sensor to collect data of the individual bridge structural condition and the functional characteristics of the traffic crossing the bridge. The BWIM approach, installing relatively inexpensive sensors underneath the bridge, provides a cost-effective solution without the costs, potential traffic delays and safety risks associated with traditional weigh stations or PWIM systems. In this research a novel BWIM approach is presented employing the Kriging metamodeling technique to predict the gross vehicle weight of truck traffic.