

Application of Artificial Intelligence for Optimization in Pavement Management

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Abstract

Artificial intelligence (AI) is a group of techniques that have quite a potential to be applied to pavement engineering and management. In this study, we developed a practical, flexible and out of the box approach to apply genetic algorithms to optimizing the budget allocation and the road maintenance strategy selection for a road network. The aim is to provide an alternative to existing software and better fit the requirements of an important number of pavement managers. To meet the objectives, a new indicator, named Road Global Value Index (RGVI), was created to contemplate the pavement condition, the traffic and the economic and political importance for each and every road section. This paper describes the approach and its components by an example confirming that genetic algorithms are very effective for the intended purpose.

Keywords: artificial intelligence, genetic algorithms, pavement engineering, pavement management

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