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The Application of Artificial Neural Network for Bridge Structures Design Optimization

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Abstract : This paper discusses about the application of ANN for optimizing of bridge structure design. ANN has been applied in various field of science concerning prediction and optimization. The structural optimization has several benefit including accelerate structural design process, saving the structural material, and minimize self-weight and mass of structure. In this paper, there are three types of bridge structure that being optimized including PSC I-girder superstructure, composite steel-concrete girder superstructure, and RC bridge pier. The different optimization strategy on each bridge structure implement back propagation method of ANN is conducted in this research. The optimal weight and easier design process of bridge structure with satisfied error are achieved.

Keywords : bridge structures, ANN, optimization, back propagation
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