類神經網路的線性最佳化

The paper presents an approach of Artificial Neural Network (ANN) in Linear Programming (LP) for engineering design. Back Propagation Network (BPN) is applied to this approach with 2-0-1 structure. One can divide this method into three primary steps, that are mathematical formulation, training & testing of network, and global optimum search. A technique of reducing searching area has been introduced for accelerating convergence. This approach can straightly produce a considerable satisfying solution to avoid the large numerical computation and analysis in conventional Simplex Method. This developed algorithm is based on the N- dimensional design space. For the clear expression, several 2-D design examples are presented to demonstrate the method and the feasibility of the proposed approach. It is noted that the method can be applicable to higher dimensional design problems.