A Rapid Aerodynamic Design Procedure Based on Artificial Neural Networks

By Man Mohan Rai

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.An aerodynamic design procedure that uses neural networks to model the functional behavior of the objective function in design space has been developed. This method incorporates several improvements to an earlier method that employed a strategy called parameter-based partitioning of the design space in order to reduce the computational costs associated with design optimization. As with the earlier method, the current method uses a sequence of response surfaces to traverse the design space in search of the optimal solution. The new method yields significant reductions in computational costs by using composite response surfaces with better generalization capabilities and by exploiting synergies between the optimization method and the simulation codes used to generate the training data. These reductions in design optimization costs are demonstrated for a turbine airfoil design study where a generic shape is evolved into an optimal airfoil. This item ships from La Vergne,TN. Paperback.

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