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A Performance Study of Real Coded Genetic Algorithm on Gear Design Optimization

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Padmanabhan Sambandam · Dr.M. Chandrasekaran · P. Asokan · V. Srinivasa Raman

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Abstract

The major problem that deals with practical engineers is the mechanical design and creativeness. Mechanical design can be defined as the choice of materials and geometry, which satisfies, specified functional requirements of that design. A good design has to minimize the most significant adverse result and to maximize the most significant desirable result. An evolutionary algorithm offers efficient ways of creating and comparing a new design solution in order to complete an optimal design. In this paper a type of Genetic Algorithm, Real Coded Genetic Algorithm (RCGA) is used to optimize the design of helical gear pair and a combined objective function with maximizes the Power, Efficiency and minimizes the overall Weight, Centre distance. The performance of the proposed algorithms is validated through LINGO Software and the comparative results are analyzed.

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