Soft computing in engineering design-A review.

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Soft computing in engineering design â€" A review

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Abstract

The present paper surveys the application of soft computing (SC) techniques in engineering design. Within this context, fuzzy logic (FL), genetic algorithms (GA) and artificial neural networks (ANN), as well as their fusion are reviewed in order to examine the capability of soft computing methods and techniques to effectively address various hard-to-solve design tasks and issues. Both these tasks and issues are studied in the first part of the paper accompanied by references to some results extracted from a survey performed for in some industrial enterprises. The second part of the paper makes an extensive review of the literature regarding the application of soft computing (SC) techniques in engineering design. Although this review cannot be collectively exhaustive, it may be considered as a valuable guide for researchers who are interested in the domain of engineering design and wish to explore the opportunities offered by fuzzy logic, artificial neural networks and genetic algorithms for further improvement of both the design outcome and the design process itself. An arithmetic method is used in order to evaluate the review results, to locate the research areas where SC has already given

evaluate the review results, to locate the research areas where SC has already given considerable results and to reveal new research opportunities.

Keywords

Engineering design; Soft computing; Fuzzy logic; Genetic algorithm; Neural networks

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