

INTELLIGENT SYSTEMS APPLIED IN MANUFACTURING TECHNOLOGY

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the model by RSM requires a minimum number of experiments to be conducted, although restricted to only small range of input variables and hence not suitable for complex and highly nonlinear processes. ANN is a powerful modeling tool for application in complex and nonlinear problems. However, the main novelty of this work is the combination of FEM analysis with the flexibility and adaptability of artificial intelligent techniques for solving the complex problems related to the study of manufacturing processes.

Taking into account these considerations we can say that this undertaken research is of interest for direct application in modern industry and for the large number of researchers working in this important field in the laboratories of companies and universities in different parts of the world. In future, with the development, for example, of the combination of artificial intelligence techniques with FEM analysis, this research line continues with a great potential of evolution as well as with application of sophisticated heuristic search algorithms, namely, simulated annealing (SA), ant colony algorithm (ACO), particle swarm optimization (PSO), for optimizing machining processes.

The original results of a considerable part of this research, developed and under the leadership of the applicant, with the collaboration of numerous researchers from different countries, are published in a set of works presented in this application and that you can see above, namely: 4 edited books of international circulation [1-4], 2 books as co-author [5, 32], 10 book chapters [6-9; 16, 19-20, 23-25], articles published in journals indexed in JCR-ISI Web of Knowledge (Thomson Reuters©) [10-15, 17-18, 21-22, 26-31] and in 2 journal "special issues" of international circulation indexed in SCOPUS© [33-34].

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Statement of the contribution to the work

Submitted by

J. Paulo Davim

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Editor

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Contribution: Unique editor

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Co-Author

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Contribution: Second and last author

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