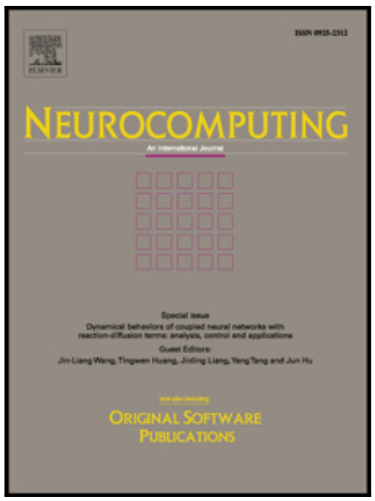

Good Practice Proposal for the Implementation, Presentation, and Comparison of Metaheuristics for Solving Routing Problems

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Good Practice Proposal for the Implementation, Presentation, and Comparison of Metaheuristics for Solving Routing Problems

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Abstract

Researchers who investigate in any area related to computational algorithms (both defining new algorithms or improving existing ones) usually find large difficulties to test their work. Comparisons among different researches in this field are often a hard task, due to the ambiguity or lack of detail in the presentation of the work and its results. On many occasions, the replication of the work conducted by other researchers is required, which leads to a waste of time and a delay in the research advances. The authors of this study propose a procedure to introduce new techniques and their results in the field of routing problems. In this paper this procedure is detailed, and a set of good practices to follow are deeply described. It is noteworthy that this procedure can be applied to any combinatorial optimization problem. Anyway, the literature of this study is focused on routing problems. This field has been chosen because of its importance in real world, and its relevance in the actual literature.

Keywords: Metaheuristics, Routing Problems, Combinatorial Optimization, Traveling Salesman Problem, Good Practice Proposal.

1. Introduction

Today, optimization problems receive much attention in artificial intelligence. There are various types of optimization, such as linear [1], continuous [2], numerical [3], or combinatorial optimization [4]. Usually, the resolution of problems arisen in these areas entails a great computational effort. Besides that, many optimization problems are applicable to real world situations. For these reasons, many different methods developed to be applied to these problems can be found in the literature.

In this way, route planning is one of the most studied fields in artificial intelligence. Problems arisen in this field are usually known as vehicle routing problems, which are a

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