Partial Reliability Usage for Increasing Wireless Sensor Networks Life Time

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Abstract

Nowadays, there is wide usage of wireless sensor network in control of civilian and military systems, home and industrial automation, medicine and tracking fields. The sensed information such as humidity, temperature, pressure, infrared images and noise are packed to send over the network. However, errors at the time of transmission may increas the risk of fault in information. Efficient energy consumption and reliable transmission in sensor networks are the main challenges. To achieve high reliability transmission there are two methods for sensor networks: Data redundancy and retransmission. In this article a reliable method of connection for packet retransmission, based on the correlation between data has been proposed. In this method, some parts of data way are considered as error zone. This method was evaluated using the OPNET simulator. Simulation results show that the proposed method can save energy and increase the lifetime of the sensor network.

Keywords: Wireless Sensor Networks, Partial Reliability, Communication Data, Resend, Error Zone.

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A Combined Multi Objective Model to Supplier Evaluation and Selection and Order Allocation Using AHP and TOPSIS

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Abstract

Supplier selection and allocating orders to them accurately, is one of the most important challenges in supply chain management.The reasone is that an incorrect choosing suppliers can disrupt the financial and technical position of supply chain. Whereas the supplier selection is a multi-objective decision making with multiple criteria problem, in this paper a linear multi-objective mathematical programming model is presented. In this model, Analytic Hierarchy Process (AHP) has been used for determining supplier's priority (weight). By choosing proper evaluation criteria, appropriate number of suppliers and suitable amount of row material orders from each supplier can be specified. The presented model is a mathematical programming model that includes five objective functions and several contraints. Epsilon constraint method is applied to solve the model using a pharmaceutical company data. Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) has carried out to determine the best answer Among Pareto solutions. The results of numerical example and sensitivity analysis show the applicability of the suggested model.

Keywords: AHP, Multi-Objective Mathematical Programming, Order Allocation, Supplier Evaluation And Selection, Supply Chain.

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A New Model of Fleet Size and Mix Green Inventory Routing Problem, Solution: Multi-Objective Quantum Evolutionary Algorithm

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Absract

In Inventory Routing Problem (IRP), which is one of the most important logistics problems, decisions regarding the distribution and inventory management must be made by an integrated managerial approach. In this type of problems, decision maker usually has the option to use several types of vehicles to form a fleet with appropriate size and composition in order to minimize both inventory and transportation costs. Considering the amount of pollution produced, in this problem, may reduce pollution . This paper proposes a new model for green inventory routing problem with heterogeneous fleet. The objectives of the proposed model are to minimize the emissions, the fleet, routing and inventory costs. Due to the NP-hard nature of the assessed problem, a meta-heuristic algorithm based on Quantum Evolutionary Algorithm (QEA) is proposed. To evaluate the performance of the proposed algorithm, its results are compared with the results of exact method and basic Algorithm. The results of these comparisons indicate the good performance of the proposed algorithm.

Keywords: Comprehensive Modal Emission Model (CMEM), Fuel Consumption, Inventory Routing Problem With Heterogeneous Fleet, Quantum Evolutionary Algorithm.

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Comparison of the Effect of Various Types of Genetic Algorithm Operators on the Total Amount of Tardiness in Flow Shop Problem

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Abstract

Flow Shop Scheduling Problem (FSSP) with the objective of minimizing total amount of tardiness is an NP-hard problem and many articles has been written about it. In this context, great attention has been paide to metahuristic techniques such as genetic algorithm. Additionally determination of the paraemeters of the algorithms is an important subject in the research area that many researches have been allocated to it. The purpose of this paper is to investigate the effect of crossover and mutation operators of the genetic algorithm on the objective of minimizing total amount of tardiness in permutation FSSP in order to determine more suitable ones to be applied in the problem. The obtained numerical results indicate that in most cases among common crossover operators,using the one point and two point (first version) operators and among mutation operators,applying the adjacent exchange gives the best value for the mentioned problem.

Keywords: Analysis of Variance (ANOVA), Design of Experiments (DOE), Flow Shop Scheduling Problem (FSSP), Genetic Algorithm, Total Amount of Tardiness.

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Investigation of the Moderating Role 0f Healthy Space Office in Trauma Handler Organizations in Public Sectors and Ranking its Dimensions and Components

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Abstract

Trauma is one of the significant phenomena threating human labor. Having an integrate model to cope with employee's trauma is one of the important and discussable issues in human resource area. In this regard, this study aims to recognize and explain organizational aspects of employee's trauma protecting as a mediator for healthy office space. To do so, 114 academic and official experts were selected as statistical sample using Delphi method to reach a consensus on design and explanation of model. This study is applicable in objective and survey and correlation descriptive study in data collection. Required data were collected by questionnaire designed in Delphi method in three rounds, and analyzed using LISREL software. Results of the study show all organizational, individual and environmental aspects were influential on coping with employee's trauma. Among them, organizational aspect were the most, and individual aspect was the least influential, In structural aspect, the goals and strategy, in individual aspect, the sense of fairness and in environmental aspect, the social responsibility selected as the most important effective elements of in trauma handler organization.

Keywords: Trauma, Organizational Trauma, Organizational Aspect, Trauma Handler Organization, Organizational Health.

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A Multi-Objective Decision Making Model Based on Goal Programming and Fuzzy AHP Approach for Selecting Investment Projects in Mining Sector

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Abstract

In mining projects, due to capital constraints and need for high initial investment, prioritizing the investments is one of the most important decisions that should be taken by the managers. Various parameters have effect on this decision which some of them are in conflict with each other. In this study, four parameters have been taken into account as the most important criteria on investment in mining namely initial investment, production cost, profit and staffing . Then, prioritization of investments among the eight mining projects has been modeled. For this purpose, the goal programming method as an efficient multi criteria and objective technique has been used. Owing to the uncertainty in effect of the parameters and for considering the variety of different decision makers, fuzzy Analytical Hierarchy Process is used to weighting the criteria.

Keywords: Mining Engineering, Investment, Decision Making, Goal Programming

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