AUTOMATIC CONTROL and COMPUTER SCIENCE Section

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BFS Miner algorithm
Cristian Butincu

Full text

Algorithms for mining frequent itemsets are often hard to parallelize or they cannot be efficiently parallelized. This paper presents the sequential form of a new algorithm suitable for efficient parallelization. This algorithm finds all frequent itemsets in a database transaction set that meet a specified minimum support. The algorithm uses a breadth first search technique combined with a vertical layout representation of input data and a candidate voting system.

Key words: data mining, frequent itemsets, k-itemsets, tidset, vertical layout

2010 Mathematics Subject Classification: 68P10, 68P20.

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Quantum Computer Graphics Algorithms
Simona Caraiman

In this paper we outline the development of a new paradigm in the field of quantum computing: quantum computer graphics. The purpose is to demonstrate how fundamental computer graphics problems can be expressed using the quantum formalism. We show that corresponding quantum computer graphics algorithms can be formulated in order to exploit the immense potential of quantum information processing given by its remarkable properties: inherent parallelism of quantum superpositions, quantum interference and entanglement of quantum states. We introduce quantum solutions for the polygon visibility and global illumination problems and develop the appropriate quantum algorithms.

Key words: quantum computer, quantum information processing, computer graphics, rendering.

2010 Mathematics Subject Classification: 81P68, 68Q05.

Estimation of Food Product Freezing Time
Bassam Al-Zgoul, Mohamed Frihat, Jehad Radaedeh, Maen Al-Rashdan, Ahmad H. Al-Fraihat

The freezing process is important to guarantee the quality of the frozen food. The objective of the investigation described here was to outline the factors associated with assuring accurate prediction of food freezing rates with minimum dependence on experimental inputs. Due to the complexity of the freezing process as utilized throughout the food industry, it is impossible to thoroughly investigate and establish the most efficient freezing times for all situations. For this purpose, computer simulation becomes the most efficient tool for comparison of freezing processes. Knowledge of initial moisture content as well as unfrozen water content as a function of temperature allow the prediction of frozen product density, thermal conductivity and apparent specific heat. The most important input parameter to the freezing rate prediction is the surface heat transfer coefficient. The local temperature history data from the acrylic transducer and ground beef product were used to compute local surface heat transfer coefficients.

Key words: food product, freezing, refrigeration, estimation, cooling

2010 Mathematics Subject Classification: 68P10, 68P20.

Visualization Wind Hybrid Optimal Sizing Using PSO Modified Algorithm
Saber Arabi Nowdeh, Abbas Rajabi, Amin Bazzazi

Key words:

2010 Mathematics Subject Classification: