Editorial

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Biographical notes: Walter Miller was an Associate Researcher with the Department of Electrical and Computer Engineering, University of Alberta. He is the Guest Editor of ACM/Springer *Mobile Networks and Applications* (IF: 1.538), *Journal of Intelligent and Fuzzy Systems* (IF: 1.838) and so on, he is also the reviewer of many journals such as *IEEE Transactions on Cloud Computing, IEEE Transactions on Industrial Informatics* (4.708) and some top conference such as SC'15, CCGrid'16 and NPC'16. His research interests include cloud computing, algorithm optimisation, software engineering. He is a member of IEEE and ACM.

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1 Introduction

It is an established fact that the use of computers in design and manufacturing constitutes the most significant opportunity for substantial productivity gain in industry. It has now been widely accepted that the future of manufacturing organisations will be information-oriented, knowledge driven and much of their daily operations will be automated around the global information network that connects everyone together. The application of multimedia in various functional areas of manufacturing such as marketing, design and engineering, production and distribution has tremendous potential, taking into account its capacity to integrate text, drawings, full-vector graphics, and full-motion video. Multimedia can also be used as an

open development framework for manufacturing applications, especially in CAD, CAE and CAM, by providing users with tools to re-engineer and integrate product and process information. Advances in telecommunications and associated technological developments. The internet, incorporating computers and multimedia, has provided tremendous potential for remote integration and collaboration in business and manufacturing applications. Realising the importance of multimedia in manufacturing, especially in the process of enterprise integration and integrating the functional areas of manufacturing, an attempt has been made to investigate the applications of multimedia and identify some future research directions.

This special issue calls for high quality, up-to-date technology related to application of multimedia technology in manufacturing and serves as a forum for researchers all over the world to discuss their works and recent advances in this field. There are seven selected papers were accepted by peer-reviewed for this special issue. The first article, 'An effective foggy image acquisition algorithm in multimedia big data era', authored by Niu and Li introduce an effective fog image acquisition algorithm based on big data analysis environment and single image defogging algorithm is proposed on the basis of histogram equalisation and dark channel methods. The transmission and air light of the fog image need to be estimated by the dark channel prior theory methods, and then clear images can be received after defogging and keep the original colour. The experimental results show that the image by fog removal dark channel prior method can get clear images and keep the original colour, the treatment effect is better than that of the histogram equalisation method.

The second article titled 'An effective system layout planning method for railway logistics centre in the background of big data' proposed a new method of logistics centre function area layout. System layout planning (SLP) method is firstly used to analyse functional domains to construct a comprehensive correlation chart of the functional domains according to certain weights. Manhattan distance and circuitous path are used to express the distances among the functional domains and to construct a double-object function with minimised total trucking expense and maximised total integrated relations. In the practical application of Muther line chart method, the proposed method can get the feasible scheme of layout of functional areas, and it has good application value.

In the next article with the title 'The development and popularisation of network platform of college sports venues in intelligent manufacturing', this paper focuses on building a network platform of all college sports venues resources which can reach the goal to serve national fitness, and proposes an improved parallel heuristic map reduce algorithm. The experimental results show the stability, concurrency and feasibility of the network platform of college sports venues in big data era.

Paper 'Bi-level optimisation model for greener transportation with intelligent transport system' propose a bi-level optimisation model (BLOM) with three algorithms. BLOM is intended for fuel saving and carbon dioxide emission reduction in both upper-level and lower-level model with intelligent transport system. Traffic signal schemes are optimised for minimising total fuel consumption passing through a road intersection in unit time in the upper-level model. At the same time, traffic signal information data are sent to the lower-level model in which vehicle motion states are optimised for greener transportation. Three algorithms include hybrid genetic algorithm and particle swarm optimisation in upper-level model with hybrid genetic algorithm and particle swarm optimisation in lower-level model (GA-PSO/GA-PSO), GA in upper-level model with PSO in lower-level model (GA/PSO) and GA in both level model (GA/GA) are realised to compare and improve the performance of the model. The simulation results derive GA-PSO/GA-PSO hybrid algorithm converges faster with the best resolution and least calculation time than other GA/PSO and GA/GA algorithms.

With the development of e-commerce sites, online reviews have become important data resources for e-customers. Nowadays, there have been many literatures on the category of reviews category or ranking for public. However, they only satisfy common preferences, and ignore personalised preferences of individual users. In view of this phenomenon, paper 'Personalised ranking online reviews based on user individual preferences' trying to put forward a ranking method for individual preferences. It begins with collecting the rules of user preferences by showing reviews to them to let them mark the reviews they like. Then it combines the common rules with user personalised rules to get the range of features. Finally, after calculating the optimal solution of features, the paper strives to structure a ranking model to rank reviews with the set of optimal solution.

The temperature control of glass tempering and annealing process has the problems of the time varying parameters and time lag characteristic. In order to solve this problem, paper 'Fuzzy self-learning control of glass tempering and annealing temperature based on the optimised genetic big data analysis algorithm' proposes a self-learning fuzzy controller based on improved genetic algorithm and big data analysis. The proposed algorithm can quickly search the global optimal factor by using the big data temperature. Thus the fuzzy control rules are perfected and corrected. The simulation results demonstrate that the proposed control algorithm is suitable for systems with time varying parameters and time lag characteristic.

In the latest progress in healthcare, the continuous creation of digital medical information is an important basis for the analysis of large medical data. The last paper 'A medical big data analysis algorithm based on access control system' proposes a medical big data analysis algorithm based on access control system that provides reliable security protection to big medical data (BMD) by considering various quantitative parameters. The proposed algorithm calculates the reputation values of different users,

which correspond to each parameter. Based on the calculated reputation values, the proposed algorithm grants access authority to each user. Simulation results are performed to verify the effectiveness of security system solving protection of the sensitive personal information of patients.

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