# Special Issue on Selected Best Papers of the 2010 International Conference on Frontiers of Manufacturing and Design Science (ICFMD2010)

# Gust Editorial

This special journal issue presents selected best software related papers from the 2010 International Conference on Frontiers of Manufacturing and Design Science (ICFMD2010) held during December 11-12, 2010.

This special issue is to communicate the latest progress and research results of new theory, mew method, technology and so on in Software and Information Science, and to grasp the updated research trends in international, which will drive international communication and cooperation of production, education and research in this field.

In the first papers of this special issue, **"Research on Fuzzy Extension Synthesis Metrics Algorithm for Software Quality"** discusses the shortages and defects caused by original fuzzy synthesis evaluation algorithm and multilayer matter-element extension evaluation algorithm based on the requirements and characteristics of software quality synthetical evaluation.

**"Item Relational Structure Algorithm Based on Empirical Distribution Critical Value"** provide an improved threshold limit value by using the empirical distribution critical value of all the values of the relational structure indices between any two items, it is more sensitive and effective than the traditional fixed threshold for comparing the ordering relation of any two items.

**"Software Defect Prediction Using Non-Negative Matrix Factorization"** propose a novel approach to resolve the problem of software defect prediction. The method is classification using Non-Negative Matrix Factorization (NMF). In this paper, NMF algorithm is not only used for extracting external features but also as a powerful way for classification of software defect data.

**"An Efficient Mining Algorithm by Bit Vector Table for Frequent Closed Itemsets"** proposes an efficient mining algorithm (denoted as EMAFCI) for frequent closed itemsets in data stream.

**"Research of the Real-time Drawing System Based on 3D Movement Tracker"** is to utilize VC++ and OpenGL to build up a real-time drawing system based on 3D movement tracker—Polhemus Fastrak. Using the method of combining programming of Microsoft Basic Class(MFC) and OpenGL to create drawing window and connect Polhemus Fastrak, the real-time drawing system has been made.

**"Algorithm Research on Virtual Individualized 3D Mannequin"** presents a new approach for the research of virtual individualized 3D mannequin.

**"Use AI Technology to Analyse Corporate Goods Price Index"** takes advantage of AI technique (data mining) to analyse the dataset of Corporate Goods Price Index (simple for CGPI). The public-use dataset from Chinese Bank is used in this research.

**"The Design of Service System for SMEs Collaborative Alliance: Cluster Supply Chain"** resents an analytic framework to bridge the gap between theory and practice in the field.

**"Ontology Molecule Theory-based Information Integrated Service for Agricultural Risk Management"** discusses the principles and process of developing domain ontology of the agricultural risks. An information integrated service model for the agricultural risk management, which consisted of six modules, was designed on the basis of the ontology molecule theory.

**"Information Security Risk Assessment Based on Information Measure and Fuzzy Clustering"** proposes a new information security risk assessment method based on combination the mutual information calculated with K-means clustering.

**"Research on Selection of Cooperation Partners in Supply Chain of Agricultural Products Based on IL-WGA"** proposes the index system for the selection and evaluation of cooperation partners in the supply chain of agricultural products, and based on $IL-WGA$ operators, the selection and evaluation is made so that the decision making process of selecting cooperation partners in the supply chain of agricultural products is verified for its scientific nature.

**"The Applications of Business Intelligence to the Improvement of Supply Chain Management – A Case of an Electronic Company"** takes an electronic company as example to enhance its supply chain management by applying concepts and guidelines from Supply Chain Council (SCC) as well as business intelligence tools.

**"Research on approximate reconfiguration of enterprise information system based on formal representation"** deals with a new approach to formal representation and approximate reconfiguration of enterprise information system (EIS) based on object-based knowledge mesh (OKM) and information transfer relationship mesh (ITRM).

**"Molecular Dynamics Simulation on Structure and Characteristics of Cement Hydration Products"** studies the structure and characteristics of cement hydration products by means of molecular dynamics simulation..

**"A Component Assembly Approach to Support Human-computer Interface Construction"** considers rapid construction and dynamic reconfiguration for HCII. A series of methods are presented to realize the rapid construction for HCII based on domain component and its assembly.

**"Approach to Modeling Components in Software Architecture"** gives the concept and characteristics of components and defines the OR-transition Colored Petri Net. Then, presents a formal definition of component based on the properties of software components.

In this special issue. you will find papers regarding software development and engineering, data exchange, data search, multimedia signal processing and analysis, intelligent computer-aided design system, and so on.

On behalf of the guest editors for this special issue, I would like to thank the National 863 Program of China and National Science Fund of China. I also thank the conference organization staff, and the members of International Technological Committees for their hard work.

**Guest Editors**

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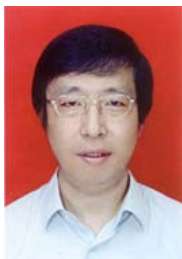


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