

# 2010 Second International Conference on Computer Modeling and Simulation

**ICCMS 2010**

## Table of Contents Volume - 3

<b>Preface - Volume 3</b> .....	xiv
<b>Organizing Committee - Volume 3</b> .....	xv
<b>Reviewers - Volume 3</b> .....	xvi

---

### Volume 3: Session 1

Research on Wave Disturbance Acting on Large Ship with 4 Degree of Freedom Motion .....	3
<i>Yuanhui Wang, Xinqian Bian, Dan Liu, and Xiaoyun Zhang</i>	
Analytical Model between Power and Idler Spacing of Belt Conveyor .....	8
<i>Qing He, Daqian Dong, Zirui He, and Dongmei Du</i>	
Non-equilibrium Melting of Bulk Aluminum: A Molecular Dynamics Study .....	11
<i>Huimin Guo, Xin Liu, and Changgong Meng</i>	
HGA-PN: A New Algorithm for Scheduling FMS Using Combinational Genetic Algorithm and Timed Petri Net .....	15
<i>Touraj MohammadPour, Mehdi Yadollahi, and Abolfazl Toroghi Haghighat</i>	
Investigation of NND Scheme for Transonic CFDCSD Interaction Problems .....	19
<i>Hasan Junaid Hasham, Jawad Khawar, Zhang Jin Bai, and Xu Yuan Ming</i>	
Scheduling Policies Supporting Co-allocation and Advance Reservation for Large-Scale Distributed Environments .....	24
<i>Bo Li, Man Yang, Hao Wu, and Jundong Yang</i>	
Model of Assessment of the Emergency Danger on the Railways .....	28
<i>Boriss Misnevs and Alla Melikyan</i>	

Modeling and Numerical Simulation for Tire Irregular Wear Caused by Tread Vibration .....	32
<i>Haibo Huang and Gang Zhang</i>	
Topology Algorithm Research Based on Energy and Power Control for TopDisc Algorithm .....	37
<i>Xin Xie and Heng Zhang</i>	
Creating a Standard Platform for All Intrusion Detection/Prevention Systems .....	41
<i>Leila Rikhtechi and Afshin Rezakhani Roozbahani</i>	
The Research of Strategic Marketing Positioning System Model and Simulation Based on Systems Dynamics .....	45
<i>Jingdong Chen and Qisong Zhu</i>	
<b>Volume 3: Session 2</b>	
Determination Criterion for Voids of Beckman Beam Static Deflection Based on Finite Element Simulation .....	53
<i>Liu Kai, Wang Fang, and Wang Xuancang</i>	
Simulation for Risk Assessment in Product Development .....	58
<i>Zhaofang Yang</i>	
Extraction and Mapping of Alpha Activity in EEG Signals Using Augmented ICA .....	63
<i>Tahir Rasheed, Young-Koo Lee, Sungyoung Lee, and Tae-Seong Kim</i>	
Real-Time and Realistic Simulation for Cardiac Intervention with GPU .....	68
<i>Rongdong Yu, Sanyuan Zhang, Patricia Chiang, Yiyu Cai, and Jianmin Zheng</i>	
New Approach to Teaching of Principles and Application of Sensors .....	73
<i>Junli Liu and Shufen Li</i>	
Pushing Equipment of Machine Design Based on the Genetic Algorithm Modeling .....	76
<i>Ruomei Wu and Yusheng Liu</i>	
Simulation Based Performance Analysis of On-Demand Routing Protocols in MANETs .....	80
<i>Yogesh Chaba, Yudhvir Singh, and Manish Joon</i>	
Ontology Driven Data Sharing between Microscopic Traffic Simulation and GIS .....	84
<i>Tao Feng, Hong Liang, and Jianping Wu</i>	
The Design of Interface Circuit Based on S3C2410 Data Acquisition System .....	90
<i>Wang Guofang and Wang Wei</i>	
Dynamic Simulation of a Multi-axis Synchronous Gantry Machining Center .....	95
<i>Guo-ning Si, Yue-qing Yu, and Jian-xin Yang</i>	
Hand Segmentation by Fusing 2D and 3D Data .....	99
<i>Reza Hassanpour, Asadollah Shahbahrani, and Stephan Wong</i>	

The Theory and Empirical Research of Network Profit Based on the Perceived Value .....	104
<i>Jingdong Chen and Xiaoqian Gao</i>	
<b>Volume 3: Session 3</b>	
Study on Application of Apriori Algorithm in Data Mining .....	111
<i>Yanxi Liu</i>	
Simulation Research on FOG-SINS/Doppler Radar/Baro-altimeter Integrated Navigation for Helicopters .....	115
<i>Hongyang Bai and Xiaozhong Xue</i>	
A Simulator for Peer-to-Peer Streaming System .....	120
<i>Zhiwei Qiao and Tingrong Xu</i>	
A New Algorithm for Solving Fuzzy Linear Programming — The Basic Line Algorithm .....	125
<i>Ji-Xian Xiao, Fang-Ling Lu, and Xin-Chun Wang</i>	
Real-Time Simulation of Smoke .....	128
<i>Ding Wanning and Jiao Hongqiang</i>	
Comparison and Analysis on Different Finite Element Models of Gear Interfacial Contact Temperature .....	132
<i>Li Jie, Zhang Lei, and Zhao Qi</i>	
Study on Influence of the Floating Ring in Floating Ring Bearing System under Turbulence State .....	137
<i>Zhaohui Kang, Xingmin Ren, Zhi Wang, and Shangwen He</i>	
A Mediator-Based Certified Reputation Scheme .....	141
<i>Zhu Shenglin, Zhang Mingwu, and Yang Bo</i>	
Emulating XML and Online Algorithms with Sangu .....	145
<i>Dongmei Yan</i>	
Review on Station-to-Station OD Matrix Estimation Model and Algorithm for Urban Rail Transit .....	149
<i>Liu Jianfeng, Li Jinhai, Chen Feng, and Zhou Yanqiu</i>	
Utility Fair Non-cooperative Game Approach for Resource Allocation in Multi-cell OFDM Systems .....	154
<i>Ali Elyasi Gorji, Bahman Abolhassani, Kiamars Honardar, Mehdi Adibi, and Majid Okhovat</i>	
Traffic Flow Detection Algorithm Based on Intensity Curve of High-Resolution Image .....	159
<i>Changzhen Xiong, Wuyi Fan, and Zhengxi Li</i>	

### **Volume 3: Session 4**

The Research on the Mutual Benefit Stereotypia of Service Theory and Empirical Based on the Relationship Value .....	165
<i>Jingdong Chen and Jiao Xue</i>	
Application of Combining Watershed and Fast Clustering Method in Image Segmentation .....	170
<i>Wenli Yang, Zhiyuan Zeng, and Sizhe Zhang</i>	
A Novel Unequal Error Protection Scheme for ROI Based Video Coding in H.264/AVC .....	175
<i>Xiaolong Wang, Kun Tang, and Huijuan Cui</i>	
A Method of Computer Simulation for Train Running Process .....	179
<i>Qingfeng Zhou, Dingwei Wang, and Lingjuan Chen</i>	
CBR Based System Development of Bamboo Snout Moth Forecasting .....	182
<i>Zhang Guang-qun, Wang Bao-ping, and Wang Hang-jun</i>	
FEM Simulation for Working Device of ZLK15 Loader .....	186
<i>Zhenhua Yi and Sheng Sun</i>	
Research on the Evaluation Model of Urban Transportation Management Planning Project Based on Fuzzy Theory .....	190
<i>Ma Sheqiang, Ma Zhuanglin, Shao Chunfu, and Liu Dong</i>	
A Simulated Annealing Algorithm for Bi-Objective Noxious Network Location Problem Considering Dispersion and Total Cost .....	194
<i>Mahdi Bashiri, Abbas Hajfathaliha, and Taha Hossein Hejazi</i>	
Airfoil Optimization of Vertical-Axis Turbine Based on CFD Method .....	199
<i>Yang Sun and Liang Zhang</i>	
The Model Structuring of Liaoning Province' Technology Innovation and Economy Synergy Development System .....	203
<i>Xiongfeng Pan and Liangyu Li</i>	
A Review of Current Multicast Routing Protocol of Mobile Ad Hoc Network .....	207
<i>Sunil Kumar Soni and Trilok Chand Aseri</i>	

### **Volume 3: Session 5**

A Novel Self-Culture Based on ICM .....	215
<i>Hai Tang and Shihong Chen</i>	
Research on Requirement Forecasting of Raw Materials for Boiler Manufacturing Enterprise Based on Exponential Smoothing Method .....	219
<i>Du Yanwei</i>	
Research on Stability of PWM Controlled DC - DC Converters in CCM .....	223
<i>Wang Yuanbin</i>	
Scheduling Method of Resource for Simulation System Based on Grid .....	226
<i>Yanfang Fu and Yan Fan</i>	

An Algorithm of Weak Signal's Detection on the Condition of Strong Interference .....	230
<i>Zhou Wei, Hui Jun-ying, Mei Ji-dan, and Sheng Xue-li</i>	
A New Hybrid Global Optimization Algorithm Based on Chaos Search and Complex Method .....	233
<i>Lihua Guo, Wencheng Tang, and Chunhua Zhao</i>	
A Robust Current-Loop Controller for PMSMs' Field Oriented Control Scheme .....	238
<i>Zhou Hu and Yang Jianguo</i>	
An Efficient Method for Detecting Chaotic Spread Spectrum Sequences .....	244
<i>Hengdong Wei and Liping Li</i>	
Research on Cam Curve Optimal Design Based on Genetic Algorithm .....	249
<i>Rui-Ming Fang and Hong Chen</i>	
Novel Field-Bus Real-Time Network Scheduling Method .....	253
<i>Ming Ye</i>	
A Neural Network Pruning Method Optimized with PSO Algorithm .....	257
<i>Juanjuan Tu, Yongzhao Zhan, and Fei Han</i>	
An Improved Artificial Searching Swarm Algorithm and Its Performance Analysis .....	260
<i>Tanggong Chen, Youhua Wang, Lingling Pang, Zibin Liu, and Lijie Zhang</i>	

### **Volume 3: Session 6**

The Theory and Empirical Research of Services Network Based on Relational Value .....	267
<i>Yilin Hu and Jingdong Chen</i>	
Research on Multi-sensors Data Fusion of Large Diameter Measurement System Using Rollers .....	272
<i>Wu Ang and Zhu Juan-hua</i>	
Digital Feed-Forward Control Based on Motor Closed-Loop System Identification .....	276
<i>Zhu Xiaoguang and Han Qingyao</i>	
The Modeling and Simulation of Rendezvous and Docking .....	280
<i>Zhao Xia, Jiang Yu-Xian, and Wu Yun-Jie</i>	
Kinematical Simulation and Dynamic Analysis of the Free Float Space Robot .....	285
<i>Hui Yan, Hang Yin, Yongming Gao, and Xuebo Zhang</i>	
The Analysis of Residential Energy Consumption in Iran Using System Dynamic .....	290
<i>A.M. Ahmadvand, S.F. Ghaderi, and H.R. Boustanpour</i>	
Simulation and Analysis of Derailment of Freight Train on Bridges .....	295
<i>Zhou Zhihui, Zhang Jun, Qin Wenxiao, and Zeng Qingyuan</i>	

An Improved Method of Structural Optimization Based on ANSYS .....	300
<i>Jingjun Zhang, Jitao Zhong, Lili He, and Ruizhen Gao</i>	
Extended Case-Based Reasoning for Intelligent System Configuration .....	307
<i>Hu Feng-Jun, Chai Shui-Ying, Xu Zhen, and Sun Ping</i>	
Research on Shock Absorption of Shock Absorption Device without Angular Displacement .....	310
<i>Liang Shuang, An Zhiyong, and Yu Qiushui</i>	
ZigBee Wireless Location System Research .....	316
<i>Lei Wu, Jian-lin Huang, and Zheng-Hua Zhao</i>	
The Modeling and Dynamic Simulation of a Spatial Variable-Link-Length Mechanism .....	321
<i>Xiao Liping, Wei Wenjun, Song Jiannong, and Liu Shaoming</i>	
<b>Volume 3: Session 7</b>	
Adaptive Transmitting and Rendering Methods for Large Terrain .....	327
<i>Xuefeng Cao and Gang Wan</i>	
Railway Wheel Profile Optimization Design Based on Nurbs Curve .....	331
<i>Yongjun Liu and Xiaofang Liu</i>	
Simulation and Analysis of Influence Factors on Performance of Vertical Ground Heat Exchanger for Ground Coupled Heat Pump .....	336
<i>Tian Bai, Jian-Li Zhang, and Mao-Yu Zheng</i>	
Process Optimization of the Tube-Plate Welding Based on MARC .....	340
<i>Gai Dengyu, Lv Yunhe, Li Qingfen, Sun Huhao, and Zhang Zhaohui</i>	
Competitive Decision Algorithm for Multiple-Choice Knapsack Problem Based on Reduction .....	344
<i>Xiong Xiao-hua, Ma Liang, and Ning Ai-bing</i>	
GIS Spatial Data Integration Based on Grid Computing .....	349
<i>Lin Zhou and Lin Wan</i>	
A Trajectory Simulation Model of the Short-Range Anti-ship Missile Based on Considering Curvature of the Earth .....	354
<i>Weimin Lv, Liang Wang, and Shiwei Jiang</i>	
Simulation of Nonisothermal Sorption of Gas with Binary Components in Sorbent Particles .....	357
<i>Ying-shu Liu and Xin-gang Zheng</i>	
Simulation for Water Jet Incremental Sheet Metal Forming .....	362
<i>XiaoMin Cheng, Lin Zhou, Rufu Hu, Zaohui Cheng, and Yueding Wu</i>	
Moses: An Innovative Way to Model Heterogeneity in Complex Social Systems .....	366
<i>Belinda Wu, Mark Birkin, Phil Rees, Alison Heppenstall, Andy Turner, Martin Clarke, Paul Townend, and Jie Xu</i>	

Modeling and Simulation of Dual-Mode DC/DC Buck Converter .....	371
<i>Zhuo Bi and Wenbin Xia</i>	
Simulation and Optimization of the Stabilizer Tower Operation at Catalytic Reforming of Esfahan Oil Refining Company .....	376
<i>Ali Izadyar, Bahram Hashemi Shahraki, and Ahmad Shariati</i>	
<b>Volume 3: Session 8</b>	
Artificial Intelligence in Modeling Command and Control .....	383
<i>Jianying Liu and Xiaolong Li</i>	
Investigating the Effect of Interfacial Drag on Chemical Gas Absorption in a Packed Column by Modelling and Numerical Simulation .....	387
<i>Samaneh Makaremi, Bahram Hashemi Shahraki, and Ahmad Shariati</i>	
Research of the Simulation Grid System Based on Multi-agent Dynamic Scheduling .....	392
<i>Yanfang Fu and Yan Fan</i>	
The Study of a Novel Mixed FCM Clustering and Using in the Index of Engine CBR Design System .....	396
<i>Yan Wei, Gao Qi, Liu Zhenggang, Zhang Shanhui, and Hu Yuping</i>	
Software Measurement Process Capability Maturity Model .....	400
<i>Mei YongGang and Ding JianJie</i>	
A Novel Method of Avionics Circuit Simulation .....	403
<i>Hong Geng and Hong Wang</i>	
Fuzzy Comprehensive Evaluation of Product Innovation Design .....	407
<i>Yao Chen and Yan-En Wang</i>	
Computation Electromagnetic Scattering in an Anisotropic Dielectric Cylinder by the DDM/FEM/BEM Method .....	412
<i>Ping Zhou and Qingbo Li</i>	
Observer-based Fuzzy Control for Nonlinear Networked Control Systems Based on T-S Fuzzy Model .....	416
<i>Fang Yang and Huajing Fang</i>	
Nonlinear Modeling and Simulation of Radar Clutter .....	421
<i>Wang Xu-ming, Cai Jin-yan, and Zhang Ben</i>	
The Design for Parallel Computing Simulation of Waveforms in the Front End of Sonar .....	425
<i>Qiu Feng, Xu Ren-zhou, Cai Zhiming, and Wei Hongkai</i>	
A Hybrid CD/VND Algorithm for Three-Dimensional Bin Packing .....	430
<i>Huizhi Yang and Jianguo Shi</i>	

### **Volume 3: Session 9**

Application of GMTM for the Analysis of Foundation Pit Engineering .....	437
<i>Yongliang Lin and Xinxing Li</i>	
The Conductivity Matrix Reforming Method to Study Non-linear Seepage with Free Surface in Fracture Network of Rock Mass .....	441
<i>Weisheng Xu, Xingzhou Chen, and Jiangjiang Wu</i>	
Trust Level and Routing Selection for Mobile Agents in a Smart Home .....	445
<i>Sandy Nasution, Pieter Hartel, Nanna Suryana, Nur Azman, and Shahrin Sahib</i>	
Multiphysics Numerical Simulation on Bone Scaffolds under Fully Coupled Fluid-Solid-Thermo Model .....	451
<i>Yan-En Wang, Sheng-Min Wei, Chen Yao, and X.T. Yan</i>	
Simulation on Fuel Injection System for EUP Based on AMESim .....	456
<i>Baoming Chai and Weijin Gao</i>	
Differential Cultural Algorithm for Digital Filters Design .....	459
<i>Hongyuan Gao and Ming Diao</i>	
Topology Optimization for the Design of Large Die Casting Machine Based on Numerical Simulation .....	464
<i>Zhang Hua-wei, Xia Wei, Zheng Zhen-xing, and Zhi-heng Wu</i>	
Grid-Based Digital Forestry Platform Dynamic Allocation of Resources to Web Services Management Research .....	469
<i>Fan Li, Xu Zhang, Fan Zhang, and Yong Shan</i>	
SQL Paperless Examination System Design .....	475
<i>Gaoyan Zhang and Haifeng Ke</i>	
A Research of Collateral Production Scheduling Based on Genetic Algorithms .....	479
<i>Zhang Yu-xian and Guo Xu</i>	
Study on Strapdown TV Seeker Simulation Method .....	483
<i>Xing-Wei Li, Xin-Sheng Huang, and Ji-Xiang Sun</i>	
Development and Application of Undergraduate Physical Fitness and Mental Health Detection System .....	486
<i>Hao Haitao and Dai Xinyan</i>	

### **Volume 3: Session 10**

Design and Development of Management System for Reserve Talents of Competitive Sports .....	491
<i>Shi Qing and Yang Tianchao</i>	
Modelling and Simulation of Switched Ethernet .....	494
<i>Zhen Huang, Yongtao Zhang, and Huagang Xiong</i>	
A Hybrid CD/VND Algorithm for the Container Loading Problem .....	499
<i>Huizhi Yang and Jianguo Shi</i>	

Combining MBS with FEM for Simulation of the Stresses in Rails under Wheel Loads .....	503
<i>Yongjun Liu and Xiaofang Liu</i>	
Clustering Strategy to Euclidean TSP Hamilton Path Role in Tour Construction .....	508
<i>Abdulah Fajar, Nur Azman Abu, and Nanna Suryana Herman</i>	
Simulation of Urban Land Development and Land Use Change Employing GIS with Cellular Automata .....	513
<i>Tsai-chu Wu and Bo-yi Hong</i>	
Experimental Simulation Study of Uni-directional and Bi-directional Pedestrian Flows Based on PTSim .....	517
<i>Chen Bin, Zhang Shi-bo, and Luo Yong</i>	
Immune Genetic Learning Using Simulating Evolution in Automatic Fuzzy Systems Synthetics .....	521
<i>Zhaofang Yang</i>	
Dynamic Acoustic for Dumb Using Embedded Interface (DADEI) .....	525
<i>Chandramouleeswaran Krishnaswamy and Govindaraajan Srikkanth</i>	
Impact Analysis for Computer Simulating Multi-factor on Cement Slab Deflection .....	528
<i>Wang Fang, Liu Kai, and Wang Xuan-cang</i>	
Well Cumulative Production Time Series Prediction Model .....	533
<i>Jiao Yuwei, Zheng Songqing, Zhou Xinmao, and Zhang Jing</i>	
An Incident Prioritization Algorithm Based on BDIM .....	536
<i>Wang Dan, Zhan Zhiqiang, and Shi Hao</i>	
<b>Author Index - Volume 3</b> .....	<b>541</b>