

2014 Sixth International Symposium on Parallel Architectures, Algorithms and Programming

(PAAP 2014)

**Beijing, China
13-15 July 2014**



IEEE Catalog Number: CFP1444M-POD
ISBN: 978-1-4799-3846-9

2014 Sixth International Symposium on Parallel Architectures, Algorithms and Programming

PAAP 2014

Table of Contents

Message from the General Chairs.....	x
Message from the Program Committee Chair.....	xi
Conference Organization.....	xii
Program Committee.....	xiii
Message from the HPCBD Workshop Chairs.....	xv
HPCBD Workshop Organization.....	xvi
External Reviewers.....	xvii
Keynotes.....	xviii

Session 1: Architectures

Design and Evaluation of Dynamically-Allocated Multi-queue Buffers with Multiple packets for NoC Routers	1
<i>Yung-Chou Tsai and Yarsun Hsu</i>	
Algorithmic Aspects for Bi-Objective Multiple-Choice Hardware/Software Partitioning	7
<i>Wenjun Shi, Jigang Wu, Siew-Kei Lam, and Thambipillai Srikanthan</i>	
Fault-Tolerant Distributed Publish/Subscribe Using Self-Stabilization	13
<i>Yihua Ding, James Z. Wang, and Pradip K. Srimani</i>	
A Runtime Framework for GPGPU	19
<i>Shang-Chieh Lin and Yarsun Hsu</i>	
A Sensitive and Robust Grid Reputation System Based on Rating of Recommenders	23
<i>Yongrui Cui, Hang Zhao, Jun Wu, Zhiyuan Su, and Mingchu Li</i>	
Efficient FPGA-mapping of 1024 point FFT Pipeline SDF Processor	29
<i>Imran Ali Qureshi, Fahad Qureshi, and Ghulam Muhammad Shaikh</i>	

Session 2: Big Data on Electrical Applications

Multi-parameter Online Identification Algorithm of Induction Motor for Hybrid Electric Vehicle Applications	35
<i>Yan Liu</i>	
Wide Area Power System Fault Detection Using Compressed Sensing to Reduce the WAN Data Traffic	40
<i>Bei Li, Jinghan He, Tony Yip, and Jiangchen Li</i>	
PSO Applied to Optimal Operation of a Micro-Grid with Wind Power	46
<i>Guangke Hao, Rong Cong, and Hui Zhou</i>	
A Fuzzy Multi-objective Optimization Method Solving the Output of Energy Storage System	52
<i>Yiyi Wang, Mei Huang, and Caiping Zhang</i>	

Session 3: Big Data Mining

Multiple Feature-Sets Method for Dependency Parsing	57
<i>Xianchao Zhang, Dong Du, Xinyue Liu, and Wenxin Liang</i>	
Adaptive Centroid-Based Clustering Algorithm for Text Document Data	63
<i>Ximing Li, Jihong Ouyang, Xiaotang Zhou, and Bo Fu</i>	
Topic-Sensitive Multi-document Summarization Algorithm	69
<i>Na Liu, Xiao-Jun Tang, Ying Lu, Ming-Xia Li, Hai-Wen Wang, and Peng Xiao</i>	
Object Enhancement and Recognition Based on Hough Forest for Underground Video	75
<i>Bo Fu and Chuan-Ming Song</i>	

Session 4: Combinatorial and Graph Algorithms

Parallel Algorithms for Testing Length Four Permutations	81
<i>Yijie Han and Sanjeev Saxena</i>	
On-Line Algorithms for 2-Space Bounded Cube and Hypercube Packing	87
<i>Xiaofan Zhao and Hong Shen</i>	
Efficient Parallelization of a Two-List Algorithm for the Subset-Sum Problem on a Hybrid CPU/GPU Cluster	93
<i>Letian Kang, Lanjun Wan, and Kenli Li</i>	
Approximating the Shallow-Light Steiner Tree Problem When Cost and Delay are Linearly Dependent	99
<i>Longkun Guo, Nianchen Zou, and Yidong Li</i>	

Session 5: High Performance Systems I

Parallel Optimization Strategies for MIC Heterogeneous Parallel Systems	104
<i>Tao Ju, Xiaoshe Dong, Endong Wang, Liang Li, and Zhengdong Zhu</i>	
Performance Evaluation of Read and Write Operations in Hadoop Distributed File System	110
<i>Talluri Lakshmi Siva Rama Krishna, Thirumalaisamy Ragunathan, and Sudheer Kumar Battula</i>	
Characteristic Analysis of Operating Systems for Large Scale Hierarchical NUMA System	114
<i>Qiuming Luo, Yuanyuan Zhou, Mei Wang, and Ye Cai</i>	
Bandwidth Based Performance Optimization of Multi-threaded Applications	118
<i>Sheheeda Manakkadu and Sourav Dutta</i>	
Global Load Instruction Aggregation Based on Array Dimensions	123
<i>Yasunobu Sumikawa and Munehiro Takimoto</i>	

Session 6: High Performance Systems II

Secure Clustering and Reliable Multi-path Route Discovering in Wireless Sensor Networks	130
<i>Cheng Zhong, Yinghong Mo, Jing Zhao, Cong Lin, and Xiangyan Lu</i>	
XML Optimistic Concurrency Control Protocol for DOM API	135
<i>Weifeng Shan and Husheng Liao</i>	
A Parallel Implementation of Acoustic Propagation Model on Cloud Platform	140
<i>Binbin Yu, Simin Cheng, Dan Wang, Xichen Wu, Hongkun Mai, and Guangzhong Sun</i>	
A Robust Feature Point Matching Method for Dynamic Aerial Image Registration	144
<i>Zhaoxia Liu, Yaxuan Wang, Yu Jing, and Oujun Lou</i>	
Anomaly Detection by Diffusion Wavelet-Based Analysis on Traffic Matrix	148
<i>Teng Sun and Hui Tian</i>	
Study on a New Model for Network Traffic Matrix Estimation	152
<i>Yanning Niu and Hui Tian</i>	

Session 7: Interconnection Networks

A Novel On-Demand Data Broadcast Scheme in Wireless Networks	155
<i>Shuli Luan and Ping He</i>	
Efficient Algorithms for Vehicle Type Identification Using Mobile-Phone Locations	161
<i>Peilan He, Wenjun Wang, and Guiyuan Jiang</i>	
A Distributed Multi-hub Translator Trust Model for Interdomain Routing in Large Networks	166
<i>Lingjing Kong and Hong Shen</i>	

AB-Chord: An Improved Chord Based on Ant Colony Optimizationand Bi-Directional Lookup Routing	172
<i>Limin Zhao, Hong Shen, Yidong Li, and Jun Wu</i>	

Session 8: Media Computing in Parallel/Distributed Systems

A Parallel SRM Feature Extraction Algorithm for Steganalysis Based on GPU Architecture	178
<i>Kaizhi Chen, Chenjun Lin, Shangping Zhong, and Longkun Guo</i>	
Sound Source Localization Algorithm Based on a Helmet-Mounted Microphone Array	183
<i>Yi Zhang and Shujie Meng</i>	
Audio Retrieval Based on Manifold Ranking	187
<i>Jing Qin, Xinyue Liu, and Hongfei Lin</i>	
A Two-Step Similarity Ranking Scheme for Image Retrieval	191
<i>Di Wu, Jun Wu, Ming-Yu Lu, and Chun-Li Wang</i>	

Session 9: Parallel/Distributed Databases and Knowledge Discovery

Using Category and Keyword for Personalized Recommendation: A Scalable Collaborative Filtering Algorithm	197
<i>Ke Ji and Hong Shen</i>	
Clustering Subtrajectories of Moving Objects Based on a Distance Metric with Multi-dimensional Weights	203
<i>Yanjun Chen, Hong Shen, and Hui Tian</i>	
The Effect of Outliers in the Design of Data Gathering Tours	209
<i>Khaled Almi'ani, Sanjay Chawla, and Anastasios Viglas</i>	
Speed Up Distance-Based Similarity Query Using Multiple Threads	215
<i>Fuli Lei, Wenbo Wu, Qiaozhi Li, He Zhang, Ping Li, Qiuming Luo, and Rui Mao</i>	

Session 10: Privacy and Security

A Privacy-Preserving Data Publishing Method for Multiple Numerical Sensitive Attributes via Clustering and Multi-sensitive Bucketization	220
<i>Qinghai Liu, Hong Shen, and Yingpeng Sang</i>	
Android Privacy Information Encoding Mechanism (APIEM)	224
<i>Lee Mengxuan, Song Jiaxing, and Liu Weidong</i>	
KP-ABE with Attribute Extension: Towards Functional Encryption Schemes Integration	230
<i>Weiqian Huo, Jisheng Pei, Ke Zhang, and Xiaojun Ye</i>	
Preventing Client Side XSS with Rewrite Based Dynamic Information Flow	238
<i>Wenmin Xiao, Jianhua Sun, Hao Chen, and Xianghua Xu</i>	

Using Symmetry Dicke State as Security Detection Particle in Quantum “Ping-Pong” Protocol	244
<i>Qinghai Liu, Hong Shen, Hui Tian, and Yingpeng Sang</i>	

Session 11: Task Scheduling

A Task Scheduling Algorithm for Automated Parallel Processing of XQuery	250
<i>Yuelong Quan and Husheng Liao</i>	
An Efficient Energy Scheduling Algorithm for Workflow Tasks in Hybrids and DVFS-Enabled Cloud Environment	255
<i>Zhuo Tang, Zhenzhen Cheng, Kenli Li, and Keqin Li</i>	
A DAG Task Scheduling Scheme on Heterogeneous Computing Systems Using Invasive Weed Optimization Algorithm	262
<i>Kenli Li, Shuai Li, Yuming Xu, and Zhaoxin Xie</i>	
A Heuristic Speculative Execution Strategy in Heterogeneous Distributed Environments	268
<i>Huicheng Wu, Kenli Li, Zhuo Tang, and Longxin Zhang</i>	

Session 12: International Workshop on High-Performance Computing for Big Data

PPMA: Parallel Programming Model for an Audio Application Specific Multi-core DSP	274
<i>Xu Jiangwei, Wei Zhenqi, and Liu Peilin</i>	
A Novel Multi-bit Watermarking Algorithm Based on HVS	278
<i>OuJun Lou, ShaoHua Li, ZhaoXia Liu, and ShuangTong Tang</i>	
An Ensemble of Classifiers Algorithm Based on GA for Handling Concept-Drifting Data Streams	282
<i>Jinghua Guan, Wu Guo, Heng Chen, and Oujun Lou</i>	
An Integrated Hierarchical Temporal Memory Network for Real-Time Continuous Multi-interval Prediction of Data Streams	285
<i>Jianhua Diao and Hyunsyug Kang</i>	
Design and Implementation for File Monitor System Based on Windows Driver	289
<i>Xiao-Jun Tang, Ying Lu, and Na Liu</i>	
Application and Research of Mobile Terminal with Android in the Equipment Monitoring System	293
<i>Ying Lu, Xiao-Jun Tang, Na Liu, Yu-Yue Mao, Ming-Xia Li, Peng Xiao, and Hai-Wen Wang</i>	
Author Index	297