

# 《第二届国际并行体系结构、算法和场

## 图书基本信息

书名：《第二届国际并行体系结构、算法和程序设计研讨会会议论文集》

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## 前言

Welcome to the second International Symposium on Parallel Architectures, Algorithms and Programming ( PAAP 2009 ) . The symposium is sponsored and organized by University of Science and Technology of China ( USTC ) , Guangxi University, and China Computer Federation Technical Committee on High Performance Computing. The symposium is also supported by National Natural Science Foundation of China. PAAP'09 is an international forum for scientists, engineers, and practitioners to present their latest research ideas, progresses, and applications in all the areas of parallel and distributed computing with the focus on parallel algorithms, architectures and programming techniques. University of Science and Technology of China ( USTC ) was founded by the Chinese Academy of Science ( CAS ) in 1958 in Beijing as a new type of national university. The university moved to Hefei, Anhui Province in 1970. Since its foundation, USTC has made distinguished achievements in talent fostering, scientific research and technology innovation. It has become an important base for top-quality talent training and high-level scientific research for the nation. According to the Ministry of Science and Technology, USTC is one of the best four universities in the science research performance in China. USTC ranks consistently among the best in the reviews of the Chinese top universities by the US journal "Science" and the French journal "Research". The conference is hosted by Guangxi University at Nanning, Guangxi, China. Nanning is the capital of Guangxi Zhuang Autonomous Region of China, she is a city full of cultural distinctiveness, economic vitality, and an expanding openness to and involvement with the global community. She has received many awards including membership in "Top 50 Comprehensive Power Cities in China" and "Top Tourist Cities in China", in addition to being designated as a "China Hygiene Model City", the "Dubai International Award for the Best Practices to Improve Living Conditions" and the recipient of "Habitat Scroll of Honor Award" in 2007. The Annual Nanning International Folk Songs Festival in Autumn attracts wide-spread attention by combining the talents of musical headliners from across the globe with a special blend of centuries-old folk song traditions, many "undiscovered" tourist attractions, and an ever-expanding economic trade. Since 2004, Nanning has hosted the annual China-ASEAN Expo sponsored by China and the ten ASEAN member states, at which China and ten of its Southeast Asian neighbors will offer a rich mixture of business opportunities, cultural experiences and tourism attractions.

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## 内容概要

《第二届国际并行体系结构、算法和程序设计研讨会会议论文集(英文版)》内容简介：Welcome to the second International Symposium on Parallel Architectures, Algorithms and Programming ( PAAP 2009 ) . The symposium is sponsored and organized by University of Science and Technology of China ( USTC ) , Guangxi University, and China Computer Federation Technical Committee on High Performance Computing. The symposium is also supported by National Natural Science Foundation of China. PAAP'09 is an international forum for scientists, engineers, and practitioners to present their latest research ideas, progresses, and applications in all the areas of parallel and distributed computing with the focus on parallel algorithms, architectures and programming techniques.

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## 书籍目录

A Hybrid Index Structure on Multi-core Cluster Architecture  
A Job Shop Scheduling Problem in Software Testing  
A TS-GATS Based Approach for Scheduling Data-intensive Applications in Data Grids  
An Improved Spectral Clustering Algorithm Based on Random Walk  
Fairness Analysis of Peer-to-Peer Streaming Systems  
Image Denoising by 2-D Anisotropic Wavelet Diffusion  
LogGP(h): Incorporating Communication Hierarchy into the LogGP Model  
Neuron Networks Classification Algorithm Based on Bionic Pattern Recognition  
Optimal Proxy Caching for Peer-to-Peer Assisted Internet On-Demand Video Streaming Services  
Parallel Sorting for Multisets on Multi-core Computers,  
Process-level and Thread-level Parallel Programming Mechanism and Performance Optimization Techniques on Multi-core Clusters  
The Super-node Parallel Systems Based on the Memory Centric Interconnection  
Webpage Segmentation based on Gomory-Hu Tree Clustering in Undirected Planar Graph

### 章节摘录

插图：High-dimensional data indexing and feature based similarity search is emerging as an important search paradigm in computer science. Efficient support of them requires powerful indexing techniques. In this paper we have proposed an HKD-tree—an efficient parallel algorithm and the parallel index structure under the SMP cluster architecture to solve the high-dimensional data indexing problem. Our HKD-tree parallel algorithm is based on the KD-tree and LSH algorithm and outperforms others under the cluster architecture. A HKD-tree combines positive aspects of bounding region based and space partitioning based data structures into a single data structure to achieve better scalability. It supports queries based on arbitrary distance functions. Our experiments show that a HKD-tree parallel algorithm is effective support to high-dimensional data spaces and provides same support of approximate nearest neighbor queries. All in all, a HKD-tree parallel algorithm and parallel index structure have excellent performance in SMP cluster architecture. The above experiments show that HKD-tree parallel index structure is slightly better than LSH and KD-tree index structure. It also shows that HKD-tree used in SMP cluster architecture will increase retrieval performance about 30%. So we can know, LSH and KD-tree will be mixed and used in SMP cluster architecture will significantly improve the performance of its algorithm. As part of our future work, we intend to adjust thread affinity property of queries like an HKD-tree subtree and the cluster core number efficiently matching using in parallel structure. We also want to explore this techniques to support queries in interactive environments efficiently using an HKD-tree.

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