20th International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2020)

Oct. 2nd-4th, 2020
New York, USA

Conference Program and Information Booklet

Organized By
ICA3PP 2020 Committee

Sponsored By
Springer
Columbia University
Longxiang High Tech Group Inc.
North America Chinese Talents Association
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### ICA3PP 2020 Program at a Glance

**Friday, October 2nd, 2020**

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<tbody>
<tr>
<td>13:00</td>
<td>Conference Preparing and Online Facility Tuning</td>
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**Saturday, October 3rd, 2020**

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<tr>
<td>8:45</td>
<td>Opening</td>
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<tr>
<td>9:00</td>
<td>Keynote by Prof. David A. Bader</td>
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<tr>
<td>9:45</td>
<td>Break</td>
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<tr>
<td>10:35</td>
<td>Keynote by Prof. Sun-Yuan Kung</td>
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<td>10:40</td>
<td>Break</td>
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<tr>
<td>11:25</td>
<td>Keynote by Prof. Meikang Qiu</td>
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<td>11:30</td>
<td>Break</td>
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<tr>
<td>12:15</td>
<td>Keynote by Prof. Mengchu Zhou</td>
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<td>12:15</td>
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**Sunday, October 4th, 2020**

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<th>Time</th>
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<tbody>
<tr>
<td>9:00</td>
<td>ICA3PP Volume 1 - Session 5</td>
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<tr>
<td>10:00</td>
<td>ICA3PP Volume 1 - Session 6</td>
<td>ICA3PP Volume 2 - Session 6</td>
<td>ICA3PP Volume 3 - Session 6</td>
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<tr>
<td>11:00</td>
<td>Break</td>
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<td>11:20</td>
<td>ICA3PP Volume 1 - Session 7</td>
<td>ICA3PP Volume 2 - Session 7</td>
<td>ICA3PP Volume 3 - Session 7</td>
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<td>12:20</td>
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<td>13:30</td>
<td>ICA3PP Volume 1 - Session 8</td>
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<tr>
<td>14:30</td>
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<td>15:30</td>
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<td>15:15</td>
<td>ICA3PP Volume 1 - Session 10</td>
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**Registration:**

Online Registration System ([http://www.cloud-conf.net/ica3pp2020/registration.html](http://www.cloud-conf.net/ica3pp2020/registration.html))

**Presentation Online Rooms:**

Zoom ([https://zoom.us/](https://zoom.us/))

Virtual Conference Link:

[https://us02web.zoom.us/j/5911036727?pwd=NTJnRjAlZlVdKVDRhdmEFZzJhM0FhUT09](https://us02web.zoom.us/j/5911036727?pwd=NTJnRjAlZlVdKVDRhdmEFZzJhM0FhUT09)

**Important Notice:**

Due to the outbreak of COVID-19, this year the ICA3PP2020 will be a virtual conference online. For all participants, please do notice all the time mentioned in this booklet is based on the time zone of east USA which is **Eastern Daylight Time (EDT)**, UTC -4.
ICA3PP 2020 Keynotes

Oct. 3rd, 2020, 9:00, Room A

Topic: Massive-scale Analytics

Prof. David A. Bader
New Jersey Institute of Technology, USA
Fellow of the IEEE, AAAS, & SIAM

Bio: David A. Bader is a Distinguished Professor in the Department of Computer Science at New Jersey Institute of Technology. Prior to this, he served as founding Professor and Chair of the School of Computational Science and Engineering, College of Computing, at Georgia Institute of Technology. He is a Fellow of the IEEE, AAAS, and SIAM, and advises the White House, most recently on the National Strategic Computing Initiative (NSCI). Bader serves on the leadership team of Northeast Big Data Innovation Hub as the inaugural chair of the Seed Fund Steering Committee. Dr. Bader is a leading expert in solving global grand challenges in science, engineering, computing, and data science. His interests are at the intersection of high-performance computing and real-world applications, including cybersecurity, massive-scale analytics, and computational genomics, and he has co-authored over 250 scholarly papers. Dr. Bader has served as a lead scientist in several DARPA programs including High Productivity Computing Systems (HPCS) with IBM, Ubiquitous High Performance Computing (UHPC) with NVIDIA, Anomaly Detection at Multiple Scales (ADAMS), Power Efficiency Revolution For Embedded Computing Technologies (PERFECT), Hierarchical Identify Verify Exploit (HIVE), and Software-Defined Hardware (SDH). Bader is Editor-in-Chief of the ACM Transactions on Parallel Computing, and will serve as General Co-Chair of IPDPS 2021. He has also served as Director of the Sony-Toshiba-IBM Center of Competence for the Cell Broadband Engine Processor. Bader is a cofounder of the Graph500 List for benchmarking “Big Data” computing platforms. Bader is recognized as a “RockStar” of High Performance Computing by InsideHPC and as HPCwire’s People to Watch in 2012 and 2014. Recently, Bader received an NVIDIA AI Lab (NVAIL) award (2019), and a Facebook Research AI Hardware/Software Co-Design award (2019).

Abstract: Data science aims to solve grand global challenges such as: detecting and preventing disease in human populations; revealing community structure in large social networks; and improving the resilience of the electric power grid. Unlike traditional applications in computational science and engineering, solving these social problems at scale often raises new challenges because of the sparsity and lack of locality in the data, the need for research on scalable algorithms and architectures, and development of frameworks for solving these real-world problems on high performance computers, and for improved models that capture the noise and bias inherent in the torrential data streams. In this talk, Bader will discuss the opportunities and challenges in massive data science for applications in social sciences, physical sciences, and engineering.
ICA3PP 2020 Keynotes

Oct. 3rd, 2020, 9:50, Room A

Topic: Mathematical Deep Learning for Regression and Classification

Prof. Sun-Yuan Kung
Princeton University, USA
Life Fellow of the IEEE


Abstract: While deep learning has by and large dominated the field of machine learning, curse of depth and lack of structural learning remains to be two formidable challenges to the prevailing Back-Propagation (BP) learning paradigm, which recursively compute the gradients of a given External Optimization Metric (EOM). Our solution to the curse-of-depth lies in Back-Broadcast (BB) of teacher values, a dual approach to Forward-Skip in ResNet. Complementary to ResNet’s input-residual learning, BB supports an output-residual learning - a process resembling innovation learning in estimation theory. On the other hand, the challenge on structural learning warrants some profound and rigorous mathematical foundations: (a) The structural gradients are often derived from a pre-specified Local Optimization Metric (LOM), aka Structural Optimization Metric (SOM). Our LOM is based on a Discriminant Information (DI) stemming from a combination of Fisher’s discriminant analysis and Shannon’s mutual information. (b) Such structural gradients help to precisely which neurons in a hidden layer should be removed in order to optimize the LOM. (These neurons are termed deleterious neurons: DNs.) More rigorously, LOM rises when and only when DNs are removed during structural pruning. The rising LOM score in structural learning will then in turn bootstrap the EOM score in parameter learning. (c) The proposed DI also boasts a close consistency between the LOM (for structural optimization) and EOM (for parameter optimization). This plays a vital role in X-learning, an Net-Parameter (NP) Iterative Learning paradigm. Thanks to such consistency, DI-based LOM and EOM will effectively bootstrap each other during NP-iterations to to jointly optimize the parameters/structure of the CNNs. Theoretically, there exists a useful equivalence between maximizing DI versus minimizing LSE. In practice, it implies that X-learning can find applications in both the classification and regression scenarios. We shall demonstrate that X-learning has indeed yielded performances superior to previous winners of competition in low-power ImageNet classification and winners of super-resolution challenge on PIRM imaging systems. To further showcase its versatility, we shall show how X-learning may be successfully deployed for regression-classification hybrid systems, which represents a novel and promising application paradigm.
ICA3PP 2020 Keynotes

Oct. 3rd, 2020, 10:45 AM, Room A

Topic: Intelligent Task Scheduling for Greener Cloud Computing Systems

Prof. Mengchu Zhou
New Jersey Institute of Technology, USA
Fellow of the IEEE and AAAS

Bio: Mengchu Zhou received his B.S. degree in Control Engineering from Nanjing University of Science and Technology, Nanjing, China in 1983, M.S. degree in Automatic Control from Beijing Institute of Technology, Beijing, China in 1986, and Ph. D. degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute, Troy, NY in 1990. He joined New Jersey Institute of Technology (NJIT), Newark, NJ in 1990, and is now a Distinguished Professor of Electrical and Computer Engineering. His research interests are in Petri nets, intelligent automation, Internet of Things, big data, cloud/edge computing, web services, and artificial intelligence. He has over 900 publications including 12 books, 600+ journal papers (450+ in IEEE transactions), 330+ conference proceeding papers, 26 patents and 29 book-chapters. He is the founding Editor of IEEE Press Book Series on Systems Science and Engineering and Editor-in-Chief of IEEE/CAA Journal of Automatica Sinica. He is presently Associate Editor of IEEE Transactions on Intelligent Transportation Systems, IEEE Internet of Things Journal and IEEE Transactions on Systems, Man, and Cybernetics: Systems. He is a recipient of Humboldt Research Award for US Senior Scientists from Alexander von Humboldt Foundation, Franklin V. Taylor Memorial Award and the Norbert Wiener Award from IEEE Systems, Man and Cybernetics Society, and Excellence in Research Prize and Medal from NJIT. He is a highly cited scholar and ranked top one in the field of engineering worldwide in 2012 by Web of Science. His work has been cited for over 37,000 with his H-index being 95 according to Google Scholar. He is a life member of Chinese Association for Science and Technology-USA and served as its President in 1999. He is a Fellow of IEEE, International Federation of Automatic Control (IFAC), American Association for the Advancement of Science (AAAS) and Chinese Association of Automation (CAA).

Abstract: More and more applications, e.g., e-commerce, social networking and big data processing, run in cloud data centers (e.g., Amazon and Google). Minimizing the consumption of electric power and thus energy cost while maintaining their user-desired performance has now become an increasingly important focus of attention. The consumption of power boosts data centers’ cost. Brown energy consumption negatively impacts our environment. Requirements from environmental protection demand the reduced use of brown energy. Hence, most large cloud data center providers prefer renewable energy sources such as wind and solar energy. Can we exploit the characteristics of the geographical distribution in real-life environment to schedule tasks intelligently? This talk answers it by focusing on intelligent optimization methods. It introduces emerging progress made in this field and emerging challenges on how to realize high-quality task scheduling for cloud data centers. The talk covers 1) traditional methods for task scheduling and dynamic resource allocation; 2) spatial and temporal task scheduling and resource provisioning for cost minimization for cloud data center providers; and 3) open problems and outlooks for future studies.
ICASPP 2020 Keynotes

Oct. 3rd, 2020, 11:30 AM, Room A

Topic: AI Enhanced Cyber Security

Prof. Meikang Qiu
Texas A&M University, Commerce, USA
ACM Distinguished Member

Bio: Meikang Qiu received the BE and ME degrees from Shanghai Jiao Tong University and received Ph.D. degree of Computer Science from University of Texas at Dallas. Currently, He is the Department Head and tenured full professor of Texas A&M University Commerce. He is an ACM Distinguished Member and IEEE Senior member. He is the Chair of IEEE Smart Computing Technical Committee. His research interests include Cyber Security, Big Data Analysis, Cloud Computing, Smarting Computing, Intelligent Data, Embedded systems, etc. A lot of novel results have been produced and most of them have already been reported to research community through high-quality journal and conference papers. He has published 20+ books, 600+ peer-reviewed journal and conference papers (including 300+ journal articles, 300+ conference papers, 100+ IEEE/ACM Transactions papers). His paper on Tele-health system has won IEEE System Journal 2018 Best Paper Award. His paper about data allocation for hybrid memory has been published in IEEE Transactions on Computers has been selected as IEEE TCSC 2016 Best Journal Paper and hot paper (1 in 1000 papers by Web of Science) in 2017. His paper published in IEEE Transactions on Computers about privacy protection for smart phones has been selected as a Highly Cited Paper in 2017-2020. He also won ACM Transactions on Design Automation of Electrical Systems (TODAES) 2011 Best Paper Award. He has won another 10+ Conference Best Paper Awards in recent years. Currently he is an associate editor of 10+ international journals, including IEEE Transactions on Computers and IEEE Transactions on Cloud Computing. He has served as leading guest editor for IEEE Transactions on Dependable and Secure Computing (TDSC), special issue on Social Network Security. He is the General Chair/Program Chair of a dozen of IEEE/ACM international conferences, such as IEEE TrustCom, IEEE BigDataSecurity, IEEE CSCloud, and IEEE HPCC. He has won Navy Summer Faculty Award in 2012 and Air Force Summer Faculty Award in 2009. His research is supported by US government such as NSF, NSA, Air Force, Navy and companies such as GE, Nokia, TCL, and Cavium.

Abstract: This talk will first illustrate how to use AI techniques to enhance cyber security of various systems. There are several ways to apply AI to cyber security area. This talk will use prediction-based AI technics to enhance the total security of the V2X (Vehicle-to-Everything) communication system. The talk takes serious considerations of latency while implementation the data encryption for V2X communication systems. Furthermore, the talk will discuss about deep reinforcement learning to protect the security of V2X system without scarifying safety of the vehicles. Examples and experimental results will be given to show the detailed techniques on applying AI techniques to enhance cyber security of vehicles, with the potential of implementing them to various cyber-physical systems.
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ICA3PP Volume 1 – Session 1: Algorithm 1
October 3rd 2020 13:30-14:30, Room A
Online Session

- Xiaolei Zhao, Mei Wen, Minjin Tang, Qun Huang, and Chunyuan Zhang. Optimized HybridSketch: More Efficient with Analysis, and Algorithm
- Abhishek Mishra, Venkata M. V. Gunturi, and Sarnath Ramnath. A Multi-threaded Algorithm for Capacity Constrained Assignment over Road Networks
- Wei Hu, Yu Gan, Yuan Wen, Xiangyu Lv, Yonghao Wang, Xiao Zeng, and Meikang Qiu. An Improved Heterogeneous Dynamic List Schedule Algorithm
- XIAOGE DENG, Tao Sun, Feng Liu, and Feng Huang. PRIAG: Proximal Reweighted Incremental Aggregated Gradient Algorithm for Distributed Optimizations
- Honghe Jin, Xiaoxiao Sun, and Liwen Xu. Decentralized Expectation Maximization Algorithm

ICA3PP Volume 1 – Session 2: Algorithm 2
October 3rd 2020 14:30-15:30, Room A
Online Session

- Jiawei Ji, Yongmei Lei, and Shenghong Jiang. A Dynamic Scheduling Strategy of ADMM Sub-problem Optimization Algorithm Based on Hierarchical Structure
- Hanning Zhang, Bo Dong, Boqing Feng, and Haiyu Wu. An Overlapping Community Detection Algorithm based on Triangle Reduction Weighted for Large-scale Complex Network
- Fuhua Ma, and Qianqian Ren. Beacons Selection Based Localization in Wireless Sensor Networks

ICA3PP Volume 1 – Session 3: Hardware Design and Optimization 1
October 3rd 2020 15:50-16:50, Room A
Online Session

- Yang Yang, Xiaolin Chang, Ziyi Jia, Zhu Han, and Zhen Han. Processing in Memory Assisted MEC 3C Resource Allocation for Computation Offloading
- Yongqin Luo, Zhaolei Chu, PeiQuan Jin, and Shouhong Wan. Efficient Sorting, and Join on NVM-Based Hybrid Memory
- Junteng Hou, Shupeng Wang, Guangjun Wu, Bingnan Ma, and Lei Zhang. Parallel SCC Detection Based on Reusing Warps, and Coloring Partitions on GPUs
- Zhang Yunfang, Dong Yong, Chen Juan, Ou Zhixin, and Yuan Yuan. PMC-based dynamic adaptive CPU, and DRAM power modeling
- Victoria Sanz, Adrián Pouza, R. Marcelo Naiouf, and Armando De Giusti. Accelerating Pattern Matching on Intel Xeon Phi Processors

ICA3PP Volume 1 – Session 4: Hardware Design and Optimization 2
October 3rd 2020 16:50-17:50, Room A
Online Session

- Marcel Köster, Julian Groß, and Antonio Krüger. High-Performance Simulations on GPUs using Adaptive Time Steps
- Yao Liu, Li Liu, Mengtao Hu, Wei Wang, Wei Xue, and Qingting Zhu. Performance Modeling of Stencil Computation on SW26010 Processors
- Han Huang, and Hua Luan. Optimizing B+-Tree Searches on coupled CPU-GPU architectures
- Zhe Liu, Xiaojian Liao, Fei Li, Zhe Yang, Youyou Lu, and Jiwu Shu. OCVM: Optimizing the Isolation of Virtual Machines with Open-Channel SSDs
ICA3PP Volume 1 – Session 5: Hardware Design and Optimization 3

October 4th 2020 09:00-10:00, Room A

Online Session

- Junteng Hou, Chengxiang Si, Shupeng Wang, Guangjun Wu, and Lei Zhang. Parallel Belief Propagation Optimized by Coloring on GPUs
- Nongdie Tan, Lei Chen, Xianglin Ye, Hao Zhou, and Hailing Xiong. Effect of Evaporation on Aggregation Kinetics of Clusters: A Monte Carlo Simulation Study
- Xinyi Wang, Yaobin Wang, Ling Li, Yang Yang, Deqing Bu, and Manasah Musariri. Procedure, and Loop Level Speculative Parallelism Analysis in HPEC
- Ming Dun, Yunchun Li, Xin You, Qingxiao Sun, Zerong Luan, and Hailong Yang. Accelerating De Novo Assembler WTDBG2 on Commodity Servers
- Yunhui Zeng, Li Wang, Jie Zhang, Guanghui Zhu, Yuan Zhuang, and Qiang Guo. Redistributing, and Optimizing High-Resolution Ocean Model POP2 to Million Sunway Cores

ICA3PP Volume 1 – Session 6: Parallel System and Computing 1

October 4th 2020 10:00-11:00, Room A

Online Session

- Xingshun Zou, and Wei Li. Tight Bound of Parallel Request Latency for Erasure-Coded Distributed Storage System
- Chenghao Wei, Jiyong Zhang, Timur Valiullin, Weipeng Cao, Qiang Wang, and Hao Long. Distributed, and Parallel Ensemble Classification for Big Data Based on Kernel Density Estimation, and Random Sample Partition
- Yepeng Ding, and Hiroyuki Sato. Formalizing, and Verifying Decentralized Systems with Extended Concurrent Separation Logic
- Anthony Dowling, Frank Swiatowicz, Yu Liu, Alexander John Tolnai, and Fabian Herbert Engel. COMBS: First Open-Source based Benchmark Suite for Multi-Physics Simulation Relevant HPC Research

ICA3PP Volume 1 – Session 7: Parallel System and Computing 2

October 4th 2020 11:20-12:20, Room A

Online Session

- Jiafeng Ding, Junhua Fang, Pingfu Chao, Jiajie Xu, Pengpeng Zhao, and Lei Zhao. A Distributed Framework for Online Stream Data Clustering
- Wei Hu, Hongqiang Zheng, Yonghao Wang, Yi Guo, and Jing Wu. VTC: a scheduling framework between soft real-time, and hard real-time on multimedia OS
- Yuxiang Li, Zhiyong Zhang, Danmei Niu, and Junchang Jing. ParaCA:A Speculative Parallel Crawling Approach on Apache Spark
- Hana Rabbouch, Othman Ben Messaoud, and Foued Saadaoui. Multi-Scaled Non-Local Means Parallel Filters for Medical Image Denoising
- Yuxiang Li, Zhiyong Zhang, and Bin Liu. An Adaptive Thread Partitioning Approach in Speculative Multithreading

ICA3PP Volume 1 – Session 8: Parallel System and Computing 3

October 4th 2020 13:30-14:30, Room A

Online Session

- WeiDong Zou, Yuanqing Xia, Weipeng Cao, and Zhong Ming. Broad Learning System with Proportional-Integral-Differential Gradient Descent
- Ke Zhan, Zhonghua Lu, and Yunquan Zhang. Performance Optimization for Feature Extraction Section of DeepChem
- Ou, Chongfei Shen, Yujing Feng, Xinxin Wu, Wenming Li, Xiaochun Ye, and Dongrui. FanCTA: A Critical Task Aware Scheduling Mechanism for Dataflow Architecture
- Yang Zhang, Jinhao Li, Qianqian Ren, and Yu Pan. Principal Component Analysis Based Fingerprint Positioning

ICA3PP Volume 1 – Session 9: Smart Computing 1

October 4th 2020 14:30-15:30, Room A

Online Session

- Xukang Lyu, and Chase Wu. End-System Aware Large File Transfer Solution for Rich Media Applications over 5G Mobile Networks
- Zongkai Fu, Huiyong Li, Jianwei Niu, Xuefeng Liu, and Zhenchao Ouyang. Typing Everywhere With EMG Keyboard: A Novel Myo Armband-based HCI Tool
- Meiyan Teng, Xin Li, Xiaolin Qin, and Jie Wu. Priority Based Service Placement Strategy in Heterogeneous Mobile Edge Computing
- Cheikh Ba, and Abdoulaye Gueye. A BSP Based Approach for NFAs Intersection
ICA3PP Volume 1 – Session 10: Smart Computing 2
October 4th 2020 15:15-16:15, Room A  
**Online Session**
- Yaoyao Ying, Kaixin Huang, Shengan Zheng, Yaofeng Tu, and Linpeng Huang. CANRT: A Client-Active NVM-based Radix Tree for Fast Remote Access
- Yuekun Hu, Dongchao Ma, Xiaofu Huang, Xinlu Du, and Ailing Xiao. SWAF: A Distributed Solar MN Adaptive Framework
- Chenlong Yang, Xiangxue Li, Jingjing Li, and Haifeng Qian. Linear Scalability from Sharding, and PoS
- Haoran Xu, Shuhui Fan, Yongjun Wang, Zhijian Huang, Hongzuo Xu, and Peidai Xie. Tree2tree Structural Language Modeling for Compiler Fuzzing
- Jiwei Chen and Hongjun Dai. A Periodic Variable Star Observation System with High Accuracy Based on Star Sensors

ICA3PP Volume 2 – Session 1: Cloud Computing 1
October 3rd 2020 13:30-14:30, Room B  
**Online Session**
- Yuan Xu, Tianwei Zhang, Sa Wang, and Yungang Bao. A Software Stack for Composable Cloud Robotics System
- Feng Jiang, Yongyang Cheng, Zhao Hui, and Ruibo Yan. Modeling, and Analyzing for Data Durability Towards Cloud Storage Services
- Daming Zhao, Jian-Tao Zhou, and Shucheng Yu. ELVMC: A predictive energy-aware algorithm for virtual machine consolidation in cloud computing
- Zhengjia Cao, Bowen Xiao, Haihan Duan, Lei Yang, and Wei Cai. A Dynamic Partitioning Framework for Edge-assisted Cloud Computing

ICA3PP Volume 2 – Session 2: Parallel Algorithm 1
October 3rd 2020 14:30-15:30, Room B  
**Online Session**
- Guoshuai Wei, and Quanwang Wu. CC-MOEA: A Parallel Multi-objective Evolutionary Algorithm for Recommendation Systems
- Nakhoon Baek, and Seung-Jong Park. An OpenMP-based Parallel Execution of Neural Networks Specified in NNEF
- Yaqiong Peng, Haiqiang Fei, Lun Li, Zhenquan Ding, and Zhiyu Hao. CHEAPS2AGA: Bounding Space Usage in Variance-Reduced Stochastic Gradient Descent over Streaming Data, and its Asynchronous Parallel Variants
- Yanzhi Wei, Xianghua Fu, Shuxin Wang, Wenhao Xie, Jianwei He, and Yonglin Zhao. Aspect-level Sentiment Difference Feature Interaction Matching Model based on Multi-round Decision Mechanism
- Feng Jiang, Yongyang Cheng, Changkun Dong, Zhao Hui, and Ruibo Yan. A Distributed Business-aware Storage Execution Environment Towards Large-scale Applications

ICA3PP Volume 2 – Session 3: Deep Learning 1
October 3rd 2020 15:50-16:50, Room B  
**Online Session**
- Yong Dong, Wei Hu, Jiao Qiang, Shuang Chen, and Yonghao Wang. Optimizing accelerator on FPGA for Deep Convolutional Neural Networks
- Qiang Jiao, Wei Hu, Yuan Wen, Yong Dong, Zhenhao Li, and Yu Gan. Design of a convolutional neural network instruction set based on RISC-V, and its microarchitecture implementation
- Xinxin Wu, Yi Li, Yan Ou, Wenming Li, Shibo Sun, Wenxing Xu, and Dongrui Fan. Accelerating Sparse Convolutional Neural Networks Based on Dataflow Architecture
- Dapeng Lan, Amir Taherkordi, Frank Eliassen, Zhiqun Chen, and Lei Liu. Deep Reinforcement Learning for Intelligent Migration of Fog Services in Smart Cities

ICA3PP Volume 2 – Session 4: Deep Learning 2
October 3rd 2020 16:50-17:50, Room B  
**Online Session**
- Songwen Pei, Yusheng Wu, and Meikang Qiu. Neural network compression, and acceleration by federated pruning
- Xiaohui Wei, Xiaoxian Shen, Changbao Zhou, and Hengshan Yue. A Novel Clustering-based Filter Pruning Method for Efficient Deep Neural Networks
- Yi Zeng, Han Qiu, Gerard Memmi, and Meikang Qiu. Defending Adversarial Examples in Computer Vision based on Data Augmentation Techniques
- Shiyu Wang, Shengbing Zhang, Jihe Wang, and Xiaoping Huang. Towards energy efficient architecture for spaceborne Neural Networks computation
ICA3PP Volume 2 – Session 5: Deep Learning 3
October 4th 2020 09:00-10:00, Room B

- Biao Hou, and Junxing Zhang. QoE Estimation of DASH-based Mobile Video Application using Deep Reinforcement Learning
- Yimin Shi, Haihan Duan, Yuanfang Chi, Keke Gai, and Wei Cai. Edge-assisted Federated Learning: An Empirical Study from Software Decomposition Perspective
- Xuan Ye, Yulin He, and Joshua Zhexue Huang. Attribute Bagging-Based Extreme Learning Machine
- Weipeng Cao, Cong Zhou, Yuahu Wu, Zhong Ming, Zhiwu Xu, and Jiysong Zhang. Research Progress of Zero-Shot Learning Beyond Computer Vision
- Hu Wenhui, Xueyang Liu, Yu Huang, Yu Wang, Minghui Zhang, and Hui Zhao. Structured Data Encoder for Neural Networks Based on Gradient Boosting Decision Tree

ICA3PP Volume 2 – Session 6: Knowledge Engineering
October 4th 2020 10:00-11:00, Room B

- Wenhao Xie, Shuxin Wang, Yanzhi Wei, Yonglin Zhao, and Xianghua Fu. Dynamic Knowledge Graph Completion with Jointly Structural, and Textual Dependency
- Lianxiao Meng, and Shuangying Ren. An Optimization of Deep Sensor Fusion Based on Generalized Intersection over Union
- Yonglin Zhao, Xudong Sun, Shuxin Wang, Jianwei He, Xianghua Fu, and Yanzhi Wei. A Semi-Supervised Joint Entity, and Relation Extraction Model Based on Tagging Scheme, and Information Gain
- Wenqian Zhao, Xiangxiang Li, Mufeng Lin, Chen Lin, Yifan Yang, and Guoping Rong. DAAFE: A Scalable Distributed Automatic Feature Engineering Algorithm for Relational Datasets

ICA3PP Volume 2 – Session 7: Edge Computing 1
October 4th 2020 11:20-12:20, Room B

- Yanlin Zhang, Peng Li, and Tao Zhang. User Recruitment with Budget Redistribution in Edge-aided Mobile Crowdsensing
- Shuxin Ge, Weixiu Wang, Chaoqun Zhang, Xiaobo Zhou, and Qinglin Zhao. Multi-user Service Migration for Mobile Edge Computing Empowered Connected, and Autonomous Vehicles
- Haoran Zhu, Jing Bai, Xiaolin Chang, Jelena Mišić, Vojislav Mišić, and Yang Yang. Stochastic Model-based Quantitative Analysis of Edge UPF Service Dependability
- Jihe Wang, Jiaxiang Zhao, and Danghui Wang. A Hot/Cold Task Partition for Energy-efficient Neural Network Deployment on Heterogeneous Edge Device
- Xiaoyun Dong, Jianwei Niu, Jiahe Cui, Zongkai Fu, and Zhenchao Ouyang. Fast Segmentation-based Object Tracking Model for Autonomous Vehicles

ICA3PP Volume 2 – Session 8: Algorithm 1
October 4th 2020 13:30-14:30, Room B

- Yukimasa Sugizaki, and Daisuke Takahashi. Fast Computation of the Exact Number of Magic Series with an Improved Montgomery Multiplication Algorithm
- Xin Liu, Hua Huang, Yang Lin, and Meikang Qiu. Comparative Analysis of Three Kinds of Laser SLAM Algorithms
- Guang Yang, Hong Xiaoguang, and Zhaohui Peng. Recommendation with Temporal Dynamics Based on Sequence Similarity Search
- Jian-Guo Jiang, Shang Jiang, Bo-bai Zhao, Si-Ye Wang, Meng-Nan Cai, and Yan-Fang Zhang. CS-Dict: Accurate Indoor Localization with CSI Selective Amplitude, and Phase based Regularized Dictionary Learning
- Jikui Wang, Quanfu Shi, Feiping Nie, and Zhengguo Yang. Clustering by Unified Principal Component Analysis, and Fuzzy c-means with Sparsity Constraint

ICA3PP Volume 2 – Session 9: Algorithm 2
October 4th 2020 14:30-15:30, Room B

- Jiawei Xu, Weidong Zhu, Shiyou Qian, Guangtao Xue, Jian Cao, Yanmin Zhu, Zongyao Zhu, and Junwei Zhu. Roda: A Flexible Framework for Real-time On-demand Data Aggregation
- Jingjing Xia, Yan Wang, and Jianxi Fan. Embedding Augmented Cubes into Grid Networks for Minimum Wirelength
- Wael Hamdi, and Sami Faiz. Distributing Data in Real Time Spatial Data Warehouse
• Chenghao Wei, Timur Valiullin, and Hao Long. A Precise Telecom Customer Tariff Promotion Method Based on Multi-route Radial Basis Kernel Fuzzy C-means Clustering

ICA3PP Volume 2 – Session 10: Smart Systems
October 4th 2020 15:13-16:15, Room B

• Haodong Bian, Jianqiang Huang, Runting Dong, Yulu Guo, and Xiaoying Wang. HpQC: A new efficient quantum computing simulator
• Jun Zhang, Siu Ming Yu, and Zoe Lin Jiang. Outsourced Privacy-Preserving Reduced SVM among Multiple Institutions
• Jingkun Hu, Zhihui Du, Sen Zhang, and David Bader. QoS-Aware, and Fault-Tolerant Replica Placement
• Baojie Yuen, Yetong Han, Jialiu Dai, Yongpan Zou, Ye Liu, and Kaishun Wu. I am Smartglasses, and I can Assist Your Reading
• Reid Honan, Trent Lewis, Scott Anderson, and Jake Cooke. A Quantum Computer Operating System

ICA3PP Volume 3 – Session 1: Smart Computing 1
October 3rd 2020 13:30-14:30, Room C

• Zhong Li, Xiaolong Jin, Chuanzhi Zhuang, and Zhi Sun. Content-aware Anomaly Detection with Network Representation Learning
• Qiangfei Ma, Hua Huang, Wentao Zhang, and Meikang Qiu. Design of Smart Home System Based on Collaborative Edge Computing, and Cloud Computing
• Vishwas Rajashekar, Ishaan Lagwankar, Durga Prasad Sn, and Rahul Nagpal. Efficient Thermography Guided Learning for Breast Cancer Detection
• Xingfeng Lv, and Jinhao Li. A Multi-Level Features Fusion Network for Detecting Obstructive Sleep Apnea Hypopnea Syndrome
• Chenyang Liao, Jiahao Huang, Fangkai Zhou, and Yang Lin. Design of six-rotor drone based on target detection for intelligent agriculture

ICA3PP Volume 3 – Session 2: Blockchain 1
October 3rd 2020 14:30-15:30, Room C

• Yue Zhang, Keke Gai, Meikang Qiu, and Kai Ding. Understanding Privacy-preserving Techniques in Digital Cryptocurrencies
• Zhengkang Fang, Keke Gai, Liehuang Zhu, and Lei Xu. LNBFSM: A Food Safety Management System Using Blockchain, and Lightning Network
• Kai He, Jiaoli Shi, Chunxiao Huang, and Xinrong Hu. Blockchain Based Data Integrity Verification for Cloud Storage with T-Merkle Tree
• Haochen Li, Keke Gai, Liehuang Zhu, Peng Jiang, and Meikang Qiu. Reputation-based Trustworthy Supply Chain Management Using Smart Contract
• Hao Jin, Chen Xu, Yan Luo, and Peilong Li. Blockchain-Based Secure, and Privacy-Preserving Clinical Data Sharing, and Integration

ICA3PP Volume 3 – Session 3: Blockchain 2
October 3rd 2020 15:30-16:30, Room C

• Shubin Cai, and Huafeng Zhou. A simulation study on block generation algorithm based on TPS model
• Keke Gai, Ziyue Hu, Liehuang Zhu, Ruili Wang, and Zijian Zhang. Blockchain Meets DAG: A BlockDAG Consensus Mechanism
• Hao Yin, Yihang Wei, Yuwen Li, Liehuang Zhu, Jiakang Shi, and Keke Gai. Consensus in Lens of Consortium Blockchain: An Empirical Study
• Yizhong Liu, Jianwei Liu, Jiayuan Yin, Geng Li, Hui Yu, and Qianhong Wu. Cross-Share Transaction Processing in Sharding Blockchains
• Yizhong Liu, Jianwei Liu, Dawei Li, Hui Yu, and Qianhong Wu. FleetChain: A Secure Scalable, and Responsive Blockchain Achieving Optimal Sharding
• Xizhao Wang, Zhongwou Xie, Weipeng Cao, and Zhong Meng. A Hierarchical-Tree-based Method for Generative Zero-Shot Learning

ICA3PP Volume 3 – Session 4: Blockchain 3
October 3rd 2020 16:30-17:30, Room C

• Wenhao Dai, Xiaozhuo Gu, and Yajun Teng. A Supervised Anonymous Issuance scheme of Central Bank Digital Currency based on Blockchain
• Zhen Lin, Yuchuan Luo, Shaojing Fu, and Tao Xie. BIMP: Blockchain-Based Incentive Mechanism With Privacy Preserving in Location Proof
• Yujuan Wen, Pengyuana Lu, Yufei Liu, Peijin Cong, and Xinli Huang. Blockchain Consensus Mechanisms, and Their Applications in IoT: A Literature Survey
• Chunguang Dai, Xueying Yang, Meikang Qiu, and Xiaobing Guo. Digital Currency Investment Strategy Framework Based on Ranking
• Ashish Christopher Victor, Akhilarka Jayanthi, Atul Anand Gopalakrishnan, and Rahul Nagpal. PTangle: A Parallel Detector for Unverified Blockchain Transactions

ICA3PP Volume 3 – Session 5: Cyber Security 1
October 4th 2020 09:00-10:00, Room C  Online Session
• Mengjie Zhang, Xingsheng Zhang, Zhijun Chen, and Dunhui Yu. A Privacy-Preserving Approach for Continuous Data Publication
• Yunyi Zhang, Jintian Lu, and Shuyuan Jin. Web Attack Detection based on User Behaviour Semantics
• Lin Chen, Huahui Lv, Kai Fan, Hang Yang, Xiaoyun Kuang, Aidong Xu, and Siliang Suo. An Ensemble Learning Approach to Detect Malwares Based on Static Information
• Cheng Dongxu, Liu Jianwei, Guan Zhenyu, and Hu Jiale. An attack-immune trusted architecture for supervisory intelligent terminal
• Soultana Ellinidou, Gaurav Sharma, Olivier Markowitch, Jean-Michel Dricot, and Guy Gogniat. Towards NoC protection of HT-Greyhole attack

ICA3PP Volume 3 – Session 6: Cyber Security 2
October 4th 2020 10:00-11:00, Room C  Online Session
• Anyuan Deng, Jiaoli Shi, and Kai He. IM-ACS: An Access Control Scheme Supporting Informal non-Malleable Security in Mobile Media Sharing System
• Ningwei Li, Hang Gao, Liang Liu, and Jianfei Peng. Machine Learning-based Attack Detection Method in Hadoop
• Xudong Tang, Qiang Wang, and Weikai Miao. Behavioral fault modeling, and analysis with BIP: A Wheel Brake System Case Study
• Jia Ding, and Zhiwu Xu. Adversarial Attacks on Deep Learning Models of Computer Vision: A Survey

ICA3PP Volume 3 – Session 7: Big Data 1
October 4th 2020 11:20-12:20, Room C  Online Session
• Zhe Wang, Yi Ren, Jianbo Guan, ZiQi You, Sajing Yang, and Yusong Tan. Dynamic Co-located VM Detection, and Membership Update for Residency Aware Inter-VM Communication in Virtualized Clouds
• Qianwen Ye, Chase Wu, Wuji Liu, Aiqin Hou, and Wei Shen. Profiling-based Big Data Workflow Optimization in a Cross-Layer Coupled Design Framework
• Tianbo Wang, and Chunhe Xia. H2P: A Novel Model to Study the Propagation of Modern Hybrid Worm in Hierarchical Networks
• Jiawei Li, Hua Dai, Yi Yang Liu, Jianqiu Xu, Jie Sun, and Geng Yang. Detection of Loose Tracking Behavior over Trajectory Data
• Peiqian Jin, Jianchuan Li, Lin Mu, Lizhou Zheng, and Jie Zhao. Effective Sentiment Analysis for Multimodal Review Data on the Web

ICA3PP Volume 3 – Session 8: Cyber Security 3
October 4th 2020 13:30-14:30, Room C  Online Session
• Danghui Wang, Chen Yue, Ze Tian, Ru Han, and Lu Zhang. An Energy-Efficient AES Encryption Algorithm Based on Memristor Switch
• Sukun Li, and Meikang Qiu. Authentication Study for Brain-based Computer Interfaces using Music Stimulations
• Yafei Sang, Mao Tian, Yongzheng Zhang, Peng Chang, and Shuyuan Zhao. IncreAIBMF: Incremental Learning for Encrypted Mobile Application Identification
• Pengpeng Shao, Feng Ye, Zhiao Liu, Xiwen Wang, Ming Lu, and Yupeng Mao. Improving iForest for Hydrological Time Series Anomaly Detection

ICA3PP Volume 3 – Session 9: Smart Computing 2
October 4th 2020 14:30-15:30, Room C  Online Session
• Yu Nie, Yu Liu, Chao Li, Hua Huang, Fubao He, and Meikang Qiu. Collaborative design service system based on ceramic cloud service platform
• Jingying Yang, Xianghua Fu, Shuxin Wang, and Wenhao Xie. Lexicon-Enhanced Transformer With Pointing For Domains Specific Generative Question Answering
• Lijuan Duan, Hongli Liu, Huiwen Duan, and Yuanhua Qiao. Classification of Depression Based on Local Binary Pattern, and Singular Spectrum Analysis
ICA3PP Volume 3 – Session 10: Smart Computing 3

October 4th 2020 15:15-16:15, Room C

Online Session

- Tarek Menouer, Amina Khedimi, Christophe Cérin, and Congfeng Jiang. Cloud Allocation, and Consolidation Based on a Scalability Metric
- Fanghan Liu, Wenzheng Cai, and Kun Ma. PLRS: Personalized literature hybrid recommendation system with paper influence

- XinXin Liu, Hua Huang, Meikang Qiu, and Meiqin Liu. Research on Stylization Algorithm of Ceramic Decorative Pattern Based on Ceramic Cloud Design Service Platform
- Yufei Liu, Xuqi Fang, Fengyuan Lu, Xuxin Chen, and Xinli Huang. Indoor Positioning, and Prediction in Smart Elderly Care: Model, System, and Applications
- Hongtao Guan, Xingkong Ma, and Siqi Shen. DOS-GAN: A Distributed Over-Sampling Method Based on Generative Adversarial Networks For Distributed Class-Imbalance Learning
- Yuan Liu, Zhengpeng Ai, Mengmeng Tian, Guibing Guo, and Linying Jiang. DSBFT: A Delegation based Scalable Byzantine False Tolerance Consensus Mechanism
- Yuan Liu, Zhengpeng Ai, Mengmeng Tian, Guibing Guo, and Linying Jiang. DSBFT: A Delegation based Scalable Byzantine False Tolerance Consensus Mechanism