

IEEE Cybermatics Congress 2023

The 29th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2023)

The 6th IEEE International Conference on Blockchain (Blockchain 2023)

The 16th IEEE International Conference on Internet of Things (iThings 2023)

The 19th IEEE International Conference on Green Computing and Communications (GreenCom 2023)

The 16th IEEE International Conference on Cyber, Physical and Social Computing (CPSCom 2023)

The 9th IEEE International Conference on Smart Data (SmartData 2023)

The 11th International Conference on Advanced Cloud and Big Data (CBD 2023)

December 17-21, 2023, Ocean Flower Island, Hainan, China

<https://ieee-cybermatics.org/2023>



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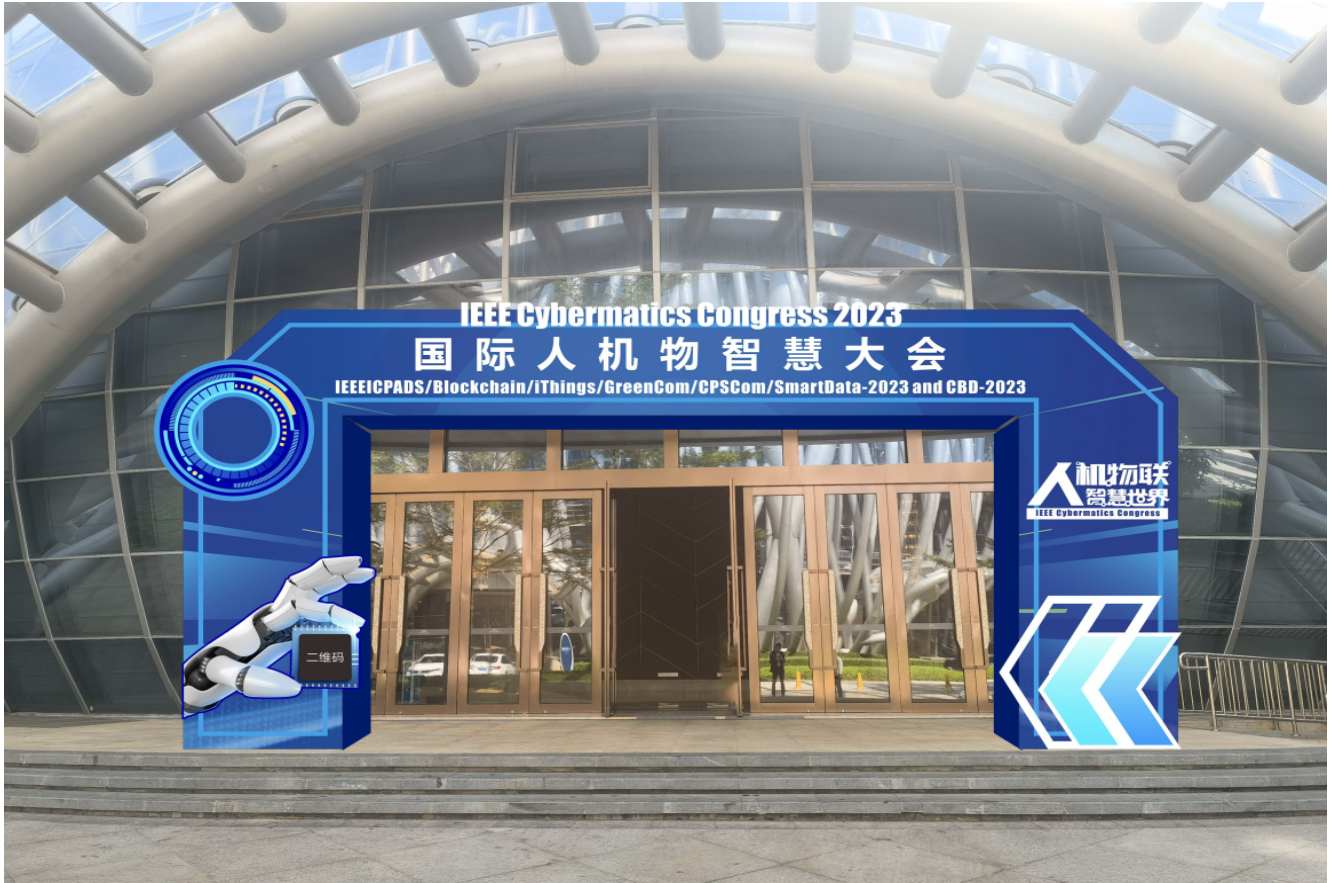
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Registration Desk

The Registration Desk will be open at the **No.8 Pavilion** to assist you at the following time:

- Saturday, December 16, 2023, 13:00 – 20:00
- Sunday, December 17, 2023, 8:00 – 20:00
- Monday, December 18, 2023, 8:00 – 20:00
- Tuesday, December 19, 2023, 8:00 – 20:00
- Wednesday, December 20, 2023, 8:00 – 12:00



Name Badges and Meal Tickets

All delegates, sponsors and speakers of the IEEE ICPADS/Blockchain/iThings/GreenCom/CPSCoM/SmartData 2023 and CBD 2023 will be provided with a name badge, to be collected upon registration. This badge must be worn at all times as it is your official pass to all technical sessions of the conferences and morning and afternoon coffee break.

There are different meal tickets for the welcome reception on December 18, the four lunches on December 17-20, and the banquet on December 19, respectively.

Presentation Guidelines

Conference Date

The conference is to be held from Dec 17-21, 2023. The time for the conference program is based on CST, China Standard Time.

Language

The presentation language of the IEEE ICPADS/Blockchain/iThings/GreenCom/CPSCoM/SmartData 2023 and CBD 2023 is English.

For Session Chairs

Session Chairs are requested to join the room at least 10 minutes before their sessions.

For Authors

For the authors of **Regular Research Papers and Research Papers**, you are strongly encouraged to join the room during your presentation and Q&A. Please confirm your attendance with the Session Chair at least 10 minutes before the session.

For the authors of **conference posters**, you are strongly encouraged to design and print the Poster with the size of 84.1cm * 59.4cm (A1 size). And you should bring and give your Poster to the poster chair (Dr. Fang Fu, email: fufang0621@hainanu.edu.cn), when you arrive at the venue and register for the conference. Dr. Fu is responsible for posting the poster. You need to present and discuss your work with the attendees based on the poster. Finally, the conference committee will select the poster awards based on the attendees' feedback.

Timing

Please check the program for the exact time of your session and where your paper falls within the session.

For the authors of **Regular Research Papers and Research Papers**, it is recommended that all IEEE ICPADS/Blockchain/iThings/Green Com/CPSCoM/SmartData 2023 and CBD 2023 presentations use **15 minutes presentation time plus 5 minutes question time**. However, the Session Chairs will determine the exact presentation time for each paper, based on the number of presentations in each session. The Session Chairs will ensure that you do not over-run the time allocated.

Proceedings

If you are interested in reading papers during the presentations, here is the proceedings:

ICPADS 2023: <https://conferences.computer.org/icpadspub23>, username: icpadspub23

Blockchain 2023: <https://conferences.computer.org/blockchainpub23>, username: blockchainpub23

iThings-GreenCom-CPSCoM-SmartData 2023:

<https://conferences.computer.org/ithings-greencom-cpscom-smartdata-cybermaticspub23>, username: ithingspub23

Conference Venue

International Convention & Exhibition Center

Locations	Rooms	
9 号馆 (No. 9 Pavilion) 9201	Room 1	Oral Presentation
9 号馆 (No. 9 Pavilion) 9202	Room 2	Oral Presentation
9 号馆 (No. 9 Pavilion) 9301	Room 3	Oral Presentation
9 号馆 (No. 9 Pavilion) 9302	Room 4	Oral Presentation
9 号馆 (No. 9 Pavilion) 9303	Room 5	Oral Presentation
9 号馆 (No. 9 Pavilion) 9304	Room 6	Oral Presentation
9 号馆 (No. 9 Pavilion) 9305	Room 7	Oral Presentation
9 号馆 (No. 9 Pavilion) 9306	Room 8	Oral Presentation
9 号馆 (No. 9 Pavilion) 9307	Room 9	Oral Presentation
Hilton (Multifunctional Hall, 3rd Floor, Star Tower)	Room 10	Oral Presentation/Summit/Meeting
8 号馆 (No. 8 Pavilion) 8104	Room 11	Oral Presentation/Summit/Meeting
8 号馆 (No. 8 Pavilion) 8101	Room 12	Opening/Keynote/Reception/Poster
2 号馆 (No. 2 Pavilion) International Ballroom	Room 13	Banquet



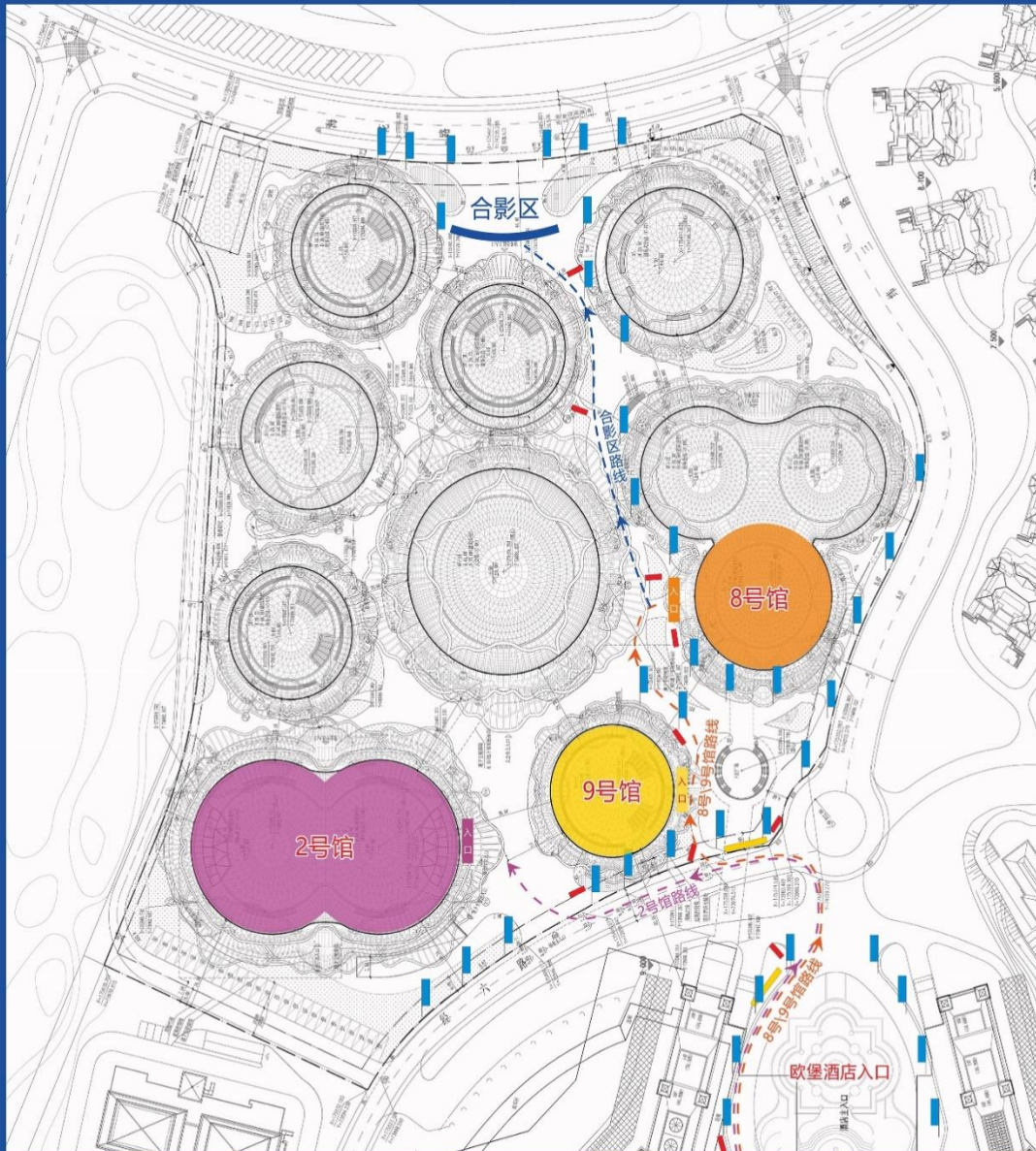
IEEE Cybermatics Congress 2023 国际人机物智慧大会

会议行程：
Meeting itinerary:

Date	Time	Events	Locations
2023-12-17	8:00-12:20	Sessions	ICEC 9号馆(No.9 Pavilion)
	14:10-18:30	Sessions	9201-4 & 9301-5 & Hilton (Room 1-10)
2023-12-18	08:50-9:30	Opening Ceremony	ICEC 8号馆(No.8 Pavilion) 8101 (Room 12)
	9:30-9:50	Photo Taking	
	9:50-12:30	Keynote 1-4	
	14:30-17:10	Keynote 5-8	
	19:00-20:00	Reception and Poster Session	
2023-12-19	8:00-12:20	Sessions	ICEC 8-9号馆(No.8-9 Pavilion)
	14:10-18:30	Sessions	9201-2 & 9301-7 & Hilton & 8104 (Room 1-11)
	19:00-21:00	Banquet	ICEC 2号馆(No.2 Pavilion) International Ballroom (Room 13)
2023-12-20	8:00-12:20	Sessions	ICEC 8-9号馆(No.8-9 Pavilion)
	14:10-18:30	Sessions	9201-2 & 9301-7 & Hilton & 8104 (Room 1-11)

会场分布平面布局图例：
Legend of venue distribution plan layout:

图例	说明	图例	说明
	道旗		8号\9号馆路线
	指引牌		2号馆路线
	平面布局图		合影区路线
	合影台		



中国海南海花岛全岛导览图



中央广场区

- ① 中央公园 Central Park
- ② 观光塔 Observation Tower
- ★ ③ 电影城 Cinema City
- ④ 多功能剧场 Multi-functional Theater
- ⑤ 娱乐中心 Entertainment Center
- ⑥ 无动力乐园 Motopass Amusement Park

酒店会议区

- ① 国际会议中心 International Convention Center
- ★ ② 欧堡酒店 Castle Hotel
- ③ 皇家花园 Royal Garden

风情三条街区

- ★ ① 博物馆群 (2-8号楼) Museum Complex
- ② 风情饮食街 Culinary Street
- ③ 风情商业街 Commercial Street
- ④ 茗茶酒吧街 Tea and Bar Street
- ★ ⑤ 珍稀特色植物园 Special Plant Garden
- ⑥ 植物奇珍馆 Plant Museum
- ★ ⑦ 婚礼庄园 (灯光秀) Wedding Manor
- ⑧ 海洋一号 (轻奢购物中心) Ocean No.1 (Luxury Shopping Center)
- ★ ⑨ 奥特莱斯 Outlet
- ⑩ 苏东坡历史文化艺术馆 Su Dongpo Historical Culture and Art Museum

双子沙滩区

- ★ ① 希尔顿酒店里塔 (灯光秀) Hilton Star Tower
- ★ ② 希尔顿酒店月塔 (灯光秀) Hilton Moon Tower
- ★ ③ 双子沙滩 Twin Beaches
- ④ 入岛大桥 Bridge to Island

观海公园区

- ① 国际会展中心 International Exhibition Center
- ② 运动健身中心 Sports & Fitness Center
- ★ ③ 观海广场 Sea Viewing Plaza

酒店会议区

- ① 国际会议中心 International Convention Center
- ★ ② 欧堡酒店 Castle Hotel
- ③ 皇家花园 Royal Garden

出岛线路

- ① 双子沙滩里塔/月塔站 (1号线/出租车/网约车)
- ② 欧堡酒店站 (1号线/3号线/去往3号岛方向)
- ③ 童世界站 (1号线/2号线/去往2号岛方向)
- ④ 地下停车场人行出入口C1
- ⑤ 地下停车场人行出入口C2
- ⑥ 商业街停车区出入口
- ⑦ 海洋乐园/水上王国停车区出入口

风情三条街区

- ① 博物馆群 (2-8号楼) Museum Complex
- ② 风情饮食街 Culinary Street
- ③ 风情商业街 Commercial Street
- ④ 茗茶酒吧街 Tea and Bar Street
- ⑤ 珍稀特色植物园 Special Plant Garden
- ⑥ 植物奇珍馆 Plant Museum
- ⑦ 婚礼庄园 (灯光秀) Wedding Manor
- ⑧ 海洋一号 (轻奢购物中心) Ocean No.1 (Luxury Shopping Center)
- ⑨ 奥特莱斯 Outlet
- ⑩ 苏东坡历史文化艺术馆 Su Dongpo Historical Culture and Art Museum

双子沙滩区

- ★ ① 海洋乐园 Ocean Park
- ★ ② 水上王国 Water Kingdom
- ★ ③ 五国温泉城 Springs Resort

雪山海洋区

- ★ ① 海洋乐园 Ocean Park
- ★ ② 水上王国 Water Kingdom
- ★ ③ 五国温泉城 Springs Resort

童世界区

- ① 影视基地 Movie Studios
- ★ ② 游艇俱乐部 (游艇码头海钓) Yacht Club

童世界区

- ① 影视基地 Movie Studios
- ★ ② 游艇俱乐部 (游艇码头海钓) Yacht Club

岛内特色交通

- 🚂 **观光小火车环线**
运营时间: 10:00-22:00
站点: 欧堡酒店站 → 植物园站 → 茗茶酒吧街站 → 闲弄饮食街站 → 童世界站 → 童世界站 → 观海广场站 → 欧堡酒店站
- 🚗 **海花岛快车 TAXI**
运营时间: 8:00-22:00
服务热线: 0898-32655005
- 🚲 **观光自行车停车点**
运营时间: 09:00-19:00
(骑行范围: 观海公园内)

岛内交通

- 🚗 **乐园温泉专线**
运营时间: 09:30-22:00, 30分钟/班
欧堡酒店大堂 ↔ 乐园温泉站
- 🚗 **1号岛环线**
运营时间: 9:00-22:30
站点: 欧堡酒店站 → 商业街站 → 奥特莱斯站 → 双子沙滩(月塔)站 → 双子沙滩(里塔)站 → 雪山海洋站 → 童世界站 → 运动健身中心站 → 欧堡酒店站
- 🚗 **2号岛穿梭巴士**
运营时间: 周一至周五: 10:00-22:00
周六至周日及节假日: 10:00-22:30
站点: 闲弄饮食街站 → 琴琴街站 → 欧堡酒店站 → 乐园温泉站 → 双子沙滩(里塔)站 → 雪山海洋站 → 海洋湾站 → 松涛湾站 → 新海湾站
- 🚗 **3号岛穿梭巴士**
运营时间: 周一至周五: 10:00-22:00, 60分钟/班
周六至周日及节假日: 10:00-22:30, 60分钟/班
站点: P3停车场站 → 紫荆园站 → 闲弄饮食街站 → 双子沙滩(里塔)站 → 牡丹园站 → 木棉园站 → P3停车场站

岛外交通

- 🚄 **高铁站专线**
入岛: 白马井高铁站 ↔ 欧堡酒店站 ↔ 双子沙滩(里塔)站
出岛: 欧堡酒店站 ↔ 双子沙滩(里塔)站 ↔ 白马井高铁站
- ✈️ **美兰机场专线**
入岛: 美兰机场T1航站楼 → T2航站楼 → 2号岛滩河站 → 欧堡酒店站 → 双子沙滩(里塔)站
出岛: 欧堡酒店站 → 双子沙滩(里塔)站 → 2号岛滩河站 → 美兰机场T1航站楼

出入口 Entrance	P 停车场入口 Parking Entrance
① 游客中心 Tourist Center	🚻 卫生间(户外公共) Restrooms
👤 票务服务 Ticket	🏥 医务室 Clinic

Welcome Message from the Congress Chair

Welcome to the IEEE Cybermatics Congress 2023 which includes the 29th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2023); the 6th IEEE International Conference on Blockchain(Blockchain 2023); the 16th IEEE International Conference on Internet of Things (iThings 2023); the 19th IEEE International Conference on Green Computing and Communication(GreenCom 2023); the 16th IEEE International Conference on Cyber, Physical and Social Computing (CPSCom 2023); the 9th IEEE International Conference on Smart Data (SmartData 2023); the 11th International Conference on Advanced Cloud and Big Data (CBD 2023).

Advances in computers, information and networks are bringing a digital cyber world to our daily lives. Numerous digital things or cyber entities are generated and will reside in the cyber world. Meanwhile, countless real things in the conventional physical, social and mental worlds will possess cyber mappings or components, to have a cyber existence in the cyber world. Cyberization is an emerging trend forming the new cyber world and reforming conventional worlds towards cyber-enabled hyper worlds. Cybermatics is to build systematic knowledge about new phenomena, behaviors, properties and practices in cyberspace, cyberization and cyber-enabled hyper worlds. Cybermatics is characterized by not only catching up with human intelligence (e.g. intelligent sensing, making decisions and control, etc), but also learning from nature-inspired attributes (e.g., dynamics, self-adaptability, energy saving).

Here, we would like to sincerely thank all organizing committee members, program committee members, and reviewers for their hard work and valuable contribution. Without your help, these conferences would not have been possible. We greatly appreciate the sponsorship from IEEE, IEEE Computer Society, IEEE Computational Intelligence Society, IEEE Systems, Man and Cybernetics Society, IEEE Technical Committee on Parallel Processing, IEEE Technical Committee on Smart World, IEEE Technical Committee on Cybermatics, IEEE Technical Committee on Scalable Computing, IEEE SC Hyper-Intelligence Technical Committee, IEEE Blockchain Technical Community, IEEE Technology and Engineering Management Society, and IEEE CIS Cyber-Physical-Social Systems Task Force. We are very grateful to the keynote speakers for their authoritative speeches. We thank all authors and conference participants for using this forum to communicate their excellent work.

The conferences are planned to be held in December 17-21, 2023, Ocean Flower Island, Hainan, China.

We hope you find the conferences a stimulating and exciting forum.



Laurence T. Yang
FCAE, FEIC, MAE, FIEEE, FIET
Steering Chair, IEEE CS Technical Committee on Scalable Computing
Chair, IEEE SMC Technical Committee on Cybermatics
Chair, IEEE SC Hyper-Intelligence Technical Committee
Chair, IEEE CIS Smart World Technical Committee
Academic Vice-president and Dean, Hainan University, China
Congress Steering Chair

Congress Keynotes

Keynote 1: Schahram Dustdar, TU Wien, Austria

Research Opportunities for Edge Intelligence in Distributed Computing Continuum Ecosystems

Keynote 2: Dou Shen, Baidu, China

Large Language Models: The New Engine of Industrial Intelligence

Keynote 3: M. Jamal Deen, McMaster University, Canada

Smart Software-Enabled Sensing Systems for Ubiquitous-Healthcare

Keynote 4: Dusit Tao Niyato, Nanyang Technological University, Singapore

Blockchain-Empowered Semantic and Lifecycle Management for AIGC in Edge Networks

Keynote 5: Sai Gu, The University of Warwick, UK

Digital Transformation for a Century Old Chemical Engineering

Keynote 6: Sam Kwong, Lingnan University, Hong Kong

Deep Learning Based Video Coding and its Applications

Keynote 7: Kun Yang, University of Essex, UK

Native Intelligence of Future Mobile Communication Networks

Keynote 8: Erol Gelenbe, Polish Academy of Sciences, Poland

The Dynamics of Cybersecurity

The IEEE Cybermatics Congress 2023

Keynote 1: Research Opportunities for Edge Intelligence in Distributed Computing Continuum Ecosystems

Schahram Dustdar, TU Wien, Austria

About the Keynote Speaker



Schahram Dustdar is a Full Professor of Computer Science at the TU Wien, heading the Research Division of Distributed Systems, Austria. He holds several honorary positions: University of California (USC) Los Angeles; Monash University in Melbourne, Shanghai University, Macquarie University in Sydney, University Pompeu Fabra, Barcelona, Spain. From Dec 2016 until Jan 2017 he was a Visiting Professor at the University of Sevilla, Spain and from January until June 2017 he was a Visiting Professor at UC Berkeley, USA.

From 1999 – 2007 he worked as the co-founder and chief scientist of Caramba Labs Software AG in Vienna (acquired by ProjectNetWorld AG), a venture capital co-funded software company focused on software for collaborative processes in teams. He is co-founder of edorer.com (an EdTech company based in the US) and co-founder and chief scientist of Sinoaus.net, a Nanjing, China based R&D organization focusing on IoT and Edge Intelligence.

He is founding co-Editor-in-Chief of ACM Transactions on Internet of Things (ACM TIoT) as well as Editor-in-Chief of Computing (Springer). He is an Associate Editor of IEEE Transactions on Services Computing, IEEE Transactions on Cloud Computing, ACM Computing Surveys, ACM Transactions on the Web, and ACM Transactions on Internet Technology, as well as on the editorial board of IEEE Internet Computing and IEEE Computer. Dustdar is recipient of multiple awards: IEEE TCSVC Outstanding Leadership Award (2018), IEEE TCSC Award for Excellence in Scalable Computing (2019), ACM Distinguished Scientist (2009), ACM Distinguished Speaker (2021), IBM Faculty Award (2012). He is an elected member of the Academia Europaea: The Academy of Europe, as well as an IEEE Fellow (2016) and an Asia-Pacific Artificial Intelligence Association (AAIA) Fellow (2021) and the AAIA president (2201).

Summary: A captivating set of hypotheses from the field of neuroscience suggests that human and animal brain mechanisms result from few powerful principles. If proved to be accurate, these assumptions could open a deep understanding of the way humans and animals manage to cope with the unpredictability of events and imagination. Modern distributed systems also deal with uncertain scenarios, where environments, infrastructures, and applications are widely diverse. In the scope of IoT-Edge-Fog-Cloud computing, leveraging these neuroscience-inspired principles and mechanisms could aid in building more flexible solutions able to generalize over different environments.

The IEEE Cybermatics Congress 2023

Keynote 2: Large Language Models: The New Engine of Industrial Intelligence

Dou Shen, Baidu, China

About the Keynote Speaker



Dr. Shen received a Ph.D. from the Hong Kong University of Science and Technology, and currently serves as executive vice president of Baidu and the president of Baidu AI Cloud Group. Dr. Shen joined Baidu in 2012 and has served in various management roles, including web search, display advertising, the financial services group and mobile products. Dr. Shen has published more than 70 papers in international conferences and journals, and held multiple patents on Internet search and computational advertising. Currently, he serves as the Vice President of SIGKDD China Chapter.

Summary: Large pre-trained models, especially the popular Large Language Models such as GPT and Baidu's ERNIE, have changed the way of adopting AI in real-world applications. In this talk, we will share the best practice of LLM applications we are seeing over Baidu's Qianfan platform through a few examples and explore the ways to make the best use of LLM effectively and efficiently.

The IEEE Cybermatics Congress 2023

Keynote 3: Smart Software-Enabled Sensing Systems for Ubiquitous-Healthcare

M. Jamal Deen, McMaster University, Canada

About the Keynote Speaker



Dr. M. Jamal Deen is Distinguished University Professor (highest rank of a Professor in Canada), and Director of the Micro- and Nano-Systems Laboratory, McMaster University. As an educator, he won the Ham Education Medal from IEEE Canada (highest award for educators), the McMaster University President's Award for Excellence in Graduate Supervision, and MSU Macademics' Lifetime Achievement Award for his exceptional dedication to teaching and significant contribution to student life, the community at large, and academia (highest award for exceptional lifetime teaching at McMaster University voted by the students).

Dr. Deen served as the elected President of the Academy of Science, The Royal Society of Canada in 2015-2017. Currently, he is serving as the inaugural elected Vice President (North) of The World Academy of Sciences, representing the developed countries. His current research interests are nanoelectronics, optoelectronics, nanotechnology, data analytics and

their emerging applications to health and environmental sciences. Dr. Deen's research record includes more than 900 peer-reviewed articles (about 20% are invited), two textbooks on "Silicon Photonics- Fundamentals and Devices" and "Fiber Optic Communications: Fundamentals and Applications", 12 awarded patents of which 6 were extensively used in industry, and twenty-four best paper/poster/presentation awards.

As an undergraduate student at the University of Guyana, Dr. Deen was the top ranked mathematics and physics student and the second ranked student at the university, winning the Chancellor's gold medal and the Irving Adler prize. As a graduate student, he was a Fulbright-Laspau Scholar and an American Vacuum Society Scholar. He is a Distinguished Lecturer of the IEEE Electron Device Society for more than two decades now. His awards and honors include the Callinan Award as well as the Electronics and Photonics Award from the Electrochemical Society; a Humboldt Research Award from the Alexander von Humboldt Foundation; the Eadie Medal from the Royal Society of Canada; McNaughton Gold Medal (highest award for engineers), the Fessenden Medal and the Gotlieb Computer Medal, all from IEEE Canada. In addition, he was awarded the five honorary doctorate degrees in recognition of his exceptional research, scholarly and educational accomplishments, exemplary professionalism and valued services. Dr. Deen has also been elected Fellow status in thirteen national academies and professional societies including The Royal Society of Canada - The Academies of Arts, Humanities and Sciences (the highest honor for academics, scholars and artists in Canada), the Chinese Academy of Sciences (China's highest national honor in the area of science and technology and highest academic title), the Canadian Academy of Engineering, IEEE, APS (American Physical Society) and ECS (Electrochemical Society). He was also elected to the Order of Canada, the highest civilian honor awarded by the Government of Canada.

Summary: Several of the grand challenges in engineering for current and future societal needs require smart software coupled with sensing systems, examples being smart sensors, smart homes and smart software. In the health area, we will discuss some major healthcare issues related to aging and several examples of smart systems – sensors and smart homes. We will discuss the use of sensor systems to measure your walking signals and sleep quality, and their customization to an individual's needs. Smart sensors are also used for a living diary and in a smart home server that functions as the "brain" of a smart medical home. In all these applications, smart software or artificial intelligence (AI) techniques are a key enabler for their user-friendly, accurate and cost-effective use. Further, the use of data analytics and AI is important to provide customizable information to the users based on data collected from a variety of sensors. In addition, we will discuss some of the trends and opportunities in smart sensors for healthcare. Finally, we will discuss some applications of smart sensors and data analytics, and what are some important research issues in sensors, home networks, autonomic systems and healthcare in the context of a futuristic smart medical home.

The IEEE Cybermatics Congress 2023

Keynote 4: Blockchain-Empowered Semantic and Lifecycle Management for AIGC in Edge Networks

Dusit Tao Niyato, Nanyang Technological University, Singapore

About the Keynote Speaker



Dusit Niyato is currently a President's Chair Professor in Computer Science and Engineering in the School of Computer Science and Engineering, Nanyang Technological University, Singapore. He received B.E. from King Mongkuk's Institute of Technology Ladkrabang (KMITL), Thailand in 1999 and Ph.D. in Electrical and Computer Engineering from the University of Manitoba, Canada in 2008. Dusit's research interests are in the areas of distributed collaborative machine learning, Internet of Things (IoT), edge intelligent metaverse, mobile and distributed computing, and wireless networks. Dusit won the 2011 IEEE Communications Society Fred W. Ellersick Prize Paper Award and the IEEE Computer Society Middle Career Researcher Award for Excellence in Scalable Computing in 2021 and Distinguished Technical Achievement Recognition Award of IEEE ComSoc Technical Committee on Green Communications and Computing 2022. Dusit is serving as Editor-in-Chief of IEEE Communications Surveys and

Tutorials, an area editor of IEEE Transactions on Vehicular Technology, editor of IEEE Transactions on Wireless Communications, associate editor of IEEE Internet of Things Journal, IEEE Transactions on Mobile Computing, IEEE Wireless Communications, IEEE Network, and ACM Computing Surveys. He was a guest editor of IEEE Journal on Selected Areas on Communications. He was a Distinguished Lecturer of the IEEE Communications Society for 2016-2017. He was named the 2017-2022 highly cited researcher in computer science. He is a Fellow of IEEE and a Fellow of IET.

Summary: The rapid development of Artificial Intelligence Generated Content (AIGC) has brought daunting challenges regarding service latency, security, and trustworthiness. Recently, researchers presented the edge AIGC paradigm, which effectively optimizes service latency by distributing AIGC services to edge devices. However, AIGC products are still unprotected and vulnerable to tampering and plagiarism. Moreover, as a kind of online non-fungible digital property, the free circulation of AIGC products is hindered by the lack of trustworthiness in open networks. In this talk, we first present an overview of AIGC and its lifecycle, including content creation, verification, distribution, and storage. Then, we highlight the security challenges in AIGC, and for the first time, we present a blockchain-empowered framework to manage the lifecycle of edge AIGC products. Specifically, leveraging fraud proof, we propose a protocol to protect the ownership and copyright of AIGC, called Proof-of-AIGC. We then design an incentive mechanism to guarantee the legitimate and timely execution of funds-AIGC ownership exchanges among anonymous users. Furthermore, we present the design of a blockchain-aided semantic communication framework for AIGC services to facilitate interactions between the physical and virtual domains among service providers and edge devices. We also design a semantic defense scheme that uses the blockchain and zero-knowledge proofs to check the authenticity of semantic data transformations. Finally, we discuss major research directions of blockchain in AIGC services.

The IEEE Cybermatics Congress 2023

Keynote 5: Digital Transformation for a Century Old Chemical Engineering

Sai Gu, The University of Warwick, UK

About the Keynote Speaker



Professor Sai Gu is the Fellow of Royal Academy of Engineering, UK and the Deputy Pro-Vice-Chancellor (China) of University of Warwick. He obtained a PhD in Material Modelling from the University of Nottingham and also did his post-doc research at the University of Cambridge. His main research directions are bioenergy, carbon capture, materials, digital technology. And Professor Gu is an advocate of digital technologies for chemical engineering, pioneering the development of Industry 6th Sense technologies. He has established the Centre for Connected Plants of the Future to bring together multi-disciplinary expertise cross the University of Surrey, exploring the development of technology-driven innovation for chemical industry. He has been leading the EPSRC project “Stepping towards the industrial 6th sense”.

Summary: The presentation will take you on a brief journey of a century old chemical engineering: how chemical engineers have made profound impact on our life and economic development; how chemical engineering will be transformed by digital revolution.

The IEEE Cybermatics Congress 2023

Keynote 6: Deep Learning Based Video Coding and its Applications

Sam Kwong, Lingnan University, Hong Kong

About the Keynote Speaker



Sam Kwong is Chair Professor at the Lingnan University, Hong Kong, Department of Computing and decision Science. He previously served as Department Head and Chair Professor at the CityU Department of Computer Science from 2012 to 2018. Prof Kwong joined CityU as a Department of Electronic Engineering lecturer in 1989. Prof. Kwong is the associate editor of leading IEEE transaction journals, including IEEE Transactions on Evolutionary Computation, IEEE Transactions on Industrial Informatics, and IEEE Transactions on Cybernetics.

Kwong is actively engaged in knowledge exchange between academia and industry. In 1996, he was responsible for designing the first handheld GSM mobile phone consultancy project at the City University of Hong Kong, one of the largest. He has filed over 20 US patents, of which 17 have been granted.

Kwong has a prolific research record. He has co-authored three research books, eight book chapters, and over 300 technical papers. According to Google Scholar, his works have been cited more than 27,000 times with an h-index of 73. He has been the distinguished lecturer of IEEE SMCS since 2018 and delivers two DL lectures yearly to promote IEEE SMC Society and cutting-edge cybernetics technology. He also frequently delivers keynote speeches in IEEE supported conferences. In 2014, he was elevated to IEEE Fellow for his contributions to optimization techniques in cybernetics and video coding.

Kwong's involvement in the multiple facets of IEEE has been extensive and committed throughout the years. For IEEE Systems, Man and Cybernetics Society (SMCS), he serves as Hong Kong SMCS Chapter Chairman, Board Member, Conference Coordinator, Membership Coordinator and Member of the Long Range Planning and Finance Committee, Vice President of Conferences and Meetings, Vice President of Cybernetics. He led the IEEE SMC Hong Kong Chapter to win the Best Chapter Award in 2011 and was awarded the Outstanding Contribution Award for his contributions to SMC 2015. He was the President-Elect of the IEEE SMC Society in 2021. Currently, he serves as the President of the IEEE SMC Society. He is an IEEE fellow and listed as a Highly cited researcher according to Clarivate 2022 highly cited researcher report.

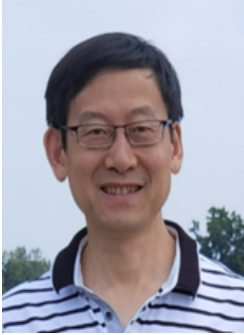
Summary: In June 6th 2016, Cisco released the White paper, VNI Forecast and Methodology 2015-2020, reported that 82 percent of Internet traffic will come from video applications such as video surveillance, content delivery network, so on by 2020. It also reported that Internet video surveillance traffic nearly doubled, Virtual reality traffic quadrupled, TV grew 50 percent and similar increases for other applications in 2015. The annual global traffic will first time exceed the zettabyte(ZB;1000 exabytes[EB]) threshold in 2016, and will reach 2.3 ZB by 2020. It implies that 1.886ZB belongs to video data. Thus, in order to relieve the burden on video storage, streaming and other video services, researchers from the video community have developed a series of video coding standards. Among them, the most up-to-date is the High Efficiency Video Coding(HEVC) or H.265 standard, which has successfully halved the coding bits of its predecessor, H.264/AVC, without significant increase in perceived distortion. With the rapid growth of network transmission capacity, enjoying high definition video applications anytime and anywhere with mobile display terminals will be a desirable feature in the near future. Due to the lack of hardware computing power and limited bandwidth, lower complexity and higher compression efficiency video coding scheme are still desired. For higher video compression performance, the key optimization problems, mainly decision making and resource allocation problem, shall be solved. In this talk, I will present the most recent research results on machine learning, deep neural network and reinforcement based video coding. This is very different from the traditional approaches in video coding. We hope applying these intelligent techniques to vide coding could allow us to go further and have more choices in trading off between cost and resources.

The IEEE Cybermatics Congress 2023

Keynote 7: Native Intelligence of Future Mobile Communication Networks

Kun Yang, University of Essex, UK

About the Keynote Speaker



Kun Yang received his PhD from the Department of Electronic & Electrical Engineering of University College London (UCL), UK. He is currently a Chair Professor in the School of Computer Science & Electronic Engineering, University of Essex, UK, leading the Network Convergence Laboratory (NCL). He is also an affiliated professor of UESTC. His main research interests include wireless networks and communications, future Internet and edge computing. In particular he is interested in energy aspects of future communication systems such as 6G, promoting energy self-sustainability via both energy efficiency (green communications and networking) and energy harvesting (wireless charging). He has managed research projects funded by UK EPSRC, EU FP7/H2020, and industries. He has published 400+ papers and filed 20 patents. He serves on the editorial boards of a number of IEEE journals (e.g., IEEE ComMag, TNSE, WCL). He is a Deputy Editor-in-Chief of IET Smart Cities Journal. He has been a Judge

of GSMA GLOMO Award at World Mobile Congress – Barcelona since 2019. He was a Distinguished Lecturer of IEEE ComSoc (2020-2021). He is a Member of Academia Europaea (MAE), a Fellow of IEEE, a Fellow of IET and a Distinguished Member of ACM.

Summary: With 5G mobile communication systems being commercialized and deployed worldwide, research into next-generation communication systems (i.e., 6G) has started since 2020. Native intelligence is essential for 6G to deliver its promises of being faster, greener and smarter. This talk starts with a brief introduction of 6G mobile communication systems, and then looks into how computation, and in particular artificial intelligence (AI) and machine learning (ML), comes into play in 6G from different perspectives. The talk firstly looks into how ML is utilized for data-driven end-to-end communication system design that revolutionizes the traditional modular design. Then this talk introduces some interesting new trends in mobile communication networks such as semantic communications, digital twin networks, and ISAC (Integrated Sensing and Communication), all from the perspective of how computation plays a role in supporting native intelligence of modern communication systems.

The IEEE Cybermatics Congress 2023

Keynote 8: The Dynamics of Cybersecurity

Erol Gelenbe, Polish Academy of Sciences, Poland

About the Keynote Speaker



Erol GELENBE, FIEEE '86, FACM'01, FIFIP'19, FRSS'20 is Professor in the Institute of Theoretical & Applied Informatics, Polish Academy of Sciences since 2017, and currently leads research on Cybersecurity & Performance Analysis, funded by the EU Horizon DOSS Project. Awarded the ACM SIGMETRICS 2008 Life-Time Award for pioneering theoretical and experimental work on computer and network system performance, Erol graduated from the Middle East Technical University (Ankara), holds a PhD from New York University (1970) and the Doctor of Science Degree from Sorbonne University (1973) in Paris. He was elected Fellow of the French National Academy of Technologies, Foreign Fellow of the National Science Academies of Belgium and Poland, Fellow of the Turkish Science Academy, and Honorary Fellow of the Science Academy of Hungary and of the Islamic Academy of Sciences, he has received three "honoris causa" doctorates from the University of Roma II (Italy) in 1996,

Bogazici University, Istanbul (Turkey) in 2004, and the University of Liege (Belgium) in 2006. Recipient of scientific prizes in France, Turkey, US, UK, and Iran, he graduated 95 PhDs, and has held chaired professorships at leading institutions including Univ. of Liege (Belgium) in 1974-79, Univ. Paris-Saclay (France) in 1979-86, University Paris-Descartes (France) in 1986-1992, NJIT (USA) in 1992-93, Duke University (USA) in 1993-98, University of Central Florida (USA) in 1998-03, and Imperial College (UK) in 2003-20. Participating actively in EU Research Programs since 2003, including FP5, FP6, FP7, H2020, he was funded in the USA by NSF and ONR, and by EPSRC in the UK. He was awarded French honors of Chevalier de la Legion d'Honneur (2015) and Commandeur du Mérite (2019), Italy awarded him Commendatore al Merito della Repubblica (2005) and Grande Ufficiale della Stella d'Italia (2007), and Belgium Awarded him Commandeur de l'Ordre de la Couronne (2022). He recently received the Best Paper Awards at IEEE MASCOTS 2023 (Oct. 16, 2023) and IEEE Trustcom 2023 (Nov. 2, 2023).

Summary: Typically in computer science, cybersecurity is addressed with a Maginot Line mentality, through encryption, passwords, firewalls, provably secure systems, and so on, making the usage of computer systems, web sites, services etc., more cumbersome and tedious. Yet every day we hear of some recent cyberattack that has been at least partially successful, if not even worse. In this talk we will emphasize the dynamic aspects of cybersecurity without which it is impossible to defend oneself from cyberattacks. The dynamic aspect, focused on dynamic attack detection, and dynamic reaction to cyberattacks, using machine learning and on-line dynamic system control to rapidly recover from attacks, will be illustrated with our recent experimental research results from several EU Horizon 2020 projects.

The IEEE Cybermatics Congress 2023 Program

IEEE ICPADS/Blockchain/iThings/GreenCom/CPSCoM/SmartData 2023

and

CBD 2023

Sunday December 17, 2023 (China Standard Time CST, UTC+8)

Room	Room 1 (9201)	Room 2 (9202)	Room 3 (9301)	Room 4 (9302)	Room 5 (9303)
8:00-10:00	ICPADS-1: Algorithms & Architecture (I)	ICPADS-5: Algorithms & Architecture (V)	ICPADS-9: Algorithms & Architecture (IX)	ICPADS-13: Big Data & Machine Learning Systems (IV)	ICPADS-17: Security & Blockchain (II)
10:00-10:20	Coffee Break				
10:20-12:20	ICPADS-2: Algorithms & Architecture (II)	ICPADS-6: Algorithms & Architecture (VI)	ICPADS-10: Big Data & Machine Learning Systems (I)	ICPADS-14: Big Data & Machine Learning Systems (V)	ICPADS-18: Security & Blockchain (III)
12:20-14:10	Lunch				
14:10-16:10	ICPADS-3: Algorithms & Architecture (III)	ICPADS-7: Algorithms & Architecture (VII)	ICPADS-11: Big Data & Machine Learning Systems (II)	ICPADS-15: Big Data & Machine Learning Systems (VI)	ICPADS-19: HPCC (I)
16:10-16:30	Coffee Break				
16:30-18:30	ICPADS-4: Algorithms & Architecture (IV)	ICPADS-8: Algorithms & Architecture (VIII)	ICPADS-12: Big Data & Machine Learning Systems (III)	ICPADS-16: Security & Blockchain (I)	ICPADS-20: HPCC (II)

Sunday December 17, 2023 (China Standard Time CST, UTC+8)

Room	Room 6 (9304)	Room 7 (9305)	Room 8 (9306)	Room 9 (9307)	Room 10 (Hilton)
8:00-10:00	ICPADS-21: HPCC (III)	ICPADS-25: Cloud & Edge Computing (I)	iThings-1: IoT Enabling Technologies (I)	Blockchain-1: Security, Privacy, and Trust (I)	CSIG Everest Summit
10:00-10:20	Coffee Break				
10:20-12:20	ICPADS-22: IoT & CPS (I)	ICPADS-26: Cloud & Edge Computing (II)	iThings-2: IoT Enabling Technologies (II)	Blockchain-2: Security, Privacy, and Trust (II)	CSIG Everest Summit
12:20-14:10	Lunch				
14:10-16:10	ICPADS-23: IoT & CPS (II)	ICPADS-27: Cloud & Edge Computing (III)	iThings-3: IoT Networks & Communications (I)	Blockchain-3: Applications and Services (I)	CSIG Everest Summit
16:10-16:30	Coffee Break				
16:30-18:30	ICPADS-24: IoT & CPS (III)	ICPADS-28: Cloud & Edge Computing (IV)	iThings-4: IoT Networks & Communications (II)	Blockchain-4: Applications and Services (II)	CSIG Everest Summit

Monday December 18, 2023 (Room12, China Standard Time CST, UTC+8)

08:50-9:50	Opening Ceremony and Group Photo
9:50-10:25	Keynote 1: Research Opportunities for Edge Intelligence in Distributed Computing Continuum Ecosystems Schahram Dustdar , TU Wien, Austria Chaired by: Julien Bourgeois, University of Bourgogne Franche-Comté, France
10:25-11:00	Keynote 2: Large Language Models: The New Engine of Industrial Intelligence Dou Shen , Baidu, China Chaired by: Mianxiong Dong, Muroran Institute of Technology, Japan
11:00-11:20	Coffee Break
11:20-11:55	Keynote 3: Smart Software-Enabled Sensing Systems for Ubiquitous-Healthcare M. Jamal Deen , McMaster University, Canada Chaired by: Jianhua Ma, Hosei University, Japan
11:55-12:30	Keynote 4: Blockchain-Empowered Semantic and Lifecycle Management for AIGC in Edge Networks Dusit Tao Niyato , Nanyang Technological University, Singapore Chaired by: Yang Xiang, Swinburne University of Technology, Australia
12:30-14:30	Lunch
14:30-15:05	Keynote 5: Digital Transformation for a Century Old Chemical Engineering Sai Gu , The University of Warwick, UK Chaired by: Xiaokang Zhou, Shiga University, Japan
15:05-15:40	Keynote 6: Deep Learning Based Video Coding and its Applications Sam Kwong , Lingnan University, Hong Kong Chaired by: Man Lin, St. Francis Xavier University, Canada
15:40-16:25	Coffee Break and Poster Session
16:25-17:00	Keynote 7: Native Intelligence of Future Mobile Communication Networks Kun Yang , University of Essex, UK Chaired by: Haixiang Lin, Delft University of Technology, the Netherlands
17:00-17:35	Keynote 8: The Dynamics of Cybersecurity Erol Gelenbe , Polish Academy of Sciences, Poland Chaired by: Zheng Yan, Xidian University, China
19:00-20:00	Reception and Poster Session (Room 12)

Tuesday December 19, 2023 (China Standard Time CST, UTC+8)

Room	Room 1 (9201)	Room 2 (9202)	Room 3 (9301)	Room 4 (9302)	Room 5 (9303)
8:00-10:00	ICPADS-29: Algorithms & Architecture (X)	SmartData-1: Applications	CBD-1: AI at Cloud and Edge Computing	GreenCom-1: Green Enabling Technologies	CBD-5: Data and Security (III)
10:00-10:20	Coffee Break				
10:20-12:20	ICPADS-30: Algorithms & Architecture (XI)	SmartData-2: Infrastructure and Systems	CBD-2: Cloud and Big Data Management	GreenCom-2: Smart Energy and Grid (I)	CBD-6: Data Analysis and Processing (I)
12:20-14:10	Lunch				
14:10-16:10	ICPADS-31: Algorithms & Architecture (XII)	SmartData-3: IoT Smart Data	CBD-3: Data and Security (I)	GreenCom-3: Smart Energy and Grid (II)	CBD-7: Data Analysis and Processing (II)
16:10-16:30	Coffee Break				
16:30-18:30	ICPADS-32: Algorithms & Architecture (XIII)	ICPADS-33: Algorithms & Architecture (XIV)	CBD-4: Data and Security (II)	GreenCom-4: Green Society Applications	CBD-8: Data Analysis and Processing (III)
19:00-21:00	Banquet (Room 13)				

Tuesday December 19, 2023 (China Standard Time CST, UTC+8)

Room	Room 6 (9304)	Room 7 (9305)	Room 8 (9306)	Room 9 (9307)	Room 10 (Hilton)	Room 11 (8104)
8:00-10:00	CPSCom-1: Data & Services	iThings-7: IoT Services and Intelligence (II)	Blockchain-5: Applications and Services (III)	CBD-9: Machine/Deep Learning (I)	NSFC Key Project Meeting	Blockchain-8: IBTA Workshop (I)
10:00-10:20	Coffee Break					
10:20-12:20	CPSCom-2: Networks & Communications	iThings-8: IoT Systems and Applications (I)	Blockchain-6: New Architectures	CBD-10: Machine/Deep Learning (II)	iThings-5: IoT Networks & Communications (III)	Blockchain-9: IBTA Workshop (II)
12:20-14:10	Lunch					
14:10-16:10	CPSCom-3: Technologies & Applications	iThings-9: IoT Systems and Applications (II)	Blockchain-7: Scalability and Optimization	CBD-11: Machine/Deep Learning (III)	iThings-6: IoT Services and Intelligence (I)	Blockchain Tutorial
16:10-16:30	Coffee Break					
16:30-18:30	ICPADS-34: Algorithms & Architecture (XV)	iThings-10: IoT Enabling Technologies (III)	ICPADS-35: Big Data & Machine Learning Systems (VII)	CBD-12: Machine/Deep Learning (IV)	IEEE DTSS Summit	Blockchain Tutorial
19:00-21:00	Banquet (Room13)					

Wednesday December 20, 2023 (China Standard Time CST, UTC+8)

Room	Room 1 (9201)	Room 2 (9202)	Room 3 (9301)	Room 4 (9302)	Room 5 (9303)
8:00-10:00	ICPADS-36: Big Data & Machine Learning Systems (VIII)	ICPADS-40: Big Data & Machine Learning Systems (XII)	ICPADS-44: Security & Blockchain (V)	ICPADS-48: HPCC (VII)	ICPADS-52: IoT & CPS (VII)
10:00-10:20	Coffee Break				
10:20-12:20	ICPADS-37: Big Data & Machine Learning Systems (IX)	ICPADS-41: Big Data & Machine Learning Systems (XIII)	ICPADS-45: HPCC (IV)	ICPADS-49: IoT & CPS (IV)	ICPADS-53: IoT & CPS (VIII)
12:20-14:10	Lunch				
14:10-16:10	ICPADS-38: Big Data & Machine Learning Systems (X)	ICPADS-42: Big Data & Machine Learning Systems (XIV)	ICPADS-46: HPCC (V)	ICPADS-50: IoT & CPS (V)	ICPADS-54: Cloud & Edge Computing (V)
16:10-16:30	Coffee Break				
16:30-18:30	ICPADS-39: Big Data & Machine Learning Systems (XI)	ICPADS-43: Security & Blockchain (IV)	ICPADS-47: HPCC (VI)	ICPADS-51: IoT & CPS (VI)	ICPADS-55: Cloud & Edge Computing (VI)

Wednesday December 20, 2023 (China Standard Time CST, UTC+8)

Room	Room 6 (9304)	Room 7 (9305)	Room 8 (9306)	Room 10 (Hilton)	Room 11 (8104)
8:00-10:00	iThings-11: IoT Enabling Technologies (IV)	ICPADS-56: Cloud & Edge Computing (VII)	ICPADS-60: Cloud & Edge Computing (XI)	Blockchain-10: BSS Workshop (I)	HiCFTP Summit
10:00-10:20	Coffee Break				
10:20-12:20	iThings-12: IoT Networks & Communications (IV)	ICPADS-57: Cloud & Edge Computing (VIII)	ICPADS-61: Cloud & Edge Computing (XII)	Blockchain-11: BSS Workshop (II)	HiCFTP Summit
12:20-14:10	Lunch				
14:10-16:10	iThings-13: IoT Services and Intelligence (III)	ICPADS-58: Cloud & Edge Computing (IX)	ICPADS-62: Cloud & Edge Computing (XIII)	MOST 2030 New Generation AI Project Meeting	HiCFTP Summit
16:10-16:30	Coffee Break				
16:30-18:30	iThings-14: IoT Systems and Applications (III)	ICPADS-59: Cloud & Edge Computing (X)	ICPADS-63: HPC for Underwater Applications	Blockchain-12: FBS + SPB Workshop	HiCFTP Summit

The ICPADS 2023 Presentation Program

ICPADS-1: Algorithms & Architecture (I)

Session Chair: Shuo Yu (yushuo@dlut.edu.cn), Dalian University of Technology

Improved Label Fusion Method Based on D-S Evidence Theory Using Subjective and Objective Weights
Yujie Shi; Yongli Wang

Near-Linear Scaling Data Parallel Training with Overlapping-Aware Gradient Compression
Lin Meng; Yuzhong Sun; Weimin Li

Performance Evaluation of Distributed k-WTA on Dynamic Undirected Connected Graphs and Its Application to Task Allocation
Kexin Liu; Yinyan Zhang

Accelerating Zk-SNARK with Group and Zone Optimization on GPU
Runnan Shen; Liang Wang; Haotian Luo; Rui Yang; Jinqian Yang; Jinquan Wang; Qiancheng Sun; Limin Xiao; Jin Dong

Realistic Sketch Face Generation via Sketch-Guided Incomplete Restoration
Zijie Liu; Chunhua Gu; Ying Xie; Huichen Zhang; Songwen Pei

Identifying Performance Bottleneck in Shared In-Network Aggregation During Distributed Training
Chang Liu; Jiaqi Zheng; Wenfei Wu; Bohan Zhao; Wei Nie; Xiaoyu Yi; Guihai Chen

ICPADS-2: Algorithms & Architecture (II)

Session Chair: Shuo Yu (yushuo@dlut.edu.cn), Dalian University of Technology

AFL-CS: Asynchronous Federated Learning with Cosine Similarity-based Penalty Term and Aggregation
Bingjie Yan; Xinlong Jiang; Yiqiang Chen; Chenlong Gao; Xuequn Liu

SR2C: A Structurally Redundant Short Reads Collapser for Optimizing DNA Data Compression
Hui Sun; Huidong Ma; Yingfeng Zheng; Haonan Xie; Xiaofei Wang; Xiaoguang Liu; Gang Wang

A Cooperative Co-Evolutionary Salp Swarm Feature Selection Algorithm with Reverse Escape Strategy for Classification
Zikang Yu; Hongbin Dong; Jing Sun; Bingxu Zhao

An Efficient Network Flow Rules Compression Method Based on In-Network Computation on Cloud Computing
Penghao Zhang; Xinyi Zhang

*ODRL: Reinforcement Learning in Priority Scheduling for Running Cost Optimization
Cheng Kuang; Meng Duan; Tao Lv; Yingjun Wu; Li Li; Luping Wang

ICPADS-3: Algorithms & Architecture (III)

Session Chair: Mingkai Chen (mkchen@njupt.edu.cn), Nanjing University of Posts and Telecommunications

Information Entropy Composition Algorithms for Multipath Trust Relationships in Trust Propagation
Xuefei Li; Lei Xu; Ru Li

ISADL: An Instruction Set Architecture Description Language for VLIW
Xin Xiao; Zhong Liu

FGCache: Accelerating Aggregation Queries for OLAP Applications via Caching
Can Wang; Peiquan Jin; Yongping Luo; Xiaoliang Wang; Shouhong Wan

Deep Learning-based Digital Twin for Human Activity Recognition
Jian Su; Zhenlong Liao; Qiankun Mao; Zhengguo Sheng; Alex Liu

Object-based Appearance-Motion Heterogeneous Network for Video Question Answering
Feifei Xu; Zheng Zhong; Yitao Zhu; Guangzhen Li; Yingchen Zhou; Wang Zhou

Delay and Battery Degradation Optimization Based on PPO for Task Offloading in RSU-Assisted IoV
Wei Zhao; Runhu Zhong; Cheng Wu; Xinwei Xu

ICPADS-4: Algorithms & Architecture (IV)

Session Chair: Mingkai Chen (mkchen@njupt.edu.cn), Nanjing University of Posts and Telecommunications

A Bit Level Acceleration of Mixed Precision Neural Network
Dehui Qiu; Jing Wang; Weigong Zhang; Yi Hou; Lan Gao

Forward Difference Properties of the (N, K)-Star Graph and Some Other Interconnection Networks
Eddie Cheng; Ethan Gibbons; Ke Qiu; Zhizhang Shen

ReQ-Tank: Fine-Grained Distributed Machine Learning Flow Scheduling Method
Chanying Huang; Quanyi Xu; Dan Yin; Kedong Yan; Shan Xiao; Yuxin Yang

CDCP: A Framework for Accelerating Dynamic Channel Pruning Methods
Zhaohong Xiang; Yigui Luo; Yin Xie; Haihong She; Weiming Liang; Laigang Zhao

PCU-Net: An Enhanced U-Net by Combining PPM and CBAM for Medical Image Segmentation
Hejian Chen; Zhongming Fu; Li Liu; Mengsi He; Jiayi Deng; Zhuo Tang

*A Novel Robust Reinforcement Learning-Based Dependent Task Offloading Algorithm for Mobile Edge Intelligence
Xu Deng; Peng Sun; Kun Yang; Gaoyun Fang; Azzedine Boukerche; Liang Song

ICPADS-5: Algorithms & Architecture (V)

Session Chair: Yuanjun Laili (lailiyuanjun@buaa.edu.cn), Beihang University

NREE: Nested Relation Extraction in the Economic Field
Yifang Zhang; Pengfei Duan; Aoni Wu; Wenyan Hu; Shengwu Xiong

A Caching Placement Strategy Based on Dynamic Router Hierarchy for Named Data Networking
HaoTian Wang; Mingzhu Zhao; Meiju Yu

PFN: A Target Item-Enhanced Click-Through Rate Prediction via Parallel Fusion Network
Lin Zhang; Fang'ai Liu; Yinghua Li; Xuqiang Zhuang; Xiaohui Zhao

Three Preemption Approaches Towards EDF Scheduling for Homogeneous Multiprocessors
Peng Wu; Zhi Li; Zhicai Zhang; Tao Yan; Lu Chen

ISAA: Boost Repair Process by Constructing the Degree Constrained Optimal Repair Tree for Erasure-Coded Systems
Xianzhi Du; Bing Zhu; Zhihang Deng; Kenneth W. Shum; Weiping Wang

Accelerating the LZ-Complexity Algorithm
Joel Ratsaby; Alexander Timashkov

ICPADS-6: Algorithms & Architecture (VI)

Session Chair: Yuanjun Laili (lailiyuanjun@buaa.edu.cn), Beihang University

Parallel Truss Maintenance of Dynamic Graphs
Longzhi Li; Yuncheng Jiang

A Bilateral Stable Matching Dispatching Method in Crowdsourcing Food Delivery Service
Feihong Huang; Wei Jiang

EagerReuse: An Efficient Memory Reuse Approach for Complex Computational Graph
Ruyi Qian; Bojun Cao; Mengjuan Gao; Qinwen Shi; Yida Wang; Yuanchao Xu; Qirun Huo; Keni Qiu

An Auto-Parallel Method for Deep Learning Models Based on Genetic Algorithm
Yan Zeng

META: Motion Excitation with Temporal Attention for Compressed Video Action Recognition
Shaojie Li; Jiaqi Li; Jinxin Guo; Ming Ma

Robust Optimization for Minimizing Total Tardiness on Unrelated Parallel Machine Scheduling
Yibo Han; Qi Qi; Ni Li; Jinqing Li

ICPADS-7: Algorithms & Architecture (VII)

Session Chair: [Siyang Lu \(sylu@bjtu.edu.cn\)](mailto:sylu@bjtu.edu.cn), Beijing Jiaotong University

Ensemble Distillation for Out-Of-Distribution Detection
Dongdong Wang; JingYao Xu; Siyang Lu; Xiang Wei; Liqiang Wang

Radio Environment Map Based Routing Protocol for UAV Networks
Siyue Zheng; Xiaojun Zhu; Zhengrui Qin; Chao Dong

Demystifying Decentralized Matrix Communication Network: Ecosystem and Security
Hao Li; Yanbo Wu; Ronghong Huang; Xianghang Mi; Chengyu Hu; Shanqing Guo

BEW-YOLO: An Improved Method for PCB Defect Detection Based on YOLOv7
Zhiyao Li; Aimin Li; Yuechen Zhang; XiaoTong Kong; Wenqiang Li

A Self-Iteration Code Generation Method Based on Large Language Models
Tianyou Chang; Shizhan Chen; Guodong Fan; Zhiyong Feng

ICPADS-8: Algorithms & Architecture (VIII)

Session Chair: [Siyang Lu \(sylu@bjtu.edu.cn\)](mailto:sylu@bjtu.edu.cn), Beijing Jiaotong University

LIFM: A Persistent Learned Index for Flash Memory
Shuhao Song; Peiquan Jin; Zhaole Chu; Yongping Luo; Shouhong Wan

Few-Shot Message-Enhanced Contrastive Learning for Graph Anomaly Detection
Fan Xu; Nan Wang; Xuezhi Wen; Meiqi Gao; Chaoqun Guo; Xibin Zhao

AH-TDMA: An Adaptive Heterogeneous Tridiagonal Matrix Algorithm on the New Sunway Supercomputer
Min Tian; Qi Liu; Yanlong Li; Wei Du; Zhenhui Ren; Yue Liu

Personalized Federated Learning with Local Optimization Models
Shenhai Zheng; Haihan Xu; Peng Han; Yuanyuan Li; Qing Chen

DTtree: A Novel Read/Write-Optimized Learned Index for Database Systems
Zhuohan Yu; Peiquan Jin; Zhaole Chu; Yongping Luo; Xiaoliang Wang; Shouhong Wan

ICPADS-9: Algorithms & Architecture (IX)

Session Chair: [Yaliang Zhao \(zylhenu@139.com\)](mailto:zylhenu@139.com), Henan University

Anomaly Detection with Graph Attention Network for Multimodal IoT Data Monitoring
Haoyu Li; Yi Gao; Wei Dong

Clustering Information-Guided Multi-View Contrastive Graph Clustering
Yaliang Zhao; Tianchi Zhang; Jinke Wang

D-CoA: Probability Density-based Confidence Assignment Semi-Supervised Clustering Ensemble
Yaqi Li; Lizhi Peng; Yihang Hao; Hui Li; Xiang Chen; Bo Yang

Accelerating Look-Up Table Based Matrix Multiplication on GPUs
Yuchen Zhao; Lan Gao; Weigong Zhang; Jing Wang; Dehui Qiu

PRODE: Interpretable APT Detection Method Based on Encoder-Decoder Architecture
Fengxi Zhou; Baoming Chang; Yu Wen; Dan Meng

ICPADS-10: Big Data & Machine Learning Systems (I)
Session Chair: Yaliang Zhao (zylhenu@139.com), Henan University

Recognizing Semantics-Consistent Subsequences for Sequential Recommendation
Wenhui Zhu; Yanmin Zhu; Zhaobo Wang; Mengyuan Jing; Qinghua Chen

An Optimized Lossless Graph Summarization for Large-Scale Graphs
Meiquan Lai; Yaqi Huang; Zhidan Liu; Kaishun Wu

Self-Supervised Multi-Task Distillation for Few-Shot Classification
Enze Ji; Shi Chen; Tiandong Ji; Xiaokang Wang; Zhikui Chen

Secure CNN Training and Inference Based on Multi-Key Fully Homomorphic Encryption
Hong Qin; He Debiao; Qi Feng; Min Luo

ISUAM: Intelligent and Safe UAM with Deep Reinforcement Learning
Cristiano Perez Garcia; Li Weigang; Nina S. T. Hirata; Clovis Neumann

An Effective Index for Truss-Based Community Search on Large Directed Graphs
Ai Wei; Canhao Xie; Tao Meng; Yinghao Wu; Keqin Li

ICPADS-11: Big Data & Machine Learning Systems (II)
Session Chair: Pengfei Wang (wangpf@dlut.edu.cn), Dalian University of Technology

Fast Butterfly-Core Community Search for Large Labeled Graphs
Jiayi Du; Yinghao Wu; Ai Wei; Tao Meng; Canhao Xie; Keqin Li

A Two-Stage Multimodal Emotion Recognition Model Based on Graph Contrastive Learning
Ai Wei; FuChen Zhang; Tao Meng; Yuntao Shou; Hongen Shao; Keqin Li

OL-CBBA: An Online Task Allocation Algorithm Under Weak Communication Conditions
Jun Li; Wanrong Huang; Honglin Wu; Zhongxuan Cai; Yongjun Zhang

Dynamic Priority Job Scheduling on a Hadoop YARN Platform
Nana Du; Yudong Ji; Aiqin Hou; Chase Q. Wu; Weike Nie

SDAN-YOLO: Self-Attention Domain Adaptive Network for YOLOv7
Jianbiao He; Jian Zhang; Youcao Xiong; Haowei Li

RTCoder: An Approach Based on Retrieve-Template for Automatic Code Generation
Tianyou Chang; Shizhan Chen; Guodong Fan; Zhiyong Feng

ICPADS-12: Big Data & Machine Learning Systems (III)
Session Chair: Pengfei Wang (wangpf@dlut.edu.cn), Dalian University of Technology

Pipelined Training and Transmission for Federated Learning
Yihui Shen; Hong Zhang; Juncheng Jia; Tao Deng; Zhenhua Wang; Zhiwei Teng; Mianxiong Dong

Weighted Sampled Split Learning (WSSL): Balancing Privacy, Robustness, and Fairness in Distributed Learning Environments

Manish Osti; Aashray Thakuri; Basheer Qolomany; Aos Mulahuwaish

An Incentive Mechanism for Consortium Blockchain-based Cross-Silo Federated Learning

Kai Li; Zhicai Zhang; Fang Fu

Research on Long and Short-Term Social Recommendation Based on Convolutional and Gated Recurrent Units

Zhihe Jia; Peng Xue; Zhiqiang Dai; Qian Gao; Xiaomeng Zhang

SGRU: A High-Performance Structured Gated Recurrent Unit for Traffic Flow Prediction

Wenfeng Zhang; Xin Li; Anqi Li; Xiaoting Huang

PPCE: Privacy-Preserving Contribution Evaluation for Fairness-Aware Federated Learning

Ke Geng; Lingling Wang; Zhengyin Zhang; Zhongkai Lu; Mei Huang

ICPADS-13: Big Data & Machine Learning Systems (IV)

Session Chair: [Jinhua Cui \(jhcui@hust.edu.cn\)](mailto:jhcui@hust.edu.cn), Huazhong University of Science and Technology

3D Single Target Tracking Algorithm Based on Dynamic Search Center

Yanping Zhu; Qi Chen; Aimin Jiang; Chenyang Zhu; Chang Liu; Wenlong Chen

AL-Annotator: An Active Learning-based Cervical Cell Annotation System

Yangbo Jiang; Jinggen Wu; Shuting Zhang; Xumei Zhu; Nenggan Zheng

Variational Graph Autoencoder Based on High-Order Attention Mechanism

Liang Ge; Yiping Lin; Haifeng Li; Junwei Xie

Fast RFM Analysis in Sequence Data

Yanxin Zheng; Wensheng Gan; Zefeng Chen; Pinlyu Zhou; Xiangxiao Diao; Philippe Fournier-Viger

PM2.5 Pollution Prediction Service Based on Mogrifier LSTM Model

Jing Liu; Ming Lian

A PPO-based Dynamic Asynchronous Semi-Decentralized Federated Edge Learning

Yaqin Li; Zhicai Zhang; Fang Fu; Yan Wang

ICPADS-14: Big Data & Machine Learning Systems (V)

Session Chair: [Jinhua Cui \(jhcui@hust.edu.cn\)](mailto:jhcui@hust.edu.cn), Huazhong University of Science and Technology

Mitigating Distribution Shifts in Pollen Classification from Microscopic Images Using Geometric Data Augmentations

Nam Cao; Olga Saukh

STDA-Meta: A Meta-Learning Framework for Few-Shot Traffic Prediction

Maoxiang Sun; Weilong Ding; Tianpu Zhang; Zijian Liu; Mengda Xing; Jihai Huang

Differentially Private Federated Learning via Alternating Direction Method of Multipliers

Yang Luyan

Hybrid Parallel Inference for Large Model on Heterogeneous Clusters for High Throughput

Chaonong Xu; Weiming Kong; Min Liu; Mingming Zhang; Chao Li; Luqi Gong

ESIREOS: Efficient, Scalable, Internal, Relative Evaluation of Outliers Solutions

William A Alves; Henrique O Marques; Murilo C Naldi; Jörg Sander

Automatic Program Repair via Learning Edits on Sequence Code Property Graph

Xiaoyu Li; Jingzheng Wu; Xiang Ling; Tianyue Luo; Yanjun Wu

ICPADS-15: Big Data & Machine Learning Systems (VI)

Session Chair: Jianwen Xu (jwxu@muroran-it.ac.jp), Muroran Institute of Technology

CP-Decomposition Based Federated Learning with Shapley Value Aggregation

Chengqian Wu; Xuemei Fu; Xiangli Yang; Ruonan Zhao; Qidong Wu; Tinghua Zhang

Prospect Theory-Based Federated Learning Incentive Mechanism for Industrial IoT

Fang Fu; Yan Wang; Zhicai Zhang; Yaqin Li

Tensor-Train-Based Lightweight Encryption in Federated Cloud Environments

Jiangtao Ma; Yunfan Zhang; Huazhong Liu; Peng Tan; Jihong Ding

Low-Dose CT Image Denoising Method Based on Prior Drive and Convolution Neural Network

Zifan Huang; Chaomin Wu; Yongqi Lu; Cong Lin; Haoyu Jiang

Range-Aware Hand Gesture Recognition Using FMCW Radar and Deep Learning

Yosuke Iida; Mingyang Fan; Walid Brahim; Jianhua Ma; Muxin Ma; Alex Qi

ICPADS-16: Security & Blockchain (I)

Session Chair: Jianwen Xu (jwxu@muroran-it.ac.jp), Muroran Institute of Technology

Performance Modeling of Blockchains of BFT-Type Consensus

Bo Li; Chenhao Jiang; Hanwen Zhang; Zhongcheng Li; Yi Sun

Secure and Trusted Copyright Protection for Educational Data on Redactable Blockchains

Li-e Wang; Yi Wei; Peng Liu; Xianxian Li

SecDFS: A Secure and Decentralized File System

Shenglong Zhao; Zhichao Hua; Yubin Xia

Blockchain-Based Pricing Mechanism Research on IoT Data Transactions

Shiqi Ding; ShaoYong Guo; Chang Liu; Wang Zhili

DTSAC: Smart Contract-Based Access Control with Delegation and Trust Management

Junguo Liao; Qiong Wu

ICPADS-17: Security & Blockchain (II)

Session Chair: Jun Feng (junfeng@hust.edu.cn), Huazhong University of Science and Technology

Game-Theoretic Analysis of (Non-)Refundable Fees in the Lightning Network

Satwik Prabhu Kumble; Dick Epema; Stefanie Roos

A High-Performance Smart Contract Vulnerability Detection Scheme Based on BERT

Shengqiang Zeng; Ruhuang Chen; Hongwei Zhang; Jinsong Wang

A Comprehensive Robustness Analysis of Storj DCS Under Coordinated DDoS Attack

Rohon Kundu; Christian Gehrman; Maria Kihl

S-Chain: A Shard-Based Blockchain Scheme for Cross-Chain Supervision

Yuwei Xu; Yuxing Song; Junyu Zeng; Ran He; Jingdong Xu

DarkTrans: A Blockchain-Based Covert Communication Scheme with High Channel Capacity and Strong Concealment

Yuwei Xu; Zehui Wu; Jie Cao; Jingdong Xu; Guang Cheng

ICPADS-18: Security & Blockchain (III)

Session Chair: Jun Feng (junfeng@hust.edu.cn), Huazhong University of Science and Technology

SvaVoting: A Novel Secret Sharing-Based Verifiable and Anonymous E-Voting Scheme in Blockchain Systems
Jingyu Zhang; Chenghao Wu; Jin Yang; Lailong Luo

MoryFabric: Reducing Transaction Abort by Actual Validity Verification and Reordering
Jinlong He; Yang Liu; Jingwen Chen; Song Peng; Yaoqi Wang; Miaomiao Zhang

Reputation-Based Streamlet: An Enhanced BFT Consensus Algorithm for Improved Performance and Scalability
Bo Fang; Dancheng Zhao; Taotao Wang; Hao Wang; Shengli Zhang; Qing Yang

SOID: Towards an Efficient Incremental Deployment Scheme for Source Address Validation
Shu Yang; Bingqian Song; Laizhong Cui

Distributed Key Derivation for Multi-Party Management of Blockchain Digital Assets
Lin Zhong; Yujue Wang; Yong Ding; Kevin He; Andrew Zhang; Jun Du

ICPADS-19: HPCC (I)

Session Chair: Di Zhang (dizhang@bjtu.edu.cn), Beijing Jiaotong University

DFAR: Dynamic-Threshold Fault-Tolerant Adaptive Routing for Fat Tree Networks
Binyan Lan; Fei Lei; Dezun Dong

A Reverse Auction-Based Incentive Mechanism for Cost-Effective Data Collection in Mobile Crowdsensing
MingHe Zhang; Botao Wang; Gang Liu; Jing Huang

Characterization of Large-Scale HPC Workloads with Non-Naïve I/O Roofline Modeling and Scoring
Zhaobin Zhu; Sarah M. Neuwirth

Job2Vec: A Self-Supervised Contrastive Learning Based HPC Job Power Consumption Prediction Framework
Jie Zhang; Jian Song; Xiang Li; Xuesen Tian; Zhigang Zhao; Lu Wu; Chunxiao Wang

Accelerating Big Data Application by Eliminating Redundancy on Hadoop Cluster
Kelun Lei; Shaokang Du; Xin You; Zhibo Xuan; Haoran Kong; Hailong Yang; Jing Shang; Zhiwen Xiao; Zhihui Wu; Zhongzhi Luan; Depei Qian

Intermittent Fault Diagnosability of a Class of Hypercube-Family Networks Under the PMC Model
Hao Feng; Jiong Wu; Lin Chen

ICPADS-20: HPCC (II)

Session Chair: Di Zhang (dizhang@bjtu.edu.cn), Beijing Jiaotong University

SA_TRSM: A Shape-Aware Auto-Tuning Framework for Small-Scale Irregular-Shaped TRSM
Rongyuan Guo; Haipeng Jia; Yunquan Zhang; Mingsen Deng; Cunyang Wei; Wenbin Chang

GraphPar: Efficient Workload-Aware Subgraph Matching System on Multiple GPUs
Kewei Zhang; Junmin Xiao; Zhiheng Lin; Ke Meng; Chaoyang Shui; Mingyi Li; Guangming Tan

CustTest: An Effective Testbed for Testing Customized Routing in Integrated Heterogeneous Networks
Jialei Zhang; Xiaoxuan Xie; Zheng Yan; Haiguang Wang; Tieyan Li

A Fine-Grained Packet Loss Management System Based on Programmable Network
Yaru Shen; Anbang Wan; Yuhui Chen

Characterizing Performance Impacts of Subnormal Numbers on Vector Instructions and Transcendental Functions
Xudong Wang; James Lin; Qiucheng Liao

Formation Control Optimization via Virtual Leader Exploration with Deep Reinforcement Learning for Unmanned Aerial Vehicles

Kangwei Zhao; Xiangping Bryce Zhai; Jing Zhu; Chee Wei Tan

ICPADS-21: HPC (III)

Session Chair: Xiaolong Xu (xlxu@nuist.edu.cn), Nanjing University of Information Science and Technology

Formalization and Verification of RocketMQ Using CSP

Yiwen Liu; Hongyan Mao; Ning Qin

DEDF: An Enhanced Differential Evolution Algorithm with Dynamic-Selection Framework in IIOT

Zhou Zhou; Fangmin Li

Spatial and Temporal Dual-Scale Adaptive Pruning for Point Cloud Videos

Songyu Xie; Jing Liu; Cen Chen; Zhongyao Cheng

Fast Approximate LUT-Based Vector Multiplication in DRAM

Ziming Chen; Quan Deng; Yongwen Wang

Distributed Training of Large Language Models

Wensheng Gan; Fanlong Zeng; Yongheng Wang; Philip Yu

Dynamic Management of Processes and Communicators in Malleable MPI Applications

Javier Fernandez Muñoz; Alberto Cascajo García; Jesus Carretero

ICPADS-22: IoT & CPS (I)

Session Chair: Xiaolong Xu (xlxu@nuist.edu.cn), Nanjing University of Information Science and Technology

UAV-Based Reliable Optical Wireless Communication via Cooperative Multi-Agent Reinforcement Learning Approach

Jiangang Liu; Hanjiang Luo; Rukhsana Ruby; Haoran Wang; Hang Tao; Kaishun Wu

Full-Coverage Invisible Camouflage for Adversarial Targeted Attack

Hongtuo Zhou; Zhichao Lian

Interpretable Attribution Based on Concept Vectors

Lu Liu; Zhichao Lian

FedFC: An Efficient Personalized Federated Learning Method on Non-IID Data

Yuxin Yang; Yifei Wang; Chanying Huang; Qianmu Li; Shan Xiao

FedMP: Robust and Communication-Efficient Federated Multi-Prototype Intrusion Detection Framework in IoT

Minsheng Le; Zhen Li; Chang Liu; Gaopeng Gou; Gang Xiong; Wei Xia

ICPADS-23: IoT & CPS (II)

Session Chair: Jun Qi (jun.qi@xjtlu.edu.cn), Xi'an JiaoTong-Liverpool University

Generating Routes Less Fragile to Improve Disruption-Resilient Transport Protocol for Phasor Data in Optical IoT Networks of Power Transmission Grids

Boyang Zhou; Tong Ye; Yinghui Nie; Wenjie Yu; Chunming Wu

Effective Severity Assessment of Parkinson's Disease Using Wearable Sensors in Free-Living IoT Environment

Ziheng Li; Yuting Zhao; Jun Qi; Xulong Wang; Yun Yang; Po Yang

FingerBLE: A Device Fingerprint Identification Scheme for BLE Devices

Xikai Sun; Fan Dang

STGAT: Spatial-Temporal Graph Attention Networks for Traffic Flow Prediction
Chang Ruan; Xianchao Tan; Zhuofan Liao; Lidan Kuang; Ping Li

FirmCVI: Taint Analysis-Based Component Version Identification Method for Large-Scale IoT Firmware
Ying Zhang; Bo Yu

ICPADS-24: IoT & CPS (III)

Session Chair: Jun Qi (jun.qi@xjtlu.edu.cn), Xi'an JiaoTong-Liverpool University

Enhancing Cybersecurity in Industrial Control System with Autonomous Defense Using Normalized Proximal Policy Optimization Model
Shoukun Xu; Zihao Xie; Chenyang Zhu; Xueyuan Wang; Lin Shi

Modeling Parkinson's Disease Aided Diagnosis with Multi-Instance Learning: An Effective Approach to Mitigate Label Noise
Zheyuan Xu; Fengtao Nan; Jun Qi; Yun Yang; Xulong Wang; Po Yang

Batch Verification-Based Anonymous and Traceable Data Sharing Scheme in Industrial Internet of Things
Xiyang Liu; Xiong Li; Baojin Wang; Xiaosong Zhang

FlowEmbed: Binary Function Embedding Model Based on Relational Control Flow Graph and Byte Sequence
Yongpan Wang; Chaopeng Dong; Siyuan Li; Fucai Luo; Renjie Su; Zhanwei Song; Hong Li

A Lightweight CNN-Based Mechanism to Efficiently Identify Electric Meters Under Stealthy False Data Injection Attacks in Smart Power Grid
Tong Ye; Boyang Zhou; Yinghui Nie; Zhen Zhu

ICPADS-25: Cloud & Edge Computing (I)

Session Chair: Xiaokang Zhou (zhou@biwako.shiga-u.ac.jp), Shiga University

FedCD: A Hybrid Centralized-Decentralized Architecture for Efficient Federated Learning
Pengcheng Qu; Jianchun Liu; Zhiyuan Wang; Qianpiao Ma; Jinyang Huang

Multivariate Workload Aware Correlation Model for Container Workload Prediction
Man Zhang; Chunyan An; Conghao Yang

Throughput Optimization VNF Placement in Cloud Datacenter Considering Time-Varying Workload and Multi-Tenancy
Yi Yue; Shiding Sun; Zhiyan Zhang; Xiongyan Tang; Wencong Yang; Xuebei Zhang

Prefetching-Based Adaptive Video Streaming Strategy on Edge Computing
Xuanyu Yi; Jipeng Zhou

Parallel-Driven Edge Computing Task Offloading for Profit Maximization Based on DDPG
Lequn Fu; Houming Qiu; Kun Zhu

OSMO: Enhanced Offloading for Data Stream Perception with Smoothness and Orderliness
Chaokun Zhang; Quan Fan; Jinlong E; Shen He

ICPADS-26: Cloud & Edge Computing (II)

Session Chair: Xiaokang Zhou (zhou@biwako.shiga-u.ac.jp), Shiga University

ExpoNAS: Using Exposure-Based Candidate Exclusion to Reduce NAS Space for Heterogeneous Pipeline of CNNs
Huijuan Duan; Danghui Wang; Xingting Zhao; Kuizhi Mei; Jihe Wang

HSMS-ADP: Adaptive DNNs Partitioning for End-Edge Collaborative Inference in High-Speed Mobile Scenarios
Xiang He; Zhen Liu; Ze Kou; Ninghua Dong; Yiran Li; Zeshuai Liu

FaaSCom: Mitigate Cold Start Problem in FaaS via Function Community
Hairui Guo; Yujie Long; Yang Xu; Jialun Li; Weigang Wu

Joint Optimization of CPU Scaling and Core Sharing in Container Clouds
Yepeng Zhang; Haitao Zhang; Yue Wu; Huadong Ma

Efficient Dynamic Multi-key FHE Scheme from LWE for Untrusted Cloud Environments
Shuchang Zeng; Chingfang Hsu; Man Ho Au; Yining Liu

On-Board Federated Learning in Orbital Edge Computing
Mohammad Reza Jabbarpour; Bahman Javadi; Philip Leong; Rodrigo N. Calheiros; David Boland; Chris Butler

ICPADS-27: Cloud & Edge Computing (III)
Session Chair: Yin Zhang (zhangyin123@uestc.edu.cn), UESTC

MACC: A Heterogeneous Multi-Agent Mobile Edge Coding Caching Strategy for Reducing Traffic Load
Xuemei Yuan; Ningjiang Chen

Multi-Step Edge Cloud Load Prediction by Analyzing Behavior of Workload Groups
Xiaojun Wu; Wenxing Huang; Sheng Yuan; Jiahao Mi

Leveraging Edge Computing and Privacy-Enhanced Prediction Sharing for Urban Traffic Forecasting
Yiping Wang; Chunyang Ye; Hui Zhou

Research on Edge-Cloud Collaborative Data Sharing Method Based on Federated Learning in Internet of Vehicles
Xiaohui Ren; Yan Wang; Jun Zhang; Zhiheng Han

An Edge Resource Allocation Method Based on Bundled Two-Way Auction
Yan Wang; Hongze Yao; Jianwei Gao; Minghui Liu

*EAVA: Adaptive and Fast Edge-Assisted Video Analytics on Mobile Device
Yingying Su; Chenhong Cao; Jiangtao Li; Yufeng Li

ICPADS-28: Cloud & Edge Computing (IV)
Session Chair: Yin Zhang (zhangyin123@uestc.edu.cn), UESTC

Research on the Deployment Scheme of Edge Servers for Vehicle Task Offloading
Lu Yao; Liguang Ren; Yan Wang

Latency-Optimized Multi-User Task Offloading Scheme Using Dynamic Priority and Duplication in Edge Computing
Bo Peng; Cheng Chen; Qiang Li; Shilin Peng; Xiang Lei

Industry-Oriented Lightweight Simulation System
Changwei Liu; Hao Ren; Nan Zhou; Guoqiang Li; Xiaojun Liang; Weihua Gui; Chunhua Yang

Privacy-Preserving Direction-Aware Why-Not Spatial Keyword Top-k Queries on Cloud Platform
Yiping Teng; Huan Wang; Jiawei Qi; Miao Li; Chunlong Fan; Li Xu

TPTO: A Transformer-PPO Based Task Offloading Solution for Edge Computing Environments
Niloofer Gholipour; Marcos Dias de Assuncao; Pranav Agarwal; Julien Gascon-samson; Rajkumar Buyya

*CARE: A Cost-AwaRe Eviction Strategy for Improving Throughput in Cloud Environments
Xiyuan Liang; Lulu Yao; Si Wu; Yongkun Li; Yinlong Xu

ICPADS-29: Algorithms & Architecture (X)

Session Chair: Wenhui Wu (wuwenhui@szu.edu.cn), Shenzhen University

Communication-Aware Quantization for Deep Learning Inference Parallelization on Chiplet-Based Accelerators
Kaiwei Zou; Songyun Qu; Wen Li; Ying Wang; Huawei Li; Yongpan Liu

GenBoost: Generative Modeling and Boosted Learning for Multi-Hop Question Answering Over Incomplete Knowledge Graphs

Zhen Cheng; Jianwei Niu; Shasha Mo; Jia Chen

Slim-MY: A Lightweight Network for Power Line Defect Detection with FPGA Acceleration

Xiaoyang Zhang; Wenjie Chen; Zihao Zhou; Zhuowen Duan

Binary Malware Detection via Heterogeneous Information Deep Ensemble Learning

Runhan Song; Lun Li; Lei Cui; Qiqi Liu; Jin Gao

ER3D: An Efficient Real-Time 3D Object Detection Framework for Autonomous Driving

Haitao Meng; Changcai Li; Gang Chen; Zonghua Gu; Alois Knoll

Robust Listwise Learning-To-Rank Approach for Database Query Optimizer

Xue Chen; Rui Xi; Yiheng Tang; Mengshu Hou

ICPADS-30: Algorithms & Architecture (XI)

Session Chair: Wenhui Wu (wuwenhui@szu.edu.cn), Shenzhen University

Distributed Smart Multihome Energy Management Based on Federated Deep Reinforcement Learning

Liwei Peng; Fan He; Hasegawa Go; Yanfen Cheng; Xun Shao

TOSA: Tolerating Stuck-At-Faults in Edge-Based RRAM Inference Accelerators

Shaofeng Zhao; Bo Liu; Fang Wang; Dan Feng; Xiang Chen

A Parallelizable Counterfactual Generation Method Based on Gradient Optimization

Haorun Ding; Quan Cheng; Xuesong Jiang

SemLog: A Semantics-Based Approach for Anomaly Detection in Big Data System Logs

Xiaoman Tan; Ningning Han; Siyang Lu; Wu Chen; Dongdong Wang

Multilingual Knowledge Graph Completion via Multimodal Decouple and Relation-Based Ensemble Inference

Xiaojing Liu; Xuesong Jiang; Fengge Yi

MM-ABR: An Enhanced ABR Algorithm with Multi-Metric Information for QUIC-Based Video Streaming

Changjiang Cui; Yifei Lu; Zhen Wang; Zeqi Ruan; Hongxiang Wang

ICPADS-31: Algorithms & Architecture (XII)

Session Chair: Xuyang Jing (jingxuyang@xidian.edu.cn), Xidian University

A Study on Semi-Supervised Semantic Segmentation of Ship Flame Images

Junwei Wan; Yaojie Chen; Xuecong Zheng

LWSDP: Locality-Aware Warp Scheduling and Dynamic Data Prefetching Co-Design in the Per-SM Private Cache of GPGPUs

Wanguang Wang; Mingyu Wang; Yicong Zhang; Yukun Wei; Zhiyi Yu

Asynchronous and Adaptive Checkpoint for WAL-Based Data Storage Systems

Li Zhu; Yanpeng Hu; Chundong Wang

FedTAM: Decentralized Federated Learning with a Feature Attention Based Multi-Teacher Knowledge Distillation for Healthcare

Tingtong Mou; Xinlong Jiang; Jie Li; Qian Chen; Teng Zhang; Wuliang Huang; Chenlong Gao; Yiqiang Chen

Class-Adaptive Threshold for Class Imbalanced Semi-Supervised Learning
Xiang Wei; Jingjie Wang; Siyang Lu; Xiaoyu Liu; Weiwei Xing

ICPADS-32: Algorithms & Architecture (XIII)

Session Chair: Xuyang Jing (jingxuyang@xidian.edu.cn), Xidian University

Probing Handwritten Manchu Word Recognition Foundation Model
Haoran Li; Siyang Lu; Xiang Wei; Yingjun Qi

The Art of Deception: Black-Box Attack Against Text-To-Image Diffusion Model
Yuetong Lu; Jingyao Xu; Yandong Li; Siyang Lu; Xiang Wei; Wei Lu

Robust Traffic Light Recognition Pipeline Based on YOLOv8 for Autonomous Driving Systems
Yuwei Zhang; Yan Wu; Yinghao Hu; Yufei He; Jijun Wang; Junqiao Zhao

A Decision-Making Subgraph Mining Algorithm for Structural Equation Modeling
Shuling Yang; Ming Tao; Xueqiang Li

TSFCloNet: Clothing Classification Algorithm Based on Two-Stream Network Structure
Minghua Jiang; Xiaoxiao Liu; Yaxin Zhao; Li Liu; Feng Yu

ICPADS-33: Algorithms & Architecture (XIV)

Session Chair: Nan Wang (wangnanbjtu@bjtu.edu.cn), Beijing Jiaotong University

A Coarse-To-Fine Surface Defect Detection Approach for Railway Trackside Equipment
Guanjia Zhang; Weiwei Xing; Shuzhong Yang; Xiang Wei; Jian Zhang; Shunli Zhang

FastOmniMVS: Real-Time Omnidirectional Depth Estimation from Multiview Fisheye Images
Yushen Wang; Yang Yang; Jiayi Deng; Haitao Meng; Gang Chen

DTC: Addressing the Long-Tailed Problem in Intrusion Detection Through the Divide-Then-Conquer Paradigm
Chaoqun Guo; Nan Wang; Yuanlin Sun; Dalin Zhang

Fairness with Adaptive Weight in Network Attack Detection
Xuezhi Wen; Nan Wang; Yuanlin Sun; Fan Xu; Dalin Zhang; Xibin Zhao

Low-Dimensional Feature Representation with Hybrid Attention for Few-Shot Image Classification
Xin-Wei Yao; Zhi-Heng Yuan; Yu-Li Fang; Chuan He; Yu-Chen Zhang; Qiang Li

ICPADS-34: Algorithms & Architecture (XV)

Session Chair: Zhaoquan Gu (zqgu@gzhu.edu.cn), Guangzhou University

What Appears Suboptimal May Surprise You: A Fixed-Rate Scheduling Policy for Geo-Distributed CoFlows
Haoyu Liu; Feiyan Ding; Yao Wang; Qiao Xiang; Jiwu Shu; Haizhou Du; Linghe Kong; Xue Liu

A Scalable Deadlock-Free Static Routing Algorithm for Chiplet-Based Systems
Xiaoran Zhang; Mingyu Wang; Yicong Zhang; Lu Tao; Zhiyi Yu

Lightweight Multi-Semantic Hierarchy-Aware Poincaré Knowledge Graph Embeddings
Dong Zhu; Yao Lin; Haonan Tan; Le Wang; Zhaoquan Gu

Sequence-To-Sequence Knowledge Graph Completion Based on Gated Attention Unit
Fengge Yi; Xiumei Wei; Xiaojing Liu; Xuesong Jiang

TransFlowLog: Log Anomaly Detection Based on Transformer Encoder and Interflow Decoder
Lin Zaichao; Siyang Lu; Ningning Han; Dongdong Wang; Xiang Wei; Mingquan Wang

ICPADS-35: Big Data & Machine Learning Systems (VII)

Session Chair: Cen Chen (chencen@scut.edu.cn), South China University of Technology

Vehicle Motion Prediction Based on Selective Perception and Weak Lane Guidance
Xiaoliang Wang; Shiqi Zheng; JunKang Zou; Yuzhen Liu

Graph-Attention-Network-Based Cost Estimation Model in Materialized View Environment
Daobing Zhu; Shuhuan Fan; Xiaoyang Zeng; Rui Xi; Mengshu Hou

Injecting Revenue-Awareness into Cold-Start Recommendation: The Case of Online Insurance
Yu Li; Zhang Yi; He Chang; Qiang Li

Learning Dynamic Spatial Graphs and Spatial Patterns for Accurate Traffic Prediction
Wenyong Duan; Chen Lin; Jiayi Zhu; Xiaoxi He; Wei Huang; Hong Rao

APRG: A Fair Information Granule Model Based on Adaptive Probability Replacement Resampling
Jianghe Cai; Yuhui Deng; Jiande Huang; Ke Wang

Multi-Scale Sampling Based MLP Networks for Anomaly Detection in Multivariate Time Series
Haojie Li; Hongzuo Xu; Wei Peng; Chiran Shen; Xianwen Qiu

ICPADS-36: Big Data & Machine Learning Systems (VIII)

Session Chair: Lianyong Qi (lianyongqi@gmail.com), China University of Petroleum (East China)

Multimodal Rumor Detection with Causal Graph Attention Network
Jiawen Huang; Donglin Cao; Dazhen Lin

Generative Enhancement-Based Similarity Prediction Hashing for Image Retrieval
Xiangyu Wu; Fanlei Meng; Yuan Cao; Zijie Wang

An Improvement Paillier Algorithm Applied to Federated Learning
Chao Xu; Yun Wang

A Correlation and Order-Aware Rule Learning Method for Knowledge Graph Reasoning
Yuefeng He; Yang He; Xu Zheng; Bei Hui; Bin Tian

A Federated Learning Scheme Based on Reputation Evaluation and Blockchain
Siyu Tang; Xiangyan Sun; Xiancheng Hu; Feifei Wang; Jian An

PsyLink: User Identity Linkage via Psychological Characteristic Modeling
Xingkong Ma; Houjie Qiu; Shaoyong Li; Shujia Yao; Bo Liu; Wangqun Lin

ICPADS-37: Big Data & Machine Learning Systems (IX)

Session Chair: Lianyong Qi (lianyongqi@gmail.com), China University of Petroleum (East China)

A Cooperative Multi-AUV Mobile Scheme with Optical Communication via DDPG Approach
Mengzhen Li; Hanjiang Luo; Xiang Li; Rukhsana Ruby; Hang Tao; Kaishun Wu

Data-Quality-Driven Federated Learning for Optimizing Communication Costs
Xuehong Fan; Nanzhong Wu; Shukan Liu; Xianzhang Chen; Ao Ren; Duo Liu; Yujuan Tan

Multi-Scale Spin Convolutional Neural Network for Typhoon Intensity Prediction
Longjie Li; Yanmin Zhu; Zhang Han; Mengyuan Jing; Haoyu Zhang; Zhaobo Wang; Tianzi Zang

A Novel Gold Futures Price Prediction Model Based on PCA-AGRU
Jingyang Wang; Tong Lu; Jindian Liu; Qihong Sun; Lianyong Qi; Xiaokang Zhou

RPFL: Robust and Privacy Federated Learning Against Backdoor and Sample Inference Attacks
Di Xiao; Zhuyang Yu; Lvjun Chen

A Time Series Clustering Method for Network Big Data
Yujia Zhu

ICPADS-38: Big Data & Machine Learning Systems (X)

Session Chair: Gaolei Li (gaolei_li@sjtu.edu.cn), Shanghai Jiao Tong University

Rating-Review Graph Contrastive Learning for Review-Based Recommendation

Jiacheng Shi; Yanmin Zhu; Ke Wang; Mengyuan Jing; Tianzi Zang; Jiadi Yu; Feilong Tang

Cross-view Self-Supervised Learning with Graph Convolutional Networks for Group Recommendation

Dan Liu; Nan Wang; Jinbao Li

Dual Contrastive Learning for Multi-Behavior Recommendation

Jiahui Wang; Yanmin Zhu; Mengyuan Jing; Tianzi Zang; Qinghua Chen

Cost Guarantee for Individual Fairness on Spectral Clustering

Zhijing Yang; Hui Zhang; Chunming Yang; Yi Yang; Bo Li

Decentralized Subgraph Learning for Spatial-Temporal Data Modeling

Haiquan Wang; Wei Yan; Jiejie Zhao; Bowen Du; Chenzhi He; Yanbo Ma; Runhe Huang

What Determines the Price of NFTs?

Vivian Ziemke; Benjamin Estermann; Roger Wattenhofer; Ye Wang

ICPADS-39: Big Data & Machine Learning Systems (XI)

Session Chair: Gaolei Li (gaolei_li@sjtu.edu.cn), Shanghai Jiao Tong University

SemSBA: Semantic-Perturbed Stealthy Backdoor Attack on Federated Semi-Supervised Learning

Yingrui Tong; Jun Feng; Gaolei Li; Xi Lin; Chengcheng Zhao; XiaoYu Yi; Jianhua Li

RCSR: Robust Client Selection and Replacement in Federated Learning

Xuerui Li; Yangming Zhao; Chunming Qiao

Knowledge Graph Recommendation Based on Structural Semantics and Collaborative Semantics

Bingnan Liu; Baoliang Wang; Mankun Zhao; Jian Yu; Mei Yu; Xuewei Li

IMA: Implicit Matching and Alignment for Multimodal Named Entity Recognition

Tianyu An; Fei Peng; Duoqin Wang; Qingdong Meng; Shi Chen; Shan Jin

Enhancing Path Information with Reinforcement Learning for Few-Shot Knowledge Graph Completion

Ruixin Ma; Mengfei Yu; Buyun Gao; Jiaqi Guo; Zhikui Chen; Liang Zhao

MCoT: Multi-Modal Vehicle-To-Vehicle Cooperative Perception with Transformers

Shanwei Shi; Chaokun Zhang; Aoja Lv; Shen He

ICPADS-40: Big Data & Machine Learning Systems (XII)

Session Chair: Dakai Zhu (dakai.zhu@utsa.edu), The University of Texas at San Antonio

Fusion of Dynamic Hypergraph and Clinical Event for Sequential Diagnosis Prediction

Xin Zhang; Xueping Peng; Hongjiao Guan; Long Zhao; Xinxiao Qiao; Wenpeng Lu

FedSKG: Self-Supervised Federated Learning with Structural Knowledge of Global Model

Dan Luo; Jun Li; Kang Wei; Zhen Mei; Yumeng Shao

A Risk-Aware Multi-Objective Patrolling Route Optimization Method Using Reinforcement Learning

Haowen Chen; Yifan Wu; Weikun Wang; Zengwei Zheng; Jianhua Ma; Binbin Zhou

Unsupervised Graph-Sequence Anomaly Detection for 5G Core Network Control Plane Traffic
Min Wang; Peng Li; Zhang Cheng; Wenmao Liu; Lei Nie; Haizhou Bao; Qin Liu; Kai Zhang

PGUD: Personalized Graph Universal Defense
Zeming Gan; Linlin Su; Xianxian Li; Jinyan Wang

ICPADS-41: Big Data & Machine Learning Systems (XIII)

Session Chair: *Dakai Zhu (dakai.zhu@utsa.edu)*, The University of Texas at San Antonio

Relaxed Graph Semi-Supervised Contrastive Learning for Node Classification
Qiyu Li; Xianxian Li; Haodong Qian; De Li; Jinyan Wang

STHCN: Citywide Crowd Flow Prediction in Irregular Regions Using Hypergraph Convolutional Network
Jintao Xing; Weiwei Xing; Xiang Wei; Jian Zhang; Wei Lu

OOCL-DDQN: Online Evaluation and Offline Training-Based Clipped Double DQN for Automated Anesthesia Control
Huijie Li; Wuman Luo; Wei Lin; Jian Huo

Efficient ConvNet Optimization Through Width Modification Guided with Gaussian Processes
Bilal Parvez Siddiqui; Adel Alaeddini; Dakai Zhu

Parallel Algorithm Design and Optimization for Numerical Simulation Application of Ion Implantation in Silicon
Ruixuan Qi; Wangdong Yang; Xiuwen Yan; Honglu Li; Yifei Zhang; Kenli Li

ICPADS-42: Big Data & Machine Learning Systems (XIV)

Session Chair: *Guoxia Xu (gxxu.re@gmail.com)*, Nanjing University of Posts and Telecommunications

Analysis of Performance and Optimization in MindSpore on Ascend NPUs
Bangchuan Wang; Chuying Yang; Rui Zhu; Mingyao Zhou; Nenggan Zheng

Towards a Lightweight Stress Prediction Model: A Study on Dimension Reduction and Individual Models in HRV Analysis
Zeyang Cui; Yanbo Ma; Muxin Ma; Runhe Huang; Bowen Du`

Question Classification Method Based on Self-Attention Mechanism and BiLSTM-AlexNet Model
Yumeng Wang; Yinshan Jia

Accelerating Point Clouds Classification in Dynamic Graph CNN with GPU Tensor Core
Haocheng Huang; Yang Fan Li; Xinlian Zhou

Knowledge Enhancement and Feature Purification for Single-Stage Joint Entity and Relation Extraction
Guohao Zhai; Songwen Pei

ICPADS-43: Security & Blockchain (IV)

Session Chair: *Guoxia Xu (gxxu.re@gmail.com)*, Nanjing University of Posts and Telecommunications

SLCSA: Scalable Layered Cooperative Service Attestation Scheme in Cloud-Edge-End Cooperation Environments
Jie Cui; Qipeng Chen; Yang Li; Qingyang Zhang; Lu Liu; Hong Zhong

VI-Store: Towards Optimizing Blockchain-Oriented Verifiable Ledger Database
Chenlu Wang; Liang Cai; Weiwei Qiu; Chaolin Li

Money Laundering Detection on Ethereum: Applying Traditional Approaches to New Scene
Yunmei Yu; Jiajing Wu; Dan Lin; Qishuang Fu

GNIDP: Gaussian-Noise-Based Information Diffusion Prediction Model
Yiran Wang; Yin Zhang; Ranran Wang; Zhaokang Zhang; Wenchao Wan

Secure Multi-Keyword Retrieval with Integrity Guarantee for Outsourced ADS-B Data in Clouds
Shangru Yang; Yong Ding; Yujue Wang; Hai Liang; Changsong Yang; Huiyong Wang

ICPADS-44: Security & Blockchain (V)

Session Chair: Huawei Huang (huanghw28@mail.sysu.edu.cn), Sun Yat-sen University

Data Rights Verification in the Industrial Internet: A Securing Progressive Scheme with Locked-NFTs and Adaptive Federated Learning

Chenhao Zhang; Jiameng Cheng; Hongwei Zhang; Jinsong Wang

DW-LRC: A Dynamic Wide-Stripe LRC Codes for Blockchain Data Under Malicious Node Scenarios

Mizhipeng Zhang; Chentao Wu; Jie Li; Minyi Guo

Swarm: A High-Performance Asynchronous BFT Protocol Adapted to High Network Delay

Jianyu Han; Xiulong Liu; Keqiu Li

CACluster: A Clustering Approach for IoT Attack Activities Based on Contextual Analysis

Huiran Yang; Yan Zhang; Yueyue Dai; Jiyun Sun; Huajun Cui; Ma Can; Weiping Wang

BrokerFi: A DeFi dApp Built Upon Broker-Based Blockchain

Jian Zheng; Qinde Chen; Chunhua Su; Huawei Huang

ICPADS-45: HPCC (IV)

Session Chair: Huawei Huang (huanghw28@mail.sysu.edu.cn), Sun Yat-sen University

Performance Evaluation of MindSpore and PyTorch Based on Ascend NPU

Zeling Zhu; Bangchuan Wang; Chuying Yang; Rui Zhu; Mingyao Zhou; Nenggan Zheng

Characterize and Optimize Dense Linear Solver on Multi-Core CPUs

Xiao Fu; Xing Su; Dezun Dong; Weiling Yang

Randomized Testing Framework for Dissecting NVIDIA GPGPU Thread Block-To-SM Scheduling Mechanisms

Chongxi Wang; Penghao Song; Haoyu Zhao; Fuxin Zhang; Jian Wang; Longbin Zhang

dBFC: Destination-Based Backpressure Flow Control for Incast

Zewei Guan; Wenxin Li; Xin He; Song Zhang; Keqiu Li

WAN-INT: Cost-Effective In-Band Network Telemetry in WAN with A Performance-Aware Path Planner

Simian Chen; Dongbiao He; Xiaopeng Ma; Zhongxing Ming; Laizhong Cui

Efficient Deep Molecular Dynamic Model Training on Heterogeneous System

Shaokang Du; Xin You; Hailong Yang; Jing Shang; Zhiwen Xiao; Zhihui Wu; Zhongzhi Luan; Depei Qian

ICPADS-46: HPCC (V)

Session Chair: Shankai Yan (skyan@hainanu.edu.cn), Hainan University

Improving Disaster Communication with MP-NMSA: Message-Prioritized DTN Routing Based on Node Mobility and Social Attributes

Long Tan; Zhihao Sun

SmartPipe: Intelligently Freezing Layers in Pipeline Parallelism for Distributed DNN Training

Nadia Niknam; Abdalaziz Sawwan; Jie Wu

LeanKV: Efficient Garbage Collection for LSM-Based Key-Value Stores on ZNS SSDs Through Lifetime-Based SSTable Clustering

Yishun Xu; Peiquan Jin; Mingchen Lu; Xiaoliang Wang

TH-Allreduce: Optimizing Small Data Allreduce Operation on Tianhe System

Peng Liu; Jintao Peng; Jie Liu; Lihua Chi

Efficiently Running SpMV on Multi-Core DSPs for Block Sparse Matrix

Deshun Bi; Xiaowen Tian; Shengguo Li; Dezun Dong; Weifeng Liu

Joint Optimization of Trajectory and Image Transmission in Multi-UAV Semantic Communication Networks

Xiancai Yao; Jianchao Zheng; Xin Zheng; Huadong Dai; Xiaolong Yang

ICPADS-47: HPCC (VI)

Session Chair: Shankai Yan (skyan@hainanu.edu.cn), Hainan University

DPBC-VCP: A Network-On-Chip Prioritization Mechanism Combined with VCP for CPU-GPU Heterogeneous Systems

Juan Fang; Haoyu Cheng; Zhichao Wei; Huijing Yang

In-Network Key-Value Cache with Linearizability

Yuxuan Qin; Weize Gao; ChonLam Lao; Wenfei Wu; Kai Chen

Automatic Deep Learning Operator Fusion on Sunway SW26010 Many-Core Processor

Wei Gao; Wenxiang Zhang; Wenzhao Wu; Yanjie Zhen; Wenlai Zhao; Guangwen Yang

MUSE: A Programmable Metadata Load Estimation Interface for Ceph File System

Xinyang Shao; Cheng Li; Yinlong Xu

Toward Reproducible Benchmarking of PGAS and MPI Communication Schemes

Niklas Bartelheimer; Sarah M. Neuwirth

ICPADS-48: HPCC (VII)

Session Chair: Qiao Xiang (qiaoxiang@xmu.edu.cn), Xiamen University

A Hybrid Approach for Detecting Bugs in HPC Workloads

Sonam Sherpa; Xinghui Zhao

BB-ML: Basic Block Performance Prediction Using Machine Learning Techniques

Hamdy Abdelkhalik; Shamminuj Aktar; Yehia Arafa; Atanu Barai; Nishant Panda; Nirmal Prajapati; Gopinath Chennupati; Nazmul Haque Turja; Stephan Eidenbenz; Nandakishore Santhi; Abdel-Hameed A Badawy

Accelerating SAT Solving Using Switching ASICs

Zhenpei Huang; Xiwen Fan; Jinghui Jiang; Mingyuan Song; Lu Tang; Qiao Xiang; Jiwu Shu

VideoBack: High Quality Video Backscatter with Ambient WiFi

Yuxin Ding; Shanyue Wang; Yachen Mao; Yubo Yan; Panlong Yang

Glow Model-Based Latent Vector Optimization for Generative Image Steganography in Edge and Cloud Computing Environment

Zhipeng Bao; Zhili Zhou; Xutong Cui; Weixuan Tang; Chengsheng Yuan

ICPADS-49: IoT & CPS (IV)

Session Chair: Qiao Xiang (qiaoxiang@xmu.edu.cn), Xiamen University

A Framework for Industrial Identifier Addressing Considering Compatibility and Efficiency

Yifan Xu; Fan Dang; Jingao Xu; Xu Wang; Yunhao Liu

Cyber-Physical Systems Design in an Uncertain Environment with Time Uncertainty Concern
Si Chen; Lida Huang; Xiongren Xiao; Yan Liu; Guoqi Xie; Renfa Li

Transparent File Deduplication with Reduced Update Cost on Encryption Enabled Mobile Devices
Junbin Ren; Cheng Ji; Weiwei Jin; Chao Yu; Weichao Guo; Yanjuan Du; Zongwei Zhu

VibCamera: mmWave and Camera Fusion for Multi-Point Vibration Monitoring
Zhijia Yang; Hankai Liu; Xin Xie; Xinyu Tong; Xiulong Liu

Towards Adaptive Adjusting and Efficient Scheduling Coflows Based on Deep Reinforcement Learning
Chanying Huang; Zichao Wang; Kedong Yan; Shan Xiao

Exploring Wi-Fi Privacy Disclosure: A Novel Approach to User Identity Prediction Based on Traffic Multi-Level Information
Yiwen Li; Shanshan Wang; Zhenxiang Chen; Xueyang Cao; Yadi Han

ICPADS-50: IoT & CPS (V)

Session Chair: Shuo Yu (yushuo@dlut.edu.cn), Dalian University of Technology

Dynamic Uploading Scheduling in mmWave-Based Sensor Networks via Mobile Blocker Detection
Yifei Sun; Bojie Lv; Rui Wang; Haisheng Tan; Francis C.M. Lau

Minimizing Cost and Delay for Video Datacenters Using Efficient Fuzzy Dominance-Based Particle Swarm Optimization
Zi Yang; Jin Wang; Jingwen Zhang; Jin Sun

LWSA: A Learning-Based Workflow Scheduling Algorithm for Energy-Efficient UAV Delivery System
Jiali Wang; Yutong Ye; Ting Wang; Mingsong Chen

ATL: A Link Failure Recovery Method with Fast Recovery Speed, Low Interruption Rate, and Small TCAM Consumption in SDN
Xinyu Zhang; Jue Chen

FedLRS: A Communication-Efficient Federated Learning Framework with Low-Rank and Sparse Decomposition
MingKai Luo; Dan Meng; Jun Wang; Yu Fang; JiangYong Ying

Want Predictable GPU Execution? Beware SMIs!
Rohan S Wagle; Zelin Tong; Jim Anderson; Richard L. Sites

ICPADS-51: IoT & CPS (VI)

Session Chair: Shuo Yu (yushuo@dlut.edu.cn), Dalian University of Technology

Gradient and Self-Attention Enabled Convolutional Neural Network for Crack Detection in Smart Cities
Renping Xie; Mengyao Chen; Ming Tao; Kai Ding; Haohan Chen

RAMMM: A Rapid Attention-Based Multimodal Modification Model for Massive Image Generation
Zhenyuan Xu; Xuewen Chen; Taotao Wang; Wei Quan; Yi Zhu

Encrypted Image Retrieval Scheme Based on Neural Network and LBP Mapping
Wang Lan; Tian Wang; Zheng Wang

Delay-Masquerading Technique Upheld Strong Box: A Reinforced Side-Channel Protection
Jiaxuan Wu; Shuoqiang Zeng; Wei-Yang Chiu; Peichen Liu; Weizhi Meng; Brooke Lampe

Aol-Sensitive Relay-Assisted Data Collection via Multi-UAV in the Large-Scale Disaster Area
ZeZhi Zeng; Yang Gao

Deep Frame-Point Sequence Consistent Network for Handwriting Trajectory Recovery
Yujie Xiong; Yufan Dai; Dan Meng

ICPADS-52: IoT & CPS (VII)

Session Chair: Pengfei Wang (wangpf@dlut.edu.cn), Dalian University of Technology

Anomalous Behavior Identification with Visual Federated Learning in Multi-UAVs Systems
Pengfei Wang; Xinrui Yu; Feiye Ye; Heng Qi; Shuo Yu; Leyou Yang; Qiang Zhang

Edge Computing Scheduling Method for Related Tasks of Industrial Internet of Things
Aiping Tan; Chang Wang; Chenglong Dong; Yan Wang

Exploiting Spatial and Temporal Features for Deep Learning Based Human Activity Recognition
Wenyong Cao; Gaotao Shi; Tieguan Zhang

Joint Optimization of Model Partitioning and Resource Allocation for Edge Computing with Intermittently Operating Devices
Qi Wu; Yi Zhang; Chenxi Yang; Jin Sun

Secure and Dynamic Public Audit Scheme Based on Blockchain and Red-Black Tree
Longxia Huang; Xi Peng; Mengmeng Yang

ICPADS-53: IoT & CPS (VIII)

Session Chair: Pengfei Wang (wangpf@dlut.edu.cn), Dalian University of Technology

SigFeaDet: Signal Features-Based UAV GPS Spoofing Detection Using Machine Learning
Xiaomin Wei; Luyao Wang

Detection of Covert Tunnel Over Internet Control Message Protocol Based on Baseline Features
Haiying Duan; Baohui Wang

Practical Earphone Eavesdropping with Built-In Motion Sensors
Mengzhen Gao; Helei Cui; Yanze Xie; Yaxing Chen; Bin Guo; Zhiwen Yu; Xingliang Yuan

Sketch-Based Real-Time Intrusion Detection Framework for Industrial Internet of Things
Mengda Lyu; Lizhi Peng; Hui Li; Bo Yang

A Discrete Grey Wolf Optimizer Metaheuristic for Task Offloading in Multi-Server MEC with Batteryless Devices
Yinyin Tang; Guichang Yin; Peijin Cong; Junlong Zhou; Jin Sun

ICPADS-54: Cloud & Edge Computing (V)

Session Chair: Zhihao Qu (quzhihao@hhu.edu.cn), Hohai University

Video Streaming Caching and Transcoding for Heterogeneous Mobile Users
Jinbo Cai; Mingjun Xiao; Junjie Shao; He Sun; Yu Zhao; Tongxiao Zhang

When CPN Meets AI: Resource Provisioning for Inference Query Upon Computing Power Network
Mingtao Ji; Zhuzhong Qian; Baoliu Ye

Efficient Storage and Retrieval of Similar Data in Edge Computing Systems
Yuanfeng Liu; Junjie Xie; Hanlong Liao; Sheng Chen; Xiulong Liu; Deke Guo

Joint Service Placement and Container Retention for Serverless-Based Vehicular Edge Computing
Shihong Hu; Zhihao Qu; Bin Tang; Baoliu Ye

*An Improved Affine Projection Sign Algorithm Based on Individual-Weighting Factors
Xia Ni; Ji Zhao; Qiang Li; Lingli Tang; Hongbin Zhang

ICPADS-55: Cloud & Edge Computing (VI)

Session Chair: Zhihao Qu (quzhihao@hhu.edu.cn), Hohai University

Online Function Caching in Serverless Edge Computing

Xuan Zhang; Gu Hong Jun; Guopeng Li; Xin He; Haisheng Tan

Microless: Cost-Efficient Hybrid Deployment of Microservices on IaaS VMs and Serverless

Jiagan Cheng; Yilong Zhao; Zijun Li; Quan Chen; Weihao Cui; Minyi Guo

EdgeAnchor: A Rapid and Balanced File Storage Strategy at Network Edge

Han Liu; Xingrui Xie; Zhuopu Zhang; Geyao Cheng; Lailong Luo; Deke Guo

TFS-Index-Based Multi-Keyword Ranked Search Scheme Over Cloud Encrypted Data

Yinfu Deng; Hua Dai; Yuanlong Liu; Zhangchen Li; Geng Yang; Xun Yi

DSUTO: Differential Rate SAC-Based UAV-Assisted Task Offloading Algorithm in Collaborative Edge Computing

Longxin Zhang; Runti Tan; Minghui Ai; Huazheng Xiang; Cheng Peng; Zhihao Zeng

A Reliability and Robustness-Driven Approach for Optimizing VM Placement in Clouds

Yuheng Zhu; Jiawei Liu; Gongming Zhao; Hongli Xu; Huaqing Tu

ICPADS-56: Cloud & Edge Computing (VII)

Session Chair: Juan Fang (fangjuan@bjut.edu.cn), Beijing University of Technology

N-MlpE: Optimizing Multilayer Perceptron Network-Based Knowledge Graph Embedding Model with Neighborhood Information

Xu Qing; Kaijun Ren; Xiaoli Ren; Jiarun Lin; Xiaoyong Li

A Improved Consistent Hash Algorithm in Heterogeneous Edge Computing

Ruonan Chai; Shuai Gao; Zhenghao Hu

SIC-TFRF: Sea Ice Classification with Textural Features and Random Forest

Ruixin Cao

Optimizing Space-Borne Computation: A Reliability Enhancement Framework for LEO Constellation

Lipei Yang; Ao Zhou; Xiao Ma; Yiran Zhang; Shangguang Wang

An Adaptive Teacher-Student Framework for Real-Time Video Inference in Multi-User Heterogeneous MEC Networks

Yuan Lu; Shuxin Ge; Weixu Wang; Xiaobo Zhou; Tie Qiu

A Hash-Based Multidimensional Graph Neural Network Approach for Zero Trust Oriented Access Control Security

Fengfan Shi; Sheng Cao; Xiaosong Zhang

ICPADS-57: Cloud & Edge Computing (VIII)

Session Chair: Juan Fang (fangjuan@bjut.edu.cn), Beijing University of Technology

Brownfield Measurement: A Practical Grey Failure Identification and Localization Method in Incremental Deployment Network

Jiaqi Liu; Peng Xun; Baosheng Wang

Digital Twin Empowered Task Offloading for Vehicular Edge Computing

Chaogang Tang; Huaming Wu; Chunsheng Zhu; Shuo Xiao

Profit-Driven Optimization of Server Deployment and Service Placement in Multi-User Mobile Edge Computing

Juan Fang; Shen Wu; Shuaibing Lu

MiddleCache: Accelerating TCP Based In-Memory Key-Value Stores Using eBPF

Yiren Pang; Sheng Chen; Wenxin Li; Hao Liu; Yulong Li; Xin He; Song Zhang; Zewei Guan; Lide Suo; Yuan Liu

Efficient Microservice Deployment with Dependencies in Multi-Access Edge Computing

Shuaibing Lu; Ran Yan; Jie Wu

ICPADS-58: Cloud & Edge Computing (IX)

Session Chair: Hongwei Zhang (hwzhang@email.tjut.edu.cn), Tianjin University of Technology

Adaptive Overlap Padding and Resolution Selection for Frame Split-Based Edge Video Analytics

Haopeng Zhu; Zhaowu Huang; Xiaolin Guo; Mengyang Liu; Baijun Chen; Fang Dong

PMR: Priority Memory Reclaim to Improve the Performance of Latency-Critical Services

Bo Liu; Kaihao Bai; Pu Pang; Quan Chen; Yaoxuan Li; Zhuo Song; Baolin Wang; Minyi Guo

An Intrusion Detection Method Based on Hash Function for Industrial Cloud Data

Yinchu Wang; Yan Ren; Heng Zhang; Hongran Li; Jian Zhang

Fine-Grained Task Scheduling Based on Graph Neural Network and Federated Learning in Vehicle Edge Computing

Gaowei Zhang; Junping Song; Yahui Hu; Pengfei Fan; Chong Li; Xu Zhou

PORTEND: A Joint Performance Model for Partitioned Early-Exiting DNNs

Maryam Ebrahimi; Alexandre da Silva Veith; Moshe Gabel; Eyal de Lara

Knowledge-Aware Multi-View Cross Learning for Edge-Based Collaborative Recommendation

Yang Dai; Shunmei Meng; Huanhuan Gu; Nan Liu; Longchuan Tu

ICPADS-59: Cloud & Edge Computing (X)

Session Chair: Hongwei Zhang (hwzhang@email.tjut.edu.cn), Tianjin University of Technology

WebInf: Accelerating WebGPU-Based In-Browser DNN Inference via Adaptive Model Partitioning

Bing Dong; Tianen Liu; Borui Li; Xiaolei Zhou; Shuai Wang; Zhao-Dong Xu

CoCV: Heterogeneous Processors Collaboration Mechanism for End-To-End Execution of Intelligent Computer Vision Tasks on Mobile Devices

Ye Wan; Mengyang Liu; Guangtong Li; Fang Dong

Cost-Efficient Cloud-Edge Video Analytics with Hybrid IaaS and FaaS Resources

Jing Peng; Zhi Zhou; Kongyange Zhao; Huirong Ma; Xu Chen

A Fog-Based Smart Agriculture System to Detect Animal Intrusion

Jinpeng Miao; Dasari Rajasekhar; Shivakant Mishra; Sanjeet Kumar Nayak; Ram Narayan Yadav

Secure Parallel Outsourcing Scheme for Large-Scale Matrix Multiplication on Distributed Cloud Servers

Yinlong Wang; Yunting Tao; Fanyu Kong; Zhaoquan Gu; Jia Yu; Hanlin Zhang

*A Frequency-Aware Grouping Strategy for Stateful Operator in Distributed Stream Processing Systems

Dawei Sun; Zhe Chen; Weilong Lv; Shang Gao; Jia Rong

ICPADS-60: Cloud & Edge Computing (XI)

Session Chair: Enze Ji (ezji@cnic.cn), Computer Network Information Center, CAS

Neighborhood Attention-Based Transformer Line Segment Detector with Edge Computing

Haoran Guo; Mingyue Shi

Intelligent Recognition of Antigen Detection Reagent for Corona Virus Based on Improved Text Recognition

Jin Han; Tianhao Wang; Zhanman Deng; Bingbing Huang; Shaolin Bo; Xia Zhou

A Feature-Matching Algorithm for Web Data Based on Word Vector Space Indexing
Jin Han; Shaolin Bo; Zhanman Deng; Bingbing Huang; Tianhao Wang

Deep Learning Cognitive Diagnostic Model Based on State Machines and Knowledge Graphs
Jin Han; Bingbing Huang; Yao Tang; Tianhao Wang; Shaolin Bo

Game Theoretic Resource Allocation for Information Freshness in Mobile Edge Computing
Jingjing Gu; Di Zhang; Hongcheng Bao; Weiwei Xing; Xindong Zheng; Xun Shao

A Drug Box Recognition System Based on Deep Learning and Cloud-Edge Collaboration for Pharmacy Automation
Honglei Zhu; Anming Dong; Jiguo Yu

ICPADS-61: Cloud & Edge Computing (XII)

Session Chair: Enze Ji (ezji@cnic.cn), Computer Network Information Center, CAS

Accelerating Federated Learning with Adaptive Extra Local Updates Upon Edge Networks
Yitao Fan; Mingtao Ji; Zhuzhong Qian

A Blockchain-Enabled Secure Access Management Method in Edge Computing
Xutong Jiang; Guoming Zhang; Hao Tian; Haolong Xiang; Xuyun Zhang; Wanchun Dou

A Budget-Constrained Service Deployment Strategy Based on Cost Allocation in Cloud-Edge Environment
Zhilian Zhang; Pengwei Wang; Zhaohui Zhang

CAC: Content-Aware Adaptive Configuration for Edge Video Analytics
Zhihan Cao; Chenhong Cao

Federated Anomaly Detection with Isolation Forest for IoT Network Traffics
Junyan Li; Xuyun Zhang; Haolong Xiang; Amin Beheshti

ICPADS-62: Cloud & Edge Computing (XIII)

Session Chair: Nan Wang (wangnanbjtu@bjtu.edu.cn), Beijing Jiaotong University

Latency, Energy and Carbon Aware Collaborative Resource Allocation with Consolidation and QoS Degradation Strategies in Edge Computing
Wedan Emmanuel Gnibga; Anne Blavette; Anne-Cécile Orgerie

FLASH: Low-Latency Serverless Model Inference with Multi-Core Parallelism in Edge
Yanbo Li; Yanying Lin; Shijie Peng; Yingfei Tang; Tian Xiang; Wei Song; Kejiang Ye

Hierarchical Collaborative Resource Scheduling in Industrial Internet of Things based on Graph Neural Networks and Deep Reinforcement Learning
Qifeng Meng; Zihui Luo; Xiaolong Zheng; Liang Liu; Huadong Ma

Resource Configuration for Cross-Server Deployment of Application-Oriented Microservices in Cloud-Edge Continuum with SLO Constraints
Dong Wang

Edge Intelligence-Driven Meteorological Knowledge Graph for Real-Time Decision-Making
Zheng Yu; Jielin Jiang; Bingkun He; Muhammad Bilal; Dongqing Liu

ICPADS-63: HPC for Underwater Applications

Session Chair: Nan Wang (wangnanbjtu@bjtu.edu.cn), Beijing Jiaotong University

LDVNet: Lightweight and Detail-Aware Vision Network for Image Recognition Tasks in Resource-Constrained Environments
Yuchen Liu; Hu Liang; Ran Qiu; Shengrong Zhao

GAF-GAN: Gated Attention Feature Fusion Image Inpainting Network Based on Generative Adversarial Network
Ran Qiu; Hu Liang; Yuchen Liu; Shengrong Zhao

Multi-View Super Resolution for Underwater Images Utilizing Atmospheric Light Scattering Model
Jin Hao; Wenli Duan; Guangfei Li; Shiyang Chen; Wenhui Wu; Hua Li

A Signal Contour Extraction Algorithm Based on Canny Operator and Its Application in Bionic Communication
Xiangdang Huang; Jiangyi Zhang; Zheng Ding; Shihao Chan; Kaiwei Lian; Yanxia Chen

A Trajectory Tracking System for Zebrafish Based on Embedded Edge Artificial Intelligence
Chuanhao Zang; Anming Dong; Jiguo Yu

PIOD: An Efficient Parallel Iterative Algorithm for Solving Over-Determined Equations
Min Tian; Zhenguo Wei; Yanlong Li; Wei Du; Lei Xiao; Chaoshuai Xu

Poster Session (8 号馆(No. 8 Pavilion) 8101, Dec. 18, 2023, 15:40-16:25 and 19:00--20:00)
Session Chair: Fang Fu (fufang0621@hainanu.edu.cn), Hainan University

Privacy-Enhanced Lossless Federated Recommendation with Client-Selection
Ting Fang; Yongli Wang; Xueqi Sha

Function Clustering to Optimize Resource Utilization on Container Platform
Chao-Yu Lee; Ding-Yong Hong; Pangfeng Liu; Jan-Jan Wu

Accelerate Dense Matrix Multiplication on Heterogeneous-GPUs
Jianan Sun; Mingxue Liao; Yongyue Chao; Pin Lv

A Latency Guaranteed Scheduling Strategy Under Performance Constraints in Big Data Stream Computing Environments
Dawei Sun; Chengjun Guan; Yinyao Fan; Jia Rong; Shang Gao

GraphUnet: Graph Make Strong Encoders for Remote Sensing Segmentation
Yuntao Shou; Tao Meng; Ai Wei; Fuchen Zhang; Keqin Li

Meta-Inspired Homomorphic Capability Selection Algorithm
Anyi Zhang; Peng Xu; Yunxuan Wang

Constraint-Forcing Recursive Generalized Maximum Correntropy Algorithm with Forgetting Factor for Adaptive Filtering
Wenyue Li; Ji Zhao; Qiang Li; Lingli Tang; Hongbin Zhang

Network Contention-Aware Cluster Scheduling with Reinforcement Learning
Junyeol Ryu; Jeongyeon Eo

Balanced Offloading of Multiple Task Types in Mobile Edge Computing
Ye Zhang; Xingyun He; Jin Xing; Winston K.G. Seah

Detecting Ethereum Phishing Scams via Multi-Transaction-View Graph Attention Network
Shaoyuan Zhuo; Guang Li; Weigang Wu; Jing Bian

Combined Coding Technique for Bionic Covert Underwater Acoustic Communication Based on the Cetacean Click Group
Qiuling Yang; Tian Li; Jiaqi Shen; Zheng Ding; Yanxia Chen

Ancient Chinese Character Image Retrieval Based on Fusing Deep Features and Skeleton Features
Xinhui Wang; Xuedong Tian

Multi-Layer Authentication Scheme Based on Blockchain for Cloud-Edge-End
Jian Wu; Lei Zhang

Rately: Accurate Data Center CC Based on One-Way Delay
Guannan Zhang; Dinghuang Hu; Dezun Dong

A Truth Inference Algorithm Using Bidirectional Convolution Autoencoder for Crowdsourcing Image Segmentation
Yueyang Li; Zhaoan Dong; Sifeng Wang; Guangshun Li; Xiaofan Wang; Zhibin Liu

Subscription-Based State Access for Cross-Chain Smart Contracts
Zhihao He; Jinji Yang; Ruilin Lai; Yale He; Zefeng Mo; Gansen Zhao

PI-Parking: A Physics Informed Neural Network Approach for Parking Availability Prediction
Yijun Dong; Haoxuan Kuang; Jun Li

Optimal Factored LT Codes for Distributed Matrix Multiplication
Lei Zhang; Jie Liu

A Two-Stage Abdominal Lymph Node Detection Algorithm Based on Multi-Scale 2.5D Input
Junyi Le; Wenxin Hu; Kun Yu

To Broadcast or Not to Broadcast: Decision-Making Strategies for Mining Empty Blocks
Chon Kit Lao; Rui Jiang; Luyao Zhang; Fan Zhang; Ye Wang

Optimizing Transformer Training Based on Computation and Accessing Memory Features with Deep Learning Processor
Zhou Lei; Qin Fang; Jingfeng Qian; Shengbo Chen; Qingguo Xu; Ninghua Yang

ABi-BFS: A High-Performance Parallel Breadth-First Search on Shared-Memory Systems
Jifan Shi; Yun Xu

UPR-AECS: An Active Edge Caching Strategy Integrating User Preference Representation
Hao Wen; Lei Zhang

Efficient NTTRU Implementation on ARMv8
Zhuo Zhang; Jieyu Zheng; Yunlei Zhao

OSIS: Obstacle-Sensitive and Initial-Solution-First Path Planning
KaiBin Zhang; Liang Liu; Wenbin Zhai; Youwei Ding; Jun Hu

Improving Iteration-Based Non-Autoregressive Language Model with Time Step Awareness
Hang Jiang; Guoyong Cai; Xiaolu Tang

Real-Time UAV Network Intrusion Detection Using Active Learning and Generative Adversarial Networks
Qingli Zeng; Kailynn R Barnt; Luke O Ragan; Farid Nait-Abdesselam

Addressing Client Heterogeneity in Synchronous Federated Learning: The CHAFL Approach
Miri Yu; Oh-Kyoung Kwon; Sangyoon Oh

GLEX_Allreduce: Optimization for Medium and Small Message of Allreduce on Tianhe System
Peng Liu; Jintao Peng; Jie Liu; Min Xie; Lihua Chi

Hierarchical Scheduling of Hybrid DNN Tasks in Embedded Real-Time Systems
Jiixin Feng; Kun Zhu; Tong Zhang

GA-Net: Gated Attention Mechanism Based Global Refinement Network for Image Inpainting
Ran Qiu; Shengrong Zhao; Hu Liang

Optimal Station Placement and Assignment for Electric Vehicle Battery Swapping
Yichao Gao; Tao Wu; Xiaochen Fan; Xianrui Pan; Panlong Yang

Vertical Heterogeneous Channelling Consensual Systems
Yuqiang Wen; K. L. Eddie Law

pFedTD: Personalized Federated Learning Using Global and Local Knowledge Distillation
Haitao Zhou; Zhiqin Zhu; Long Zhang; Yuanyuan Li

A Highly Accurate Statistical Attack Against Searchable Symmetric Encryption
Ruizhong Du; Yuchi Tai; Mingyue Li

FedMPM: A Personalized Federated Learning with Mixed Multi-Stage Private Models
Yuqi Gan; Peng Han; Yuanyuan Li; Xin Huang

A Multi-Source Time-Series Data Storage Strategy for Open-Channel SSDs
Bo Peng; Xiangcen Yu; Qiang Li; Jiankui Weng

CD-Net: Cross-Domain Description and Detection for 2D-3D Learning Local Features
Junhua Wu; Zhenqiang Li; Haoyang Wu; Guangshun Li

Exploiting Fine-Grained Structured Pruning for Efficient Inference on CNN Model
Cheng-Hung Wu; Ding-Yong Hong; Pangfeng Liu; Jan-Jan Wu

A Global Task Scheduling Method Based on Network Measurement and Prediction in Computing Power Networks
Chuanfu Zhang; Wen Li; Jing Chen; Jing Ge; Na Li; Hao Sun; Yudong Geng

Research on Fine-Grained Security Sharing Model of Medical Information Based on Blockchain
Bo Cui; Zeyu Chen

Optimizing CNNs Throughput on Bandwidth-Constrained Distributed Multi-FPGA Architectures
Yuzhu Zhou; Bo Peng; Qiang Li; Maosong Lin; Xiang Lei; Qiao Wang

Reinforcement Learning Based Transmission Optimization for V2V Unicast Communication
Long Tan; Wang Yu

AOP: Towards Adaptive Offloading Point Approach in a Federated Learning Framework for Edge AI Applications
Khoa Tran; Do-Van Nguyen; Minh Son Dao; Koji Zettsu

Cloud-Edge-End Collaboration Personalized Semi-Supervised Federated Learning for Visual Localization
Qixiang Ma; Zhe Zhang; Zhenhan Zhu; Yanchao Zhao

Geometric Dynamic Graph Convolutional Neural Network for Low Overlap Point Cloud Registration
Siwen Li; Shihao Xing; Lin Feng; Ziqiang Li; Fancheng Yang; Bowen Deng

Developing a Proxy Application for an Industrial Unstructured CFD Software: Preliminary Results
Qingsong Wang; Chuanfu Xu; Liang Deng; Jian Zhang; Ze Dai; Haozhong Qiu; Weixi Dai; Yongzhen Lin; Yue Ding; Yonggang Che

GreDedup: A Greedy-Based Application-Aware Data Routing Strategy for Distributed Deduplication
Jun Su; Yinjin Fu; Nong Xiao; Yingjin Qian

Understanding Power Consumption Metric on Heterogeneous Memory Systems
Andres Rubio Proano; Kento Sato

SPM-GCN: An Adaptive Reordering Algorithm for Sparse LU Factorization via GCN
Min Tian; Huazeng Liu; Junjie Wang; Qi Liu; Wei Du; Zanjun Zhang

Hay: Enhancing GPU Sharing Performance with Two-Level Scheduling for Ray
Lianghong Huang; Zejia Lin; Xianwei Zhang

Fake Review Detection Using Deep Neural Networks with Multimodal Feature Fusion Method
Xin Li; Lirong Chen

hcaPCG: A Heterogeneous and Communication-Avoid PCG with Jacobi Preconditioner on SW26010-Pro Architecture
Min Tian; Yue Liu; Li Wang; Yanyan Chen; Qi Liu

A Lightning Fine-Grained Access Control Scheme Supporting Full Policy Hiding in Cloud Storage
Jiaoli Shi; Chao Hu; Shimao Yao; Zhuolin Mei; Bin Wu; Hui Li

A Research on Emotion Recognition in Conversations Based on Hierarchical Networks and Commonsense Knowledge
Jiawei Zheng; Lianqiang Niu; Ye Yuan

Accelerating Distributed Training Through In-Network Aggregation with Idle Resources in Data
Ge Wang; Huaqing Tu; Gongming Zhao; Hongli Xu

The Blockchain 2023 Presentation Program

Blockchain-1: Security, Privacy, and Trust (I)

Session Chair: Kai Li (kli5@sdsu.edu), San Diego State University

Incentive Attacks on DAG-Based Blockchains with Random Transaction Selection

Martin Perešini; Federico Matteo Bencic; Martin Hrubý; Kamil Malinka; Ivan Homoliak

Understanding the Cryptocurrency Free Giveaway Scam Disseminated on Twitter Lists

Kai Li; Darren Lee; Shixuan Guan

The Validator's Dilemma in PoW Blockchain: An Evolutionary Game Perspective

Liang Liu; Qiao Wang; Stephen John Turnbull; Kazumasa Omote

Mitigating Undercutting Attacks: Fee-Redistribution Smart Contracts for Transaction-Fee-Based Regime of Blockchains with the Longest Chain Rule

Rastislav Budinsky; Ivana Stancikova; Ivan Homoliak

A Benchmark for Different Implementations of Zero-Knowledge Proof Systems

Max Kobelt; Michael Sober; Stefan Schulte

Blockchain-2: Security, Privacy, and Trust (II)

Session Chair: Kai Li (kli5@sdsu.edu), San Diego State University

The Blockchain Trilemma Described by a Formula

Taishi Nakai; Akira Sakurai; Shiori Hironaka; Kazuyuki Shudo

Statically Checking Missing Input Validations in Solidity Smart Contracts - A Case Study

Sundas Munir; Mirza Sanam Iqbal Baig; Mah Noor; Syeda Hina Murad

Multi-Blockchain Model for Data Sharing with Bell-LaPadula Access Control

Hsiau Chuen Chong; K. L. Eddie Law

ALGOMOVE - A Move Embedding for Algorand

Lorenzo Benetollo; Michele Bugliesi; Silvia Crafa; Sabina Rossi; Alvisè Spanò

Blockchain-3: Applications and Services (I)

Session Chair: Wei Tong (wtong@stu.xidian.edu.cn), Xidian University

Blockchain-Based Identity Authentication Oriented to Multi-cluster UAV Networking

Zesong Dong; Wei Tong; Zhiwei Zhang; Jian Li; Weidong Yang; Yulong Shen

Pricing Mechanism of Non-Fungible Token (NFT) Driven by Rarity Design

Wenze Xiong; Yetong Wang; Wanxin Li; Jie Zhang; Hao Guo

Joint Pricing for Carbon and Electricity Trading in Blockchain-Based Smart Grids: A Two-Stage Game Approach

Wang Xu; Feilong Lin; Riheng Jia; Changbing Tang; Minglu Li

Mitigate Gender Bias in Construction: Fusion of Deep Reinforcement Learning-Based Contract Theory and Blockchain

Zijun Zhan; Yaxian Dong; Daniel Mawunyo Doe; Yuqing Hu; Shuai Li; Shaohua Cao; Wei Li; Zhu Han

AgBIS: A Blockchain-Enabled Crop Insurance Platform Against Adverse Selection, Moral Hazard, and Insurance Frauds

Zhonghao Liao; Chaoqun Lu; Mark Mba-Wright; Hongli Feng; Yong Guan

Blockchain-4: Applications and Services (II)

Session Chair: Ivan Homoliak (ihomoliak@fit.vutbr.cz), Brno University of Technology

PureLottery: Fair Leader Election without Decentralized Random Number Generation

Jonas Ballweg; Zhuo Cai; Amir Kafshdar Goharshady

Smart Parking Dapp: A Trust Minimised Smart Parking Solution

Nazim Rizvic; Amin Sakzad; Arash Mirzaei; Taha H. Rashidi

Efficiency-Enhanced Blockchain-Based Client Selection in Heterogeneous Federated Learning

Zhiqi Lei; Keke Gai; Jing Yu; Liehuang Zhu; Kim-Kwang Raymond Choo

BBB-Voting: Self-Tallying End-To-End Verifiable 1-out-of-k Blockchain-Based Boardroom Voting

Ivan Homoliak; Zengpeng Li; Pawel Szalachowski

iBCTrans: A Practical Blockchain-Based Framework for Cellular Vehicular-To-Everything Networks

Wei Yao; Yuhong Liu; Fadi Deek; Guiling Wang

Blockchain-5: Applications and Services (III)

Session Chair: Michele Albano (michele.albano@gmail.com), Aalborg University

Blockchain-Based Trustless Fair Payment Protocol for Verifiable Confidential Outsourcing Computation

Hiu Long Lee; Man Ho Allen Au; Shi-Feng Sun

Blockchain-Based Smart Contracts for Land Title Registry Opportunities and Adaption for Fiji

Rishal Ravikesh Chand; ABM Shawkat Ali; Peng Zhang

Group-Oriented Multi-signature Supporting Monotonic Endorse Policies in Hyperledger Fabric

Peng Zhang; Yongwen Huang; Fa Ge; Yuhong Liu

A Method and Platform for Security Advisory Dissemination Leveraging Web3 Technologies

Jannik Lucas Sommer; Magnus Mølgaard Lund; Nicola Cibir; Michele Albano

Blockchain-6: New Architectures

Session Chair: Wei Tong (wtong@stu.xidian.edu.cn), Xidian University

Decision Models for Selecting Patterns in Governance-Driven Blockchain Systems

Yue Liu; Qinghua Lu; Hye-young Paik; Guangsheng Yu; Liming Zhu

Securing Smart UAV Delivery Systems Using Zero Trust Principle-Driven Blockchain Architecture

Chengzu Dong; Shantanu Pal; Qi An; Aiting Yao; Frank Jiang; Zhiyu Xu; Jianhua Li; Meiqu Lu; Yangxu Song; Shiping Chen; Xiao Liu

Account Abstraction, Analysed

Qin Wang; Shiping Chen

Crisis of Trust: Analyzing the Verifier's Dilemma in Ethereum's Proof-Of-Stake Blockchain

Daria Smuseva; Ivan Malakhov; Andrea Marin; Sabina Rossi

A Blockchain-Based Approach to Improving Smart Home Security with Situation-Aware Access Control

Zhicheng Lin; Stephen Yau

Securing IoT Firmware Dispatch System with Blockchain

Vince Biro; Wei-Yang Chiu; Weizhi Meng

Blockchain-7: Scalability and Optimization

Session Chair: Weizhi Meng (weme@dtu.dk), Technical University of Denmark

Towards Scalable Cross-Chain Messaging

João Otávio M. Chervinski; Diego Kreutz; Jiangshan Yu

SCU: A Hardware Accelerator for Smart Contract Execution

Tao Lu; Lu Peng

Cross-Chain Based Spectrum Resources Transfer Technology Across Different Telecom Operators Towards 6G

Mengjiang Liu; Qianhong Wu; Kun Wang; Tianxu Han; Yiming Hei

A Community-Based Strategy for Blockchain Sharding: Enabling More Budget-Friendly Transactions

Zixu Zhang; Ying Wang; Guangsheng Yu; Xu Wang; Ming Zhang; Wei Ni; Renping Liu

Fault-Tolerant Verifiable Encrypted Search on Blockchain

Xuan Chen; Shujie Cui

Blockchain-8: IBTA Workshop (I)

Session Chair: Zihang Yin (yinzihang@caict.ac.cn), CAICT

Data Interoperability Technology Based on Chain-Network Convergence

Haoyu Wang; Jiping Xu; Xin Zhang; Cheng Chi; Zihang Yin; Yanjie Shao

A Trusted Sharing Model for Risk Information of Food Full-Process and All-Information Based on Blockchain and Federated Learning

Xin Zhang; Xueze Tan; Jiping Xu; Song Luo; Zhibo Qi

Trusted Access Control Mechanism for Intelligent Manufacturing Based on Decentralized Identifier

Ru Huo; Dong Ni; Zihao Shao

The Appliance of Decentralized Identifiers in Zero Trust Network

Tongtong Cheng; Cheng Chi; Yuwen Zhang; Zihang Yin

Blockchain-9: IBTA Workshop (II)

Session Chair: Zihang Yin (yinzihang@caict.ac.cn), CAICT

A Blockchain Based Trustworthy Space in Cross-Domain Synergy

Lin Sun; Xiaoyun Jia; Jiayi Liu; Yulun Song; Yunlong Xie; Chaoyue Xue

Research on the Development of Blockchain-Based Distributed Intelligent Healthcare Industry: A Policy Analysis Perspective

Yang Yue; Joseph Z. Shyu

The Ecological System of Digital Asset Markets: Based on the Perspective of Asset Trading and Valuation

Cheng Chi; Wenqu Chen; Hang Liu; Xiaozhuang Li; Fuyu Meng

Blockchain-10: BSS Workshop (I)

Session Chair: Leo Wang (yonghao.wang@bcu.ac.uk), Birmingham City University

An Evaluation Framework for Assessing IPFS Performance within a Blockchain-Based Healthcare System

Ghassan Al-Sumaidae; Rami Alkhudary; Zeljko Zilic; Andraws Swidan

A Video Security Verification Method Based on Blockchain

Zhenghang Zhao; Yunxia Liu; Hongguo Zhao; Yonghao Wang

A Proxy-Layer Approach to Secure Smart Contract Deployment on Private EVM-Based PoA Blockchains

Yonghao Wang; Jahid Ali; Junaid Arshad; Yunxia Liu

Omniscient: The Universal Blockchain Oracle
Kristián Košťál; Igor Durica; Michal Ries

Blockchain-11: BSS Workshop (II)

Session Chair: Leo Wang (yonghao.wang@bcu.ac.uk), Birmingham City University

MACS: A Multi-asset Coin Selection Algorithm for UTXO-Based Blockchains
Gholamreza Ramezan; Manvir Schneider; Mel Mccann

Trustworthy VANET: Hierarchical DAG-Based Blockchain Solution with Proof of Reputation Consensus Algorithm
Zhongxu Dong; Huanyu Wu; Zongyao Li; De Mi; Olaoluwa Rotimi Popoola; Lei Zhang

Blockchain International Certification Layer
Saeed Alketbi; Massudi bin Mahmuddin

A Cross-Chain Identity Authentication Scheme Based on DID
Yirui Bai; Zixuan Liu; Xuefeng Liu; Xiang Lu; Hong Lei

Blockchain-12: FBS + SPB Workshop

Session Chair: Xiaoqi Li (csxqli@hainanu.edu.cn), Hainan University

Demo Paper: Anonymous Authentication on Trust in Blockchain-Based Mobile Crowdsourcing System
Guocang Liu; Haoxiang Han; Wenxiu Ding; Shufan Fei; Zheng Yan

EMIS: A Uniform Management and Resolution System of Multiple Identifiers on Ethereum
Feng Zhao; Hui Li; Shaoliang Peng; Xiyu Wang; Ping Lu; Qianbin Chen; Weixiang Huang; Jianping Wu; Xiang Zhu; Selwyn Deng; Hanxu Hou; Jieren Chen; Han Wang

Unveiling Vulnerabilities in DAO: A Comprehensive Security Analysis and Protective Framework
Chia Cheng Tsai ; Cheng Chieh Lin; Shih Wei Liao

SrNFT: Simple Restricted Non-Fungible Token Framework for Transactions with Risk Detection
Zixuan Liu; Yirui Bai; Tiankai Xu; Haoyu Gao; Hong Lei

Efficient Authentication System Based on Blockchain Using eID Card
Liang Liu; Kazumasa Omote

Demo Session (8 号馆(No. 8 Pavilion) 8101, Dec. 18, 2023, 15:40-16:25 and 19:00--20:00)

Session Chair: Long Shi (slong1007@gmail.com), Nanjing University of Science and Technology

A Partitioned Parallelized and Programmable Blockchain System
Mingrui Cao; Bin Cao; Haoyang Li; Qinquan Hu

Trusted Industrial Infrastructure: An Efficient and Secure Consortium Blockchain System
Pengcheng Xia; Jun Li; Hansen Zhong; Huaxin Xu; Jin Ma; Jingyu Wu; Long Shi

PaaSforChain - From Haul to Plate
Jakob S Notland; Jingyue Li; Yanze Wang

Validating Consensus Algorithms in IoT Networks: Design and Implementation of a Scalable Blockchain Network Emulator
Dancheng Zhao; Bo Fang; Taotao Wang; Shengli Zhang; Qing Yang

Blockchain-Based Interference Tracing and Coordination in Power Wireless Private Network
Kexin Chen; Ping Cao; Wei Wang

Blockchain Tutorials (8 号馆(No. 8 Pavilion) 8104, Dec. 19, 2023, 14:10-18:30)
Session Chair: Zengpeng Li, Lancaster University

Title: Delving Deep into Token Security: Uncovering Unlimited Approval and Flash Loan
Dabao Wang (Monash University, Australia)

Abstract: This tutorial offers a comprehensive examination of the intricacies surrounding ERC20 token approvals and Flash Loans within the realm of DeFi. Attendees will acquire a detailed understanding of the potential pitfalls associated with unlimited approval, delving into the inherent risks and utilizing real-world data to assess the extent of abuse. Additionally, we will explore the design, patterns, and impact of Flash Loans on the DeFi ecosystem. By focusing on these two distinct aspects, this session offers a specialized insight into the complexities of ERC20 token operations and the revolutionary Flash Loan mechanism.

Title: Navigating DeFi Security: From Threat Landscape to Prevention Strategies

Liyi Zhou (Imperial College London, UK); Ye Wang (University of Macau, Macau); Weilin Li (University of Science and Technology of China, China)

Abstract: This tutorial seeks to elucidate the multifaceted landscape of Decentralized Finance (DeFi) attacks, thereby fostering a nuanced understanding of the extant and emergent threats pervasive in the DeFi arena among the attendees. By delving into a myriad of real-world attack vectors and juxtaposing various case studies, the tutorial aims to engender a robust discourse among blockchain researchers and practitioners, thereby catalyzing a collaborative milieu for further exploration and mitigation strategies in the burgeoning DeFi domain. Through this endeavor, the tutorial aspires to bridge the knowledge chasm, nurturing a well-informed community poised to tackle the security challenges inherent in DeFi ecosystems.

Title: Blockchain-Enhanced Federated Learning: Decentralization, Trust, and Transparency

Xu Wang (University of Technology Sydney, Australia)

Abstract: Amidst the rapidly unfolding domain of decentralized machine learning frameworks, the fusion of Blockchain and Federated Learning is carving a unique and compelling research trajectory. Led by Dr. Xu Wang from the University of Technology Sydney, Australia, this tutorial sets out with a deep dive into the underpinnings of Blockchain, underscoring its decentralized essence and its integration potential with distributed Federated Learning models. This exploration offers a clear perspective on the multifaceted advantages and inherent challenges of integrating these technologies. As the narrative progresses, it delves into the core principles of Blockchain, highlighting its pivotal role in promoting decentralization, establishing trust, and ensuring transparency. Merging Blockchain with Federated Learning gives rise to an enhanced paradigm, fortifying data protection measures and paving the way for ground-breaking applications. Attendees will gain insightful knowledge into the subtleties of centralized Federated Learning, appreciate the paradigm-changing advances offered by decentralized learning frameworks, and grasp the complex interplay between Blockchain and Federated Learning. The tutorial culminates with a reflective discourse on prevailing research efforts and prospective future directions.

The iThings 2023 Presentation Program

iThings-1: IoT Enabling Technologies (I)

Session Chair: Miao Qu (miao.qu@tcl.com), TCL Shenzhen

Secure and Scalable Blockchain for IIoT with Dual Compression Scheme

Tianxi Wang; Jiqiang Liu; Tianhao Liu; Di Zhai; Jian Wang; Tao Zhang

A Blockchain Sharding-Based Data Sharing Scheme for Internet of Vehicles

Kang Ning; Chang Liu; Shihao Lin; Xiaochao Geng; Guojun Han

Multi-Agent Reinforcement Learning Based Resource Allocation in End-Edge-Cloud Enabled Industrial Internet of Things

Yanmei Chen; Xiao Huan Li; Jin Ye; Xun Wang

Pre-Trained Large Model Fine-Tuning with Case-Based Reasoning Framework for Transportation Risk Scene Prevention

Wuchang Zhong; Jinglin Huang; Rong Yu

Stochastic Geometry Based Modeling and Performance Analysis of Buoy-Assisted Offshore Internet of Things

Xu Hu; Yi Wang; Bin Lin; Haichao Wei

iThings-2: IoT Enabling Technologies (II)

Session Chair: Xiaofeng Luo (gdutxiaofengluo@163.com), Guangdong University of Technology

Robust Respiration Detection Based on Intelligent Reflecting Surfaces

Yun Wu; Dongheng Zhang; Ganlin Zhang; Xuecheng Xie; Fengquan Zhan; Yan Chen

Multi-Scale Enhanced Depth Knowledge Distillation for Monocular 3D Object Detection with SEFormer

Han Zhang; Jun Li; Rui Tang; Zhiping Shi; Aojie Bu

Deep Reinforcement Learning for UAV-Assisted Spectrum Sharing: A Minority Game Approach

Xinyu Ding; Jie Zhang; Zhe Wang; Xuehe Wang

Research on Supply Chain Traceability System Based on Semantic Multi-Blockchain and Pre- OnChain Data Verification

Lulu Li; Huan Qu; Wei Wang; Junyu Wang; Zhihui Wang; Bin Nong

iThings-3: IoT Networks & Communications (I)

Session Chair: Xiangyun Tang (xiangyunt@muc.edu.cn), Minzu University of China

A Dynamic Service Identity-Based Security Policy Consistency Checking Mechanism in SDN

Xincheng Yan; Jianhua Wu; Na Zhou; Zhihong Jiang; Junsan Zeng; Jianhui Yin; Ying Liu

An Overview of Enabling Artificial Intelligence in 3GPP 5G-Advanced Networks

Miao Qu; Xiaoyong Tang; Yincheng Zhang; Zhe Chen; Tao Zhang; Yingchun Li

Joint Optimization of Uplink Spectrum Efficiency and UAV Trajectory in Cell-Free UAV Network

Jian He; Chunyu Pan; Qian Chen

Age of Energy Harvesting and Energy Efficiency Optimization in SWIPT-Aided Wireless Networks

Zhe Wang; Jiekai He; Lina Ge

An Anti-Fraud Double Auction Model in Vehicle-To-Vehicle Energy Trading with the K-Factor Approach

Yiming Xu; Lu Zhang; Nazmiye Balta Ozkan; Long Chao

iThings-4: IoT Networks & Communications (II)

Session Chair: Weiting Zhang (wtzhang@bjtu.edu.cn), Beijing Jiaotong University

Adaptive Data Sampling with Dual-Scale Prediction in Deterministic Edge Network
Lei Li; Zheng Yiming; Jinyi Wang

Blockchain-Based Access Control Model for Security Attributes in the Internet of Things
Xincheng Yan; Jianhua Wu; Na Zhou; Zhihong Jiang; Juqin Wu; Jianhui Yin; Ying Liu

An End-To-End Deterministic Network Architecture for Electricity-Energy Internet
Lei Li; Boning Feng; Yixuan Zeng

Observability of Friendship Networks
Taoning Dong; Pengchao Lv; Songlu Li; Junjie Huang; Bo Liu

iThings-5: IoT Networks & Communications (III)

Session Chair: Xin Tang (tangx@mails.guet.edu.cn), Guilin University of Electronic Technology

A Two-Stream Network with Spatial Long-Range Modeling for Weakly-Supervised Temporal Action Localization
Aojie Bu; Han Zhang; Jun Li; Zhiping Shi

A Stable Clustering Method Based on Coalition Game Theory in FANET
Yimeng Huang; Rongbin Yao; Qian Chen; Yonghua Mo; Xin Tang

A Lightweight Secure Data Aggregation Scheme for Heterogeneous Devices in Smart Home
Yun Zhao; Shan He; Haolin Wang; Yuming Zhao; Ziwen Cai

Discretized Optimal AP Deployment Algorithm for Indoor Environment
Meizhu Pan; Xiaofeng Zhong

iThings-6: IoT Services and Intelligence (I)

Session Chair: Xuangou Wu (wuxgou@ahut.edu.cn), Anhui University of Technology

Differentially Private Federated Learning with Heterogeneous Group Privacy
Mingna Jiang; Linna Wei; Guoyue Cai; Xuangou Wu

Towards Semantic Web of Things: Reference Architecture and Gap Analysis
Xiang Su; Ekaterina Gilman; Xiaoli Liu

Stackelberg Game-Base Incentive Scheme for Federated Learning in Artificial Intelligence of Things
Shaowen Qin; Jin Ye; Xin Tang; Xiao Huan Li

Design and Implementation of Security Enhancement Mechanism for Smart Distribution Transformer Combine Terminal Based on WAPI Protocol
Chao Fan; Jin Qian; Mengjun Du; Xinjia Wang; Xiang Xiang

iThings-7: IoT Services and Intelligence (II)

Session Chair: Tong Wu (tongw@bit.edu.cn), Beijing Institute of Technology

Clustering-Based Federated Learning for Heterogeneous IoT Data
Shumin Li; Linna Wei; Weidong Zhang; Xuangou Wu

Achieving Privacy-Preserving Arbitrary Geometric Range Query with Bilateral Access Control
Xiaochen Ma; Chenfei Hu; Zhuopeng Li; Haotian Liang; Tong Wu; Taiyuan Zhang

Enhancing Security and Privacy in Healthcare: A Conceptual Model
Nadeem Yaqub; Jianbiao Zhang; Weiru Wang

Verifiable Privacy Preservation Scheme for Outsourcing Medical Image to Cloud Through ROI Based Crypto-Watermarking

Chuan Zhou; Yi Zhou; Xinghan An; Yan Liu; Min Wang; Xiangzhi Liu

iThings-8: IoT Systems and Applications (I)

Session Chair: Jiawen Kang (kavinkang@gdut.edu.cn), Guangdong University of Technology

A PUF-Based Identity Authentication Method for Wireless Sensor Network Devices in Power System

Ying Wang; Zheng WeiJun; Jinjiang Tang; Feng Sun; Chen Xu; Bin Du; Chunyan An

IMU-Based Reliable Vital Signs Monitoring from Human to Dog

Rina Amano; Walid Brahim; Jianhua Ma

Posture-Robust Breath Sensing via Imaging Radar

Jinli Zhang; Dongheng Zhang; Jinbo Chen; Haoyu Wang; Changwei Wu; Hanqin Gong; Shijie Han; Yan Chen

Joint Content and Communication Resource Allocation for Privacy-Preserving Distributed Collaborative Edge Caching

Qi Chen; Jingjing Wu; Wei Wang; Zhaoyang Zhang

iThings-9: IoT Systems and Applications (II)

Session Chair: Xiaohuan Li (lxhguet@guet.edu.cn), Guilin University of Electronic Technology

A Lightweight IoT Device-Friendly Anomaly Sitting Posture Detector for Protecting Adolescent Bone Development

Haowen Ji; Jiacheng Xie; Peng Sun

Deep Learning-Based RF Fingerprinting for LoRa with Heterogeneous Receivers

Tianshu Cui; Chen Gao; Zhihao Li; Jiabao Han; Ruike Li; Yang Yu

Performance Evaluation of RF Fingerprinting via Deep Learning for Satellite Network Security

Tianshu Cui; Yang Yu; Yang Liu; Xinyu Lu; Jiacheng Rao; You Zhang

A Vision for Future HVDC Cable Accessories: IoT and Beyond

Yi Luo; Tobias Fechner; Haitian Wang; Mingyu Zhou; Ruoyu Xu; Yanjie Le

iThings-10: IoT Enabling Technologies (III)

Session Chair: Xiaoming Yuan (yuanxiaoming@neuq.edu.cn), Northeastern University

Blockchain Identity Authentication-Aided Trustworthy Multicast Routing Strategy for LEO Satellite Networks

Jiaxin Song; Ying Ju; Yuqi Wang; Yanlong Zou; Congjian Deng; Xiaoming Yuan; Chen Chen

Edge Computing Enabled Real-Time Video Analysis via Adaptive Spatial-Temporal Semantic Filtering

Xiang Chen; Wenjie Zhu; Jiayuan Chen; Tong Zhang; Changyan Yi; Jun Cai

Patch-Based Transformer for Low-Light Image Enhancement

Yu Zhang; Shan Jiang; Xiangyun Tang

Cross-Shard Blockchain-Based Asynchronous Federated Learning: Stackelberg Game-Based Efficient Resource Allocation

Zhipeng Gao; Qigeng Lin; Yijing Lin; Yang Yang; Lanlan Rui

Multimodal Sentiment Analysis with Image-Text Correlation Modal

Yuxin Li; Shan Jiang; Chaomurilige Chaomu

iThings-11: IoT Enabling Technologies (IV)

Session Chair: Qinwei He (qinwei.he@geiri.eu), GEIRIEG

Multi-Agent Graphic Reinforcement Learning for Real-Time UAV Video Transmission with Predictive Target Tracking

Fan Duan; Kun Zhu

Differentially Dynamic Pricing for Local Energy Provider with Renewable Sources

Lei Wu; Didi Liu; Xiaoming Yuan; Qianjing Zhang; Hui Zhang

A Comparative Study of Vibration and Energy Harvesting in Two Types of HVDC Converter Modules

Qinwei He; Tian Lan; Hui Huang; Yuanliang Lan; XueFeng Wu

A Construction Method of Multilingual Comparable Corpus in the Background of Artificial Intelligence and Internet of Things

Shumin Dong; Yu Weng; Chaomurilige Chaomu

MATFL: Defending Against Synergetic Attacks in Federated Learning

Wen Yang; Luyao Peng; Xiangyun Tang; Yu Weng

iThings-12: IoT Networks & Communications (IV)

Session Chair: Hongbin Chen (chbscut@guet.edu.cn), Guilin University of Electronic Technology

Joint Security-Reliability Analysis and Optimization for Time Sensitive Mobile Edge Computing Networks in Smart Grid

Jie Wang; Jialin Chen; Zheng Zhou; Dekun Zhou; Moujun Li; Botao Yu; Yu Guan

Dynamic Influence Maximization with WoM Sensitivity in Blockchain Online Social Network

Ziying Huang; Li Li

Outage Probability Analysis of the Symbiotic Backscatter-NOMA Systems

Yuhui Zhou; Gaojian Huang; Xingwang Li; Xilai Wang; Xiaoyao Wang

Unmanned Aerial Vehicle Swarm Assisted Sleep Scheduling Algorithm in Wireless Sensor Networks

Ting Liao; Hongbin Chen

Environmental-Adaptive Trajectory Prediction of Multi-Object for UAV Networks with RGBD Camera

Yongzhu Zhong; Xiaohuan Li; Peiqin Wu; Xin Tang; Qian Chen

iThings-13: IoT Services and Intelligence (III)

Session Chair: Xiangyun Tang (tangguotxy@163.com), Minzu University of China

IPES: Improved Pre-Trained Encoder Stealing Attack in Contrastive Learning

Chuan Zhang; Zhuopeng Li; Haotian Liang; Jinwen Liang; Ximeng Liu; Liehuang Zhu

Decentralized Reputation-Based Leader Election for Privacy-Preserving Federated Learning on Internet of Things

Luyao Peng; Xiangyun Tang; Chenxi Li; Yao Xiao; Tao Zhang; Yu Weng

An Adapted Mean Teacher Model for Semi-Supervised Indoor Positioning Using Channel Impulse Response

Yingzhi Liu; Bei Yang; Wei Li; Xiaoming She; Yijing Liu; Gang Feng

Heterogeneous Personalized Privacy Protection for Internet of Medical Things: A Blockchain-Based Federated Learning Approach

Peisen Gao; Jingyi Su; Zerui Xu; Xiaoming Yuan; Yuchuan Fu

Semantic-Driven Performance Optimization for UAV Based Object Detection

Jiaxin Guo; Kun Zhu

Enabling Vision-And-Language Navigation for Intelligent Connected Vehicles Using Large Pre-Trained Models
Yaqi Hu; Dongyuan Ou; Xiaoxu Wang; Rong Yu

iThings-14: IoT Systems and Applications (III)

Session Chair: Gaofeng Pan (gfpan@bit.edu.cn), Beijing Institute of Technology

Outage Analysis of RSMA Space-Terrestrial Downlink in the Presence of Ground Interference
Hang Deng; Xiaqing Miao; Jinpeng Song; Gaofeng Pan; Shuai Wang; Jianping An

Data-Driven Ship Stay Behavior Identification in Maritime Internet of Things System
Yin Shangkun; Wen Liu

MCMSys: Multimodal Data Closed-Loop Management System for Autonomous Driving
He Li; Zhaogao Zhou; Pintong Chen; Jinjie Yan; Rong Yu; Ziwei Hu

APBAO: Adaptive and Parallel Beetle Antennae Optimization
Xuan Liu; Chenyan Wang; Xiangyu Qu; Chang Xu; Zheng Liu; Shan Jiang

An Adaptive Scheme for Energy Buffer-Aided Wireless-Powered Cooperative NOMA System
Ting Ning; Guofa Cai; Kengyuan Xie; Jiguang He

The Modified Unsupervised Low-Light Image Enhancement Approach Based on the Retinex Theory
Yingchun Zhang; Shan Jiang; Xuan Liu

The GreenCom 2023 Presentation Program

GreenCom-1: Green Enabling Technologies

Session Chair: Wenli Zheng (zheng-wl@cs.sjtu.edu.cn), Shanghai Jiao Tong University

Evaluating the energy consumption of adaptation tasks for a CPS in the Arctic Tundra
Antoine Omond; Issam Raïs; Helene Coullon

Inter-Satellite Resource Balancing Based on Genetic Algorithm in Terrestrial-Satellite Networks
Chang Han; YaoHui Song; Xi Li; Hong Ji; Heli Zhang

Blockchain-based Transaction Group Key Management Scheme for Edge Devices
Qingyuan Liu; Ting Chen; Xiaoze Ni; Tao Liu; Shuwei Song; Jiahao He

Deep Reinforcement Learning-Based Smart Grid Resource Allocation System
Qiong Lang; Dunzhu Laba; Ciren Mima; Rui Zhang; Yinghen Wu; Wenting He; Mingjia Li

ChirpCom: A CSS based Underwater Acoustic Communication for Smart Devices
Hengbin Wang; Dan Xia; Zhanchao Yang; Xinrun Du; Peichen Zhao; Xiaolong Zheng; Liang Liu; Huadong Ma

GreenCom-2: Smart Energy and Grid (I)

Session Chair: Li Li (llili@um.edu.mo), University of Macau

Evaluation of Single-Board Computer Based Power Monitoring for IoT and Edge Systems
Loïc Guégan; Salma Tofaily; Issam Raïs

Retrieval-based Battery Degradation Prediction for Battery Energy Storage System Operations
Yixuan Li; Qirui Yang; Hao Wen; Huiwen Zheng; Weimin Liu; Hui Li; Yuanchun Li; Yunxin Liu

Anonymous Authentication Scheme for Electric Vehicle Reservations in V2G Networks
Xiaohua Yang; Haolin Wang; Jiahao Li; Yun Zhao; Ziyang Yang; Ziwen Cai

A low cost weather monitoring, PV and prediction system in East Africa
Geoffrey Mark Kagarura; Ulrich Hilleringmann; Dmitry Petrov

High Accuracy Current Comparator Technology based on Solid-state Quantum Precision Measurement
Tianfu Huang; Tongyao Lin; Hanbin Huang; Xiaofei Li; Qi Nie; Han Wang

GreenCom-3: Smart Energy and Grid (II)

Session Chair: Kuangyu Zheng (zhengky@buaa.edu.cn), Beihang University

Research on DC Current Measurement Method based on Solid-state Quantum
Mingyang Liu; Changkui Wang; Xiaofei Li; Qi Nie; Han Wang

Design of Multifunctional Shock Wave Overpressure Acquisition System
Chuang Hu; Yu Ma; Chao Wang; Ya Zhang; Jun Wang

Change Back Meter Carrier Module Intelligent Sorting and Management Techniques Based on ARM
Hanlu Liu; Fuyong Zhu; Luhao Lin; Limin Liu

Low-Carbon Power Grid Economic Assessment Model Based on CNN and LSTM
Yinghen Wu; Wenting He; Mingjia Li; Rui Zhang; Hongfeng Zhang; Buduojie Suolang; Yuxin Yang

Power Grid Security Situation Awareness Method based on Deep Learning
Hongfeng Zhang; Buduojie Suolang; Yuxin Yang; Rui Zhang; Qiong Lang; Dunzhu Laba; Ciren Mima

FrostOracle: A Novel and Efficient Blockchain Oracle Scheme Based on Threshold Signature
Xi Chen; Fang Li; Wenwu Yang; Ting Chen

MAGI-NET: Masked Global Information Network for Symbolic Music Generation
Pengfei Li; Dawei Wang; Jingcheng Wu; Jiang Yang

Secure URLLC Empowered by UAV in 6G: An Interference Engineering Perspective
Yu Kan; Kaixuan Li; Zhiyong Feng; Xiao Zhao; Li Dong; Chuanwen Luo; Ting Chen

Paper Indexing Method and System Based on Blockchain
Renkai Jiang; Xi Chen; Wenwu Yang; Ting Chen

Proof-of-Pedal -Pedal-Powered Byzantine Green Consensus for Blockchain
Eranga Bandara; Peter Foytik; Sachin Shetty; Kasun De Zoysa; Ravi Mukkamala; Abdul Rahman; Xueping Liang; Nalin Ranasinghe; Wee-Keong Ng

The CPSCoM 2023 Presentation Program

CPSCoM-1: Data & Services

Session Chair: Ran Wang (wangran@szu.edu.cn), Shenzhen University

Multilevel Classification of Drowsiness States Using ECG with Optimized Convolutional Neural
Kentaro Taki; Jianhua Ma; Ao Guo; Muxin Ma; Alex Qi

A Relation-Aware Cloth-Changing Person Re-Identification Framework Based on Clothing Template
Chenshuang Su; Mingdong Zou; Yujie Zhou; Xiaoke Zhu; Wenjuan Liang; Caihong Yuan

Deep Interpretable Component Decoupled Dictionary Neural Network for Image Denoising in Industrial Cyber-Physical System

Lizhen Deng; Yushan Pan; Guoxia Xu; Taiyu Yan; Zhongyang Wang; Hu Zhu

Intelligent Resource Allocation for Coexisting eMBB and URLLC Traffic in 5G Industrial Networks

Dawei Shen; Ziheng Deng; Minxi Li; Qingxu Deng

CPSCoM-2: Networks & Communications

Session Chair: Siyang Lu (sylvu@bjtu.edu.cn), Beijing Jiaotong University

Prediction Techniques for Internal Humidity Missing in Emergency Departments Using National Weather Service Environmental Data

Bumsik Lee; Gwangrae Yeom; Jongpil Jeong

Conflict Management in the Near-RT-RIC of Open RAN: A Game Theoretic Approach

Abdul Wadud; Nima Afraz; Fatemeh Golpayegani

TIDE: A Timing-Deterministic and Efficient Executor for Micro-ROS

Zilong Wang; Songran Liu; Xu Jiang; Dong Ji; Yi Wang

Semi-Supervised Few-Shot Network Intrusion Detection Based on Meta-Learning

Yao Liu; Le Zhou; Qiao Liu; Tian Lan; Xiaoyu Bai; Tinghao Zhou

CPSCoM-3: Technologies & Applications

Session Chair: Jinhua Cui (jhcuai@hust.edu.cn), Huazhong University of Science and Technology

Multi-Party Threshold Private Set Intersection Cardinality Based on Encrypted Bloom Filter

Jie Zhou; Daizhao Su; Jiao Deng

A Privacy-Preserving Federated Learning Framework Based on Homomorphic Encryption

Liangjiang Chen; Junkai Wang; Ling Xiong; Shengke Zeng; Jiazhou Geng

Unsupervised Mobile User Behavior Detection Based on Siamese Neural Networks

Yao Liu; Lu Liu; Qiao Liu; Tian Lan; Xiaoyu Bai; Le Zhou

Improving HDR Rendering with UMTMNet's Multilayer Perception

Peipei Liu; Weifeng Qin; Chaoxuan Hu

Leveraging Relay Nodes to Deploy and Update Services in a CPS with Sleeping Nodes

Issam Raïs; Helene Coullon; Antoine Omond; Otto Anshus

Representing Power Variability of an Idle Edge Node in the Power State Model

Salma Tofaily; Issam Raïs; Otto Anshus

Simulation of Constrained Environments Using ESDS: The Case of the Arctic Tundra

Loïc Guégan; Issam Raïs

The SmartData 2023 Presentation Program

SmartData-1: Applications

Session Chair: Ang Li (angli.cs@outlook.com), The Hong Kong Polytechnic University

Collaborative Multi-Task Learning across Internet Edges with Device-to-Device Communications

Ryusei Higuchi; Hiroshi Esaki; Hideya Ochiai

Word Orthography and Relationship-Dominant Engineering (WOR-De) Model for Wordle Game

Yifei Hu; Xinyao Zhuang; Yuxin Wan; Nanlin Jin; Xiaohui Zhu

SMOTE-IF: A Novel Resampling Method Based on SMOTE Using Isolation Forest Variants for Multi-Class Imbalanced Data

Ang Li; Ting Ting Ma; Sen Ye; Xun Liu

Relation Extraction Based on Dual-Path Graph Convolutional Networks

Junkai Wang; Jianbin Wu; Lixin Zhou; Qian Zhang; Xuanyu Zhang

FMCW Radar-based Sleep Posture Monitoring Through Logic and Deep Learning Methods

Mingyang Fan; Jianhua Ma; Muxin Ma; Alex Qi

Deep Learning for Microstructure Segmentation and Defect Detection in Additive Manufacturing Systems

Zhaochen Gu; Hang Tran; Song Fu

SmartData-2: Infrastructure and Systems

Session Chair: Bing Tang (btang@hnust.edu.cn), Hunan University of Science and Technology

An Interference-aware Approach for Co-located Containers Orchestration with Novel Metric

Xiang Li; Linfeng Wen; Minxian Xu; Kejiang Ye

Microservice Auto-Scaling Algorithm Based on Workload Prediction in Cloud-Edge Collaboration Environment

Zijun Peng; Bing Tang; Wei Xu; Qing Yang; Ehsanullah Hussaini; Yuqiang Xiao; Haiyan Li

Particle Swarm Optimization-Based Task Migration in Mobile-Edge Cloud Computing

Qixin Peng; Xinde Chen; Yujing Huang; Songkang Ma; Zhenli He

Age of Information Oriented Heterogeneous Transmission Scheduling for Cluster-based Flying Ad-Hoc Networks

Longzhang Wang; Feilong Lin; Liyong Yuan; Zhaolong Hu; Minglu Li

Enhancing Marketing Activity Prediction: A Framework for Early and Continuous Insights

Rui Zhang; Zhenyu Li; Shutian Zhou; Haiyang Yu; Feng Hong

SmartData-3: IoT Smart Data

Session Chair: Minxian Xu (mx.xu@siat.ac.cn), University of Chinese Academy of Sciences

Ranging Error model for IEEE 802.15.4 based UWB IoT devices

Zhiyong Ji; Zhuolong Chen; Tao Wu; Yubin Zhao

An Adaptive UWB Synchronization Algorithm based on The IEEE 802.15.4-2020 Protocol

Tao Wu; Zhiyong Ji; Yubin Zhao

A Contextual Bandit Approach for Network Service Selection

Zhenyu Li; Rui Zhang; Shutian Zhou; Haiyang Yu; Feng Hong

A Task Offloading Algorithm Based on Joint Resource Optimization in Mobile Cloud-Edge Architecture

Yuanrui Yang; Nan Wang; Yuan Chang; Yue Zhang; Wenxiao Tang

Credit Default Prediction Model based on Horizontal Federated Neural Network and Improved TrAdaBoost Algorithm

Maoguang Wang; Yuxiao Chen; Jiaqi Yan

DLFaaS: Serverless Platform for Data-Intensive Tasks Based on Interval Access Patterns (**Research Paper**)

Yang Cao; Hanqian Wu; Wenbin Song; Shengchao Yuan

The CBD 2023 Presentation Program

CBD-1: AI at Cloud and Edge Computing

Session Chair: Yingchi Mao (yingchimao@hhu.edu.cn), Hohai University

Cloud-Edge Collaboration via Preference-based Reinforcement Learning in Semantic Communications
Yikai Xu; Mingkai Chen; Zhe Zhang

Cooperative and Dynamic UAV-based Mobile Sink Deployment using Deep Reinforcement Learning
Mingyue Shao; Hanjiang Luo; Rukhsana Ruby; Pengyan Dong; Hang Tao

Learning-based Collaborative Service Placement for AI-oriented Mobile Edge Computing
Wei Li; Miao Li; Yuezhao Liu; Jiong Liu; Lanlan Cui

Multi-Server Cooperative Caching Strategy Based on Deep Reinforcement Learning in Cloud-Edge Computing
Guanyu Li; Yingchi Mao; Xinxin Peng; Zibo Wang

Offloading Dependency Mobile Tasks to Computing Power Network
Wenyan Zhang; Hongzhi Cui

CBD-2: Cloud and Big data Management

Session Chair: Jiahui Jin (jjin@seu.edu.cn), Southeast University

Deep Reinforcement Learning-based Load Balancing Algorithm for Sliced Ultra-Dense Network
Ao Sun; Feng Yang; Wenjun Wu; Tengda Wang; Yang Sun

Efficient Cloud Cluster Resource Scheduling with Deep Reinforcement Learning
Xiaochang Liu; Bei Dong; Fei Hao

Multi-UAVs Collaborative Search Scheme in Marine Environments using Deep Reinforcement Learning
Kai Guo; Hanjiang Luo; Hang Tao; Rukhsana Ruby; Zhizun Qin; Kui Liu

Power and Latency Collaborative Optimizations of Object Detection CNN on Edge Devices Under Limited Energy Budget
Zhiyi Huang; Zebin Wu; Junlong Zhou; Jin Sun

An Intelligent Action Decision Algorithm for Exoskeleton in Edge Networks Environment based on Deep Reinforcement Learning
Ben Xu; Jiacheng Sun; Yunzhe Wang; Qiming Fu; You Lu

CBD-3: Data and Security (I)

Session Chair: Yifei Lu (luyifei@njust.edu.cn), Nanjing University of Science and Technology

Detecting Spammers in Community Question Answering based on Attributed Heterogeneous Information Network
Yang Yuan; Lu Zhang; Haiting Zhu; Gaofeng He; Changjian Fang

Network Anomaly Flow Detection Framework Based on Collaborative Cloud-edge in the Smart Grid Network
Xiaolin Yang; Hao Zhang; Kai Yang; Yifei Lu

Retraining Generative Adversarial Auto-encoder for Video Anomaly Detection
Xiaosha Qi; Zesheng Hu; Genlin Ji

TIMED: Time-series Anomaly Detection via Parallel Memory Dynamic Fusion
Muyan Yao; Peng Qi; Ruipeng Gao; Dan Tao

A Lightweight RFID Security Authentication Protocol for Smart Medical Systems
Yan Wang; Feng Shu; Xuemei Lei; Xuehui Wang; Rongen Dong; Qiankun Cheng

CBD-4: Data and Security (II)

Session Chair: You Lu (luyou@usts.edu.cn), Suzhou University of Science and Technology

A Fast Recommendation Algorithm for Data Streams Based on Differential Privacy
Chang Guo; Xiujun Wang; Xiao Zheng; Xun Shao; Lei Mo; Gaoming Yang

A Blockchain-based Searchable Encryption Scheme for Efficient Data Sharing
Shusheng Ge; Shuming Xiong; Pengchao Chen; Qingqing Xie

Cloud Storage Auditing: From One Cloud to Dual, and More
Jianquan Cai; Fei Chen; Tao Xiang

SEM-DT: A Secure and Efficient One-to-Many Data Trading Scheme Based on Blockchain
Shuming Xiong; Pengchao Chen; Shusheng Ge

CBD-5: Data and Security (III)

Session Chair: Gaofeng He (hegaofeng@njupt.edu.cn), Nanjing University of Posts and Telecommunications

A CGAN-based Few-shot Method for Zero-day Attack Detection in the Internet of Vehicles
Bo Wang; Xinkai Chen; Jincheng Zhao; Bingfeng Xu; Gaofeng He

A rumor source identification method based on node embeddings and community detection in social networks
Wei Liu; Chencheng Xie; Shijie Zong

An Adaptive Differential Private Federated Learning in Secure IoT
Rixin Xu; Qing Li; Wenqiang Cao; Jingbo Yan; Youqi Li

Cooperative Detection of Camouflaged Malicious TLS Traffic
Jingang Wang; Tianyi He; Gao Feng He; Haiting Zhu; Bingfeng Xu; Lu Zhang

Time series anomaly detection based on TimeGAN and LSTM neural network
Weixin Han; Wenhao Ying; Wenjun Hu; Zhongqiang Sun

CBD-6: Data Analysis and Processing (I)

Session Chair: Lu Zhang (luzhang@nau.edu.cn), Nanjing Audit University

A study on a Multi-Model Fusion Framework for Automatic Website Classification and Recognition
Shiming Lin; Feiyan Ma; Lijuan Zhao; Changjun Song

Lightweight Multi-Scale Spatiotemporal Graph Convolutional Network for Skeleton-based Action Recognition
Zhiyun Zheng; Qilong Yuan; Huaizhu Zhang; Yizhou Wang; Junfeng Wang

A Multi-feature Fusion Based Rating Prediction Model by Considering Timeliness of Reviews and Influence of Trusted Neighbor Ratings
Zhigeng Han; Ting Zhou; Geng Chen; Yuanzhe Fan

Multi-level Learning for Semi-supervised Multi-view Classification
Na Song; Shundong Yang; Zhiling Cai; Jian Lin; Sujia Huang

Real time Dust Detection with Image Pyramid and improved ResNeSt
Bingchan Li; Bo Mao

CBD-7: Data Analysis and Processing (II)

Session Chair: Ding Ding (dingding-1@seu.edu.cn), Southeast University

Progressive Neural Networks for Continuous Classification of Retinal Optical Coherence Tomography Images
Di Wang; Kun Huang; Qiang Chen

Research on Fabric Defect Detection Algorithm Based on Improved YOLOv7
Kangrui Ye; Yuan Gao; Xiaoxiao Ye; Ansheng Ye

From Homoglyphs to Enhanced Homoglyphs: Enhancing NLP Backdoor Strategies through Character Substitution
Pingyuan Ge; Weihao Guo; Yuqing Zhang

A Generative Text Summarization Method Based on mT5 and Large Language Models
Feng Liu; Caiquan Xiong

STEP: Generating Semantic Text Embeddings with Prompt
Wenqiang Cao; Qing Li; Siying Zhang; Rixin Xu; Youqi Li

CBD-8: Data Analysis and Processing (III)

Session Chair: [Jingya Zhou \(jy_zhou@suda.edu.cn\)](mailto:jy_zhou@suda.edu.cn), Soochow University

Label Distribution-based Open-world Semi-supervised Learning
Qinkai Yang; Chao Tan; Junzhao Hao; Genlin Ji

Improving 360-degree Video Streaming with Adaptive Path Scheduling
Yue Yao; Qian Gao; Guoqiang Zhang; Yi Yin; Lingling Shen; Xiaojun Qian

Rich Information Driven Popularity Prediction on Weibo
Xinyang Shen; Zhen Wu; Jingya Zhou; Yujian Zhu; Weiqing Xu

Federated Average Optimization Algorithm Based on Medical Datasets
Rui Li; Hai Wang; Yuhui Ma

Research on the Improved Persistent Advantage Learning Algorithm Based on Deep Q Network
Cong Wang; Mingmin Zuo; Shuai Liu; Di Li

CBD-9: Machine/Deep Learning (I)

Session Chair: [Dian Shen \(dshen@seu.edu.cn\)](mailto:dshen@seu.edu.cn), Southeast University

A Temporal Sequence Framework based on Self-Attention for Student Dropout Prediction in MOOCs
Shixuan Chen; Bin Zhao; Genlin Ji

Measuring the Variation of Function Invocation for Cold Start Optimization in Serverless Environments
Wang Yue; Yan Xingyu; Li Bohan; Xu Shuai

A Machine-Learning Guided Tuning Approach for Optimizing Trusted Application in MEC
Yuhua Wang; Jie Ren; Zhiqiang Li; Weihang Chen; Xiaobao Zhu; Jie Zheng; Rui Cao

High-efficient Joinable Tables Discovery in Data Lakes: A Grey Relational Model-based Approach
Zefan Yu; Runqun Xiong; Fang Dong

HPopt: A Hybrid Parallel Optimization Scheduling Approach for Distributed DNN Training
Caishan Weng; Xinyang Li; Jinghui Zhang; Hang Yu

CBD-10: Machine/Deep Learning (II)

Session Chair: [Yuxiang Wang \(lsswyx@hdu.edu.cn\)](mailto:lsswyx@hdu.edu.cn), Hangzhou Dianzi University

A Novel Schema for Sensitivity Prediction of Unknown Nodes in the Knowledge Graph
Jian Cao; Jiuxin Cao

Knowledge Graph Embedding Based Graph Convolutional Network for Link Prediction
Qiang Wu; Qing He

Uneven Hybrid Clickstream Generation Based on Multi-Layer Perceptron
Shen Liu; Zhiyong Yu; Fangwan Huang

Better Data Distillation by Condensing the Interpolated Graphs
Yang Sun; Ziyuan Wang; Yu Xiang; Zheng Liu

A Constructive Method Based on Dynamic Solution Space for Travelling Salesman Problem
Bai Xiaoxin; Li Lu; Wu Hanqian

CBD-11: Machine/Deep Learning (III)

Session Chair: Jinghui Zhang (jh Zhang@seu.edu.cn), Southeast University

A-FAR: Research on Anti-obscuring Face Recognition Based on Improved FaceNet Model

Biaokai Zhu; Yangyang Zhang; Lu Li; Yuhong He; Yiting Song; Xiafei Li; Ruiting Yin; Jie Song; Ping Li; Sanman Liu; Jumin Zhao

Attribute Enhanced Graph Attention Networks for Session-based Recommendation
Yidan Xu; Ning Wang; Jiaqi Wu; Shuai Xu; Bohan Li

End-to-End Community Search based on Graph Transformer: A Demonstration
Zhiyuan Yu; Yuxiang Wang; Xiaoliang Xu; Xiaoxuan Gou

Optimization on Architecture of Time-Sensitive Software-Defined Network
Yuchun Gou; Xuetao Jiang; Zezheng Liu; Rui Zhou; Qingguo Zhou; Deke Guo

CBD-12: Machine/Deep Learning (IV)

Session Chair: Jie Ren (renjie@snnu.edu.cn), Shaanxi Normal University

Point-Multipoint Communication Scheduling in Industrial Internet: A Quick Survey

Yufeng Chen; Ping Jiang; Yida Qu; Mengqi Wu; Dian Shen; Ming Yang; Wenqian Lu

SpringNet: Enhancing Hardware-Dependent Model Adaptation through Efficient Cost Prediction
Guangtong Li; Mengyang Liu; Ye Wan; Fang Dong

Joint Control of Traffic Signal and Tolling on Parallel Roads via Deep Reinforcement Learning
Li Yiwen; Jin Jiahui; Zhu Xiaoxuan

DDAL: A Drift Detection Active Learning Mechanism

Shuren Li; Weinan Wang; Xiangqian Jiang; Di Wang; Jun Hua; Jiawei Mao; Yibin Lu; Xuan Jia; Zhen Wang; Yifei Lu

GNMS: A Novel Method for Model Stealing Based on GAN

Moxuan Zeng; Yangzhong Wang; Yangming Zhang; Jun Niu; Yuqing Zhang

The CSIG Everest Summit 2023 Presentation Program

The China Society of Image and Graphics (CSIG) Everest Summit is an academic forum initiated by the Youth Working Committee of the CSIG. This forum is primarily aimed at a specific research direction in the field of image and graphics, providing a platform for academic exchange and discussion for scholars, promoting communication and cooperation among them, and inviting industry application departments to engage in in-depth exchanges with young scholars of the society, encouraging "industry-academia-research" cooperation in related fields.

The 16th CSIG Everest Summit will be held on December 17, 2023, on Hainan's Ocean Flower Island, with the theme of "Intelligent Perception Computing and Learning". Scholars, distinguished business representatives, and students from related fields including machine perception and vision, image and video processing, graphics and virtual reality, and artificial intelligence are invited to participate. The conference invites leading experts in China and scholars in related fields to give keynote speeches and actively explore cutting-edge technologies and application prospects in the area of intelligent perception computing and learning.

Conference Schedule

Conference Date: December 17, 2023, 9:00-17:40

Conference Venue: Hilton (Multifunctional Hall, 3rd Floor, Star Tower), Ocean Flower Island, Hainan, China

Time	Speaker	Title	Host/Hostess
9:00-9:20		Summit Opening Ceremony Group Photo	Hua Li
9:20-10:00	Shutao Li	Multimodal Image Fusion Perception	Xizhao Wang
10:00-10:40	Ruimin Hu	Understanding of Nature and Society and Social Security Early Warning Technology	Xizhao Wang
10:40-11:00		Tea Break	
11:00-11:40	Mingyi He	Development of Cross-Layer Connected Networks and Green Neural Network	Chongyi Li
11:40-14:00		Lunch	
14:00-14:40	Minling Zhang	Delving into the Calibratability of Deep Neural Networks	Ran Wang
14:40-15:20	Wei Shen	Recognition by Aggregation	Ran Wang
15:20-15:40		Tea Break	
15:40-16:20	Jinli Suo	Lightweight Computational Imaging System and Application	Dingwen Zhang
16:20-17:00	Shiqi Wang	Technological Considerations on Generative Compression Coding	Dingwen Zhang
17:00-18:00		Open Discussion	Runming Cong
18:00-20:00		Dinner	

The IEEE DTSW Summit 2023 Presentation Program

Research in the Smart World aims to make the world that humans live in better suited to the environment and human needs. It involves using computational intelligence techniques in resource-constrained physical or computing systems. Research has focused on studying smart physical objects and their interactions, smart services, and smart infrastructure and systems tailored for personalization or considering social aspects or environment/system constraints.

Digital Twin is an emerging technology for smart world research. Digital twins enable monitoring, analysis, prediction, optimization, intelligent decision-making, and control in a virtual environment with a digital representation of real-world objects or processes. A digital twin could be machines, systems or even entire cities or cities. Applications of digital twins are across diverse sectors, such as urban planning, agriculture, sustainable food, industry, health care, environment monitoring etc.

Digital Twin technology is highly multi-disciplinary and thus requires expertise from various domains to realize its potential fully. The IEEE Digital Twin/Smart World (DTSW) Summit organized by Man Lin (St. Francis Xavier University, Canada), Runhe Huang (Hosei University, Japan), and Liming Chen (Ulster University, UK) will provide engaging discussions with our distinguished experts to provide valuable perspectives on their views on their research that can contribute to or benefit from Digital Twin technology for Smart World. The panel emphasizes the interconnectedness of digital twin research with other domains: smart technologies, data analytics, system modeling optimization, security, green computing, networking, cloud computing and AI, and social computing.

Conference Schedule

Conference Date: December 19, 2023, 16:30 – 18:30

Conference Venue: Hilton (Multifunctional Hall, 3rd Floor, Star Tower), Ocean Flower Island, Hainan, China

Panelist
Jianhua Ma Hosei University, Japan
Luo Xun Tianjin University of Technology, China
Julien Bourgeois University of Franche-Comté, France
Jiawen Kang Guangdong University of Technology, China
Zhen Yan Xidian University, China
Minxian Xu Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China
Dakai Zhu The University of Texas at San Antonio (UTSA), USA
Mianxiong Dong Muroran Institute of Technology, Japan

The Blockchain–IBTA 2023 Presentation Program

With the deepening integration of blockchain technology in the industrial manufacturing sector, the integration of decentralized systems, smart contracts, and identity verification mechanisms plays a crucial role in reshaping industrial operations, transactions, and communication methods. Industrial blockchain has gradually become a core technology in promoting transparency, security, and intelligent interconnectivity in the industrial sector. In order to comprehensively promote the development of the digital economy and accelerate the deep integration of industrial blockchain technology with various industries, under the guidance of the 6th IEEE International Conference on Blockchain, the China Academy of Information and Communications Technology (CAICT) will host "The 1st Workshop on Industrial Blockchain Technology and Applications (IBTA 2023)".

This workshop is centered around key areas in industrial blockchain, including foundational technology, digital identity, and specific applications. After undergoing expert reviews and author registrations, a total of 7 papers have been selected for final acceptance. The conference aims to bring together representatives from government, industry, academia, research, and application sectors for both academic and industry-oriented exchanges. The authors of the selected academic papers will present their findings, with the overarching goal of advancing critical research in industrial blockchain technology and promoting industry development in this field.

Conference Schedule

Conference Date: December 19, 2023, 9:00-12:00

Conference Venue: No.8 Pavilion, Room 8104, International Convention & Exhibition Center, Ocean Flower Island, Hainan, China

Time	Events	Content
9:00-9:05		Opening Introduction
9:05-9:25	Keynote Speech	Keynote Speech 1
9:25-9:45		Keynote Speech 2
9:45-9:50	Ritual Session	Open Project Release Ceremony
9:50-10:00		Tea Break
10:00-10:15	Paper Presentation Session	A Blockchain Based Trustworthy Space in Cross-Domain Synergy
10:15-10:30		A Trusted Sharing Model for Risk Information of Food Full-Process and All-Information Based on Blockchain and Federated Learning
10:30-10:45		Trusted Access Control Mechanism for Intelligent Manufacturing Based on Decentralized Identifier
10:45-11:00		Data Interoperability Technology Based on Chain-Network Convergence
11:00-11:15		Research on the Development of Blockchain Based Distributed Intelligent Healthcare Industry: A Policy Analysis Perspective
11:15-11:30		The Ecological System of Digital Asset Markets: Based on the Perspective of Asset Trading and Valuation
11:30-11:45		The Applience of Decentralized Identifiers in Zero Trust Network
11:45-12:00		Summary

The HiCFTP Summit 2023 Presentation Program

The 29th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2023) will be held in December 2023 on Ocean Flower Island, Hainan, China. The summit on "High-quality Computing for Free Trade Port (HiCFTP)" jointly organized by Hainan University, Shanghai Jiao Tong University, Peking University, and other universities will be held at the same time on December 20. The forum provides a platform for scientists, engineers, and users to exchange the latest research results on computing power construction and services.

Conference Schedule

Conference Date: December 20, 2023, 8:30-18:00

Conference Venue: No.8 Pavilion, Room 8104, International Convention & Exhibition Center, Ocean Flower Island, Hainan, China

Time	Title	Speaker
8:30-8:45	Opening Speech	
8:45-9:15	Twenty-Year Report of the Supercomputing Center of USTC	Huimin Li University of Science and Technology of China
9:15-9:45	Why the e-Science Center	Ge Yao Nanjing University
9:45-10:15	Report from Lenovo Expert	
10:15-10:45	Tea Break	
10:45-11:15	Construction of High Performance Computing Platform at Peking University	Zhenxin Fu Peking University
11:15-11:45	Service Form and Shallow Practice of Supercomputing Internet	Xinhua Lin Shanghai Jiao Tong University
12:00-13:30	Lunch	
13:30-14:00	Exploration and Practice of Key Technologies of Supercomputing Internet	Meng Guo Jinan Supercomputing Center
14:00-14:30	From Clusters to Integrated Computing Services	Nan Li Westlake University
14:30-15:00	Job Management for Industrial Software	Yue Song Chengdu Supercomputing Center
15:00-15:30	Exploration of High-Performance Computing Supporting Education	Wenxin Hu East China Normal University
15:30-16:00	Tea Break	
16:00-16:30	AI Empowering Industry-Academia-Research and Digital Transformation in Zhengzhou Center	Yuan Shang Zhengzhou University
16:30-17:00	Introduction to the Scientific Computing Public Service Platform of South China University of Technology	Jianbo Huang South China University of Technology
17:00-17:30	Construction and Management of Agricultural Bioinformatics High-Performance Computing Platform	Hao Liu Huazhong Agricultural University
17:30-18:00	Construction of High Performance Computing Application Software at Central South University	You Zou Central South University