

The 8th International Conference on Data Science Advancement of Data Science and Blockchain

Conference manual

Organizer: University of Chinese Academy of Sciences

Leading local organizer: Nanjing University of Finance and
Economics

Co Organizers: The University of Oxford, The University of
Queensland, Anhui JinQi Network Technology Co.,
Ltd

2021 年 11 月 19-21日 (Tencent Meeting)

Sponsors:



**Populus
Analytics**



中国科学院大数据挖掘与知识管理重点实验室

Key Laboratory of Big Data Mining and Knowledge Management, Chinese Academy of Sciences

Dataology

上海市数据科学重点实验室
Shanghai Key Laboratory of Data Science



管理学院

西安交通大学 管理学院



THE SCHOOL OF MANAGEMENT
XI'AN JIAOTONG UNIVERSITY

JINGQI 晶奇网络
JINGQI NETWORK



江苏省电子商务重点实验室

Jiangsu Provincial Key Laboratory of E-Business



International Society of Blockchain

International Society of
Algorithms and Chips





Introduction of the Conference

The explosion of digital data created by mobile sensors, social media, surveillance, medical imaging, smart grids and the like-combined with new tools for analyzing it all-has brought us a Big Data era. We are facing the great challenges: how to deal with data which is more than we could actually understand and absorb and how to make efficient use of the huge volume of data? From both scientific and practical perspectives, research on "Data Science" goes beyond the contents of Big Data. Data Science can be generally regarded as an interdisciplinary field of using mathematics, statistics, databases, data mining, high-performance computing, knowledge management and virtualization to discover knowledge from data. It should have its own scientific contents, such as axioms, laws and rules, which are fundamentally important for experts in different fields to explore their own interests from data. A Blockchain is a secured, shared and distributed ledger that facilitates the process of recording and tracking resources without the need of a centralized trusted authority. The technology is scalable and robust and all participant nodes provide resources in a fair manner, which alleviates many-to-one traffic flow bottlenecks.

The "International symposium/workshop on Dataology and Data Science" has been a platform for researchers from data and some practitioners from industry and government to share their ideas, research results and experiences on studying of data. From 2010 to 2013, it has been annually held in China where more than 300 scholars and industrial professionals from Australia, Canada, China, Japan, UK and USA attended. Started from 2014, this platform has been transferred as the annual International Conference on Data Science (ICDS) in order to further expand the preliminary findings and exchanges on Data Science. The last ICDS series were held at Beijing, China (ICDS 2014), Sydney, Australia (ICDS 2015), Xian, China (ICDS 2016), Shanghai, China (ICDS 2017), Beijing, China (ICDS 2018), Ningbo, China (ICDS 2019), Chengdu, China (ICDS 2020). ICDS 2021 will be held at Nanjing, China in Nov 20-21, 2020. Its theme will be: "Advancement of Data Science and Blockchain".

We invite internationally renowned scholars and professionals in various related fields of natural and social sciences to participate in this meeting to jointly promote the development of data science and comprehensively explore the methodology of data science from different research angles. Scholars will make special reports from many different angles, such as data sharing, data security and data application, and conduct full discussion and extensive exchange on their latest research ideas and academic achievements.

Introduction of the local organization

Nanjing University of Finance and economics is a key construction university in Jiangsu Province, which focuses on economic management disciplines and supports the supporting and coordinated development of economics, management, law, engineering, literature, science and other disciplines. It is selected as the national grain industry (Nanjing) education and training base and the provincial doctoral project construction unit in Jiangsu Province.

The school has three campuses, Xianlin, Fujian Road and Qiaotou, covering an area of 1207000 square meters and a total construction area of 713600 square meters; It has 18 teaching colleges (departments) and 49 undergraduate majors; It has 1 post doctoral mobile station, 1 doctoral talent training project serving the special needs of the country, 12 first-class disciplines authorized for master's degree, and 14 master's degree authorization points; There are more than 16000 ordinary undergraduate students and more than 2600 doctoral and master's students; There are nearly 1300 full-time teachers.

By February 2020, the university has built 1 National Engineering Laboratory for grain storage and transportation (rice platform), 1 national local joint engineering laboratory for e-commerce transaction technology, 1 International Joint Research Center for e-commerce information processing, 1 national grain postpartum service technology innovation center, 1 standard verification unit of the Ministry of agriculture and rural areas, and 1 national grain and oil standard research, verification and testing center, 4 provincial and ministerial engineering technology research centers, 3 provincial key laboratories, 1 provincial engineering laboratory, 2 provincial public technology service centers (platforms), and 1 Provincial University Key Laboratory; There are 1 think tank of modern service industry focused on cultivating philosophy and Social Sciences in Jiangsu Province, 2 provincial key research bases, 4 key research (including training) bases of philosophy and Social Sciences in Jiangsu Universities, 1 off campus research base of Humanities and Social Sciences in Jiangsu Universities, 7 scientific research institutions jointly built by Jiangsu provincial departments and bureaus, and 1 of the first batch of theoretical system research bases of socialism with Chinese characteristics in Jiangsu Province.

The university has nearly 1300 full-time teachers, including more than 200 teachers with senior titles and more than 700 teachers with doctoral degrees. At present, there are 1

"National University huangdanian style teacher team", 1 national excellent teaching team, 6 Jiangsu University "Blue Project" teams, 4 Jiangsu University Science and technology excellent innovation teams, and 3 Jiangsu University Philosophy and social science innovation teams (including cultivation points). Among the teachers, there are three leading talents of the national "ten thousand talents plan", one young scholar of the Yangtze River scholars award plan, two national cultural masters and "four groups" talents, one young talent for propaganda, ideology and culture, one middle-aged and young expert with outstanding contributions at the national level, two national candidates of the "one million talents project in the new century" and three talents of the "excellent talents support plan in the new century", There are 9 experts who enjoy the special government allowance of the State Council and 1 excellent environmental science and technology worker in China. In recent years, teachers have been selected into 230 talent projects such as "333 project", "blue and blue project", "six talent peaks" and "mass entrepreneurship and innovation plan" in Jiangsu Province, and more than 30 have won honorary titles such as distinguished professors, famous teaching teachers and middle-aged and young experts with outstanding contributions in Jiangsu Province.

Since the 13th five year plan, the school's teachers have presided over more than 200 national level vertical projects, including more than 10 national level major key projects, more than 200 provincial and ministerial level vertical projects, and more than 50 research achievements have won scientific research achievement awards at and above the provincial and ministerial level. In the past two years, the number and quality of national scientific research projects have been rising. In 2018, five national major key projects were approved, and the subject level was significantly improved. In 2019, more than 70 national level projects were approved, and major breakthroughs were made in the number of projects, ranking among the top universities in finance and economics in China.

Matters needing attention

1. All participants are requested to enter the conference room 15 minutes in advance and debug the equipment.
2. In order to ensure that the guests will not be disturbed during the meeting report, all members are requested to mute at the beginning of the meeting, and the moderator and Rapporteur are requested to confirm the request to cancel the mute.
3. The online report interactive communication adopts the way of message asking. Please explain the interactive communication way in advance and remind the participants to leave a message asking questions. After the report, the host summarizes some questions according to the time situation and asks the reporter to answer them.

Conference Agenda

11月19日上午（北京时间9:30-12:10）

腾讯会议室：421936644

密码：123456

9:10-9:30	开幕式	中国科学院大学石勇教授致辞	曹杰教授 主持
		南京财经大学副校长华仁海教授致辞	
		何静教授致辞	
9:30-10:00	Keynote 1: 汪培庄 教授 因素空间-智能科学与数据科学的基本理论		
10:00-10:30	Keynote 2: 朱扬勇 教授 数据资产化的一个基础框架		
10:30-10:40	Break		
主持人：刘业政 教授			
10:40-11:10	Keynote 3: 陈 收 教授 透过金融大数据探视消费异质性		
11:10-11:40	Keynote 4: 石 勇 教授 大数据与数字经济		

11月19日下午（14:00-18:30）

腾讯会议室：421936644

密码：123456

主持人：卜湛 教授			
14:00-14:30	Keynote 6: 余玉刚 教授 数字智能物流决策		
14:30-15:00	Keynote 7: 寇纲 教授 Profit- and risk-driven credit scoring under parameter uncertainty: a multi-objective approach		
15:00-15:30	Sponsors' demonstration speech		
15:30-15:40	Break		
主持人：倪明 教授			
15:40-16:10	Keynote8: 樊治平 教授 大数据智能决策—基于隐私保护的视角		
16:10-16:40	Keynote 9: 曹健 教授 推荐系统中的公平性研究		
16:40-16:10	Keynote 10: 陈恩红教授 面向个性化学习的教育数据挖掘方法及应用		
17:10-17:40	Keynote 11: 张晓明 教授 如何在数据不平衡的环境下进行聚类？		



石勇，中国科学院大学教授、中国科学院大数据挖掘与知识管理重点实验室主任，中国科学院虚拟经济与数据科学研究中心主任；中国管理现代化研究会副理事长兼秘书长。主要从事数据挖掘与知识管理等研究。



汪培庄，辽宁工程技术大学特聘教授、智能工程与数学研究院院长，专于模糊集论与随机落影研究。提出了模糊随落影空间理论的模型和方法，得到广泛应用。



余玉刚，中国科学技术大学教授、中国科学技术大学校党委委员，管理学院执行院长，国际金融研究院院长，现代物流与供应链安徽省重点实验室主任、教育部长江学者特聘教授，国家杰出青年基金获得者、国家“万人计划”领军人才，科技部中青年科技创新领军人才，研究成果主要集中在基于颠覆技术和数据的现代物流和现代供应链管理领域。



寇纲，教授，博士生导师。现任西南财经大学大数据研究院院长、工商管理学院执行院长、长江学者特聘教授、国家杰出青年科学基金获得者、全国MBA教育指导委员会委员、国务院享受政府特殊津贴专家。



陈恩红，中国科学技术大学大数据学院执行院长。国家杰出青年基金获得者，科技部重点领域创新团队“大数据分析及应用”团队负责人，大数据分析与应用安徽省重点实验室主任，安徽省计算机学会理事长。长期从事大数据分析与应用、智能教育与个性化推荐等方向研究。承担了国家基金委重点项目、重大仪器研制项目以及相关领域的重大项目等多项。担任 *IEEE Transaction on Knowledge and Data Engineering* 等多个国内外学术期刊编委。曾获教育部自然科学一等奖、吴文俊人工智能科技进步一等奖。



曹健，上海交通大学教授、中国计算机学会高级会员、IEEE高级会员、中国计算机学会协同与社会计算专委会常委、上海市计算机学会CSCW与信息服务专委会副主任。主要研究协同信息系统，网络计算，智能决策支持技术。



陈收，湖南大学教授，兼任国务院学位委员会学科评议组成员，教育部社会科学委员会委员，国家自然科学基金委员会学科评审组评审专家，《系统工程》主编，《管理科学学报》、《中国管理科学》、等编委、政府特殊津贴专家。研究方向为投资决策与风险管理；绩效评价；战略管理。



樊治平，东北大学教授，工商管理学院副院长、管理科学与信息系统研究所所长、北大学管理科学与工程一级学科负责人，国家杰出青年科学基金、国家自然科学基金委员会管理科学部专家评审组成员、中国运筹学会企业运筹分会副理事长等。主要研究方向：管理决策分析、运作管理、服务科学、知识管理。



张晓明，香港浸会大学教授，计算和理论科学研究所副所长、IEEE Fellow、AAAS Fellow、IET Fellow、英国计算机学会 Fellow、教育部长江学者(讲座教授)，2021年史丹福大学所发表的人工智能与图像处理专业领域世界顶尖科学家排名前1%。IEEE 计算智能学会香港分会始创者及前任主席，IEEE 计算机学会智能信息学委员会（TCII）现任主席。长期从事人工智能、模式识别、图像及视频处理，函数优化等研究。



朱扬勇，复旦大学计算机科学技术学院教授、上海市数据科学重点实验室主任、复旦大学数据产业研究中心副主任，。《大数据》期刊编委会副主任，农业大数据产业技术战略联盟副理事长兼首席科学家，大数据协同安全国家工程实验室副理事长，中国自动化学会国防大数据分会副主任。提出数据界、数据学、数据身、数据自治、数据财政等概念和体系。发表学术论文200多篇，《数据学》、《旖旎数据》、《特异群组挖掘》、《数据自治》作者，《大数据技术与应用丛书》（22册）主编，《大数据资源》主编。研究方向为数据科学和数字经济。



何静，女，IEEE高级会员。中科院数学与系统科学研究院获得博士学位。研究方向为复杂科学、算法设计和优化问题基础理论。在供职牛津大学之前，何静于2018-2021担任澳大利亚斯文本科技大学电子工程与软件系教授，2008-2018年先后担任澳大利亚维多利亚大学科学与工程学院博士后研究员，高级研究员，副教授，教授（2015年-2018）。2013年获得澳大利亚研究理事会青年杰出研究员称号。2011年至今担任国际算法与芯片研究中心主任，兼任国际区块链学会主席。目前共发表高水平国际期刊200余篇。9项国际国内专利，软件著作权等。

Morning of November 20 (9:15-12:30, China Standard Time (CST), UTC +8) : Opening Ceremony and Keynote
Tencent Meeting: 466432313
Password: 123456

	Host: Professor Aihua Li
9:00-9:45	Keynote 1: Prof. Lixin Tang Data Analytics and Optimization for Smart Industry
9:45-10:15	Keynote 2: Prof. Wanlei Zhou Countermeasures to Defend against Advanced Persistent Threats
10:15-10:45	Keynote 3: Xuemin Lin Subgraph Matching: Past and Present
10:45-11:00	Break
	Host: Professor Xi Chen
11:00-11:30	Keynote 5: Prof. Chengqi Zhang Some thoughts about the intelligent industrial internet
11:30-12:00	Keynote 6: Prof. Jun Shen Computational Intelligence applications in multi-disciplines

Morning of November 20 (12: 00-13: 00, China Standard Time (CST), UTC +8) : Session 2

Paper Report

Tencent Meeting: 466432313

Password: 123456

Host: Dr. Hui Zheng

(20 minutes for each paper report)

12:00-12:20	Authors: Chunyang Wu, Beiwei Zhang and Jinhai Li Title: Denoising method of ECG signal with power threshold function under wavelet transform and smoothing filter
12:20-12:40	Authors: Zhiwang Zhang, Jing He, Jie Cao, Shuqing Li, Yimu Ji, Gang Qian, Xingsen Li, Kai Zhang and Pingjiang Wang Title: Maximum Projection Distance Classifier for High Dimension and Low Sample Size Problems
12:40-13:00	Authors: Jia-Tao Huang, Hong-Liang Sun and Jie Cao Title: Identify Spammers in Rating Systems Using Multi-layer Graph Convolutional Network

**Afternoon of November 20 (13: 30-15: 50 China Standard Time
(CST), UTC +8) : Session 2**

Paper Report

Tencent Meeting: 234183705

Password: 123456

Host: Dr. Hui Zheng
(20 minutes for each paper report)

13:30-13:50	Authors: Aihua Li, Qiyuan Zhan, Weijia Xu and Yuejin Zhang Title: Research on Tourism Prosperity Index Based on the Power Big Data
13:50-14:10	Authors: Gu Yangqing, Yang Yu and Li Heting Title: Research and Application of Terminal Vulnerability Mining System of Electric Power Company Based on Artificial Intelligence
14:10-14:30	Authors: Yinghui Zhang, Yunxiao Wang, Ming Li and Bo Mao Title: Online 3D Electricity Infrastructure Visualization based on Cesium Framework
14:30-14:50	Authors: Yuan Tian, Ning Li and Bo Mao Title: Video Behavior Detection based on Optimized Alphapose in Electricity Facility Management
14:50-15:10	Authors: Qiang Tong, Meixue Sun, Bo Wang and Danyu Liu Title: AutoAno: Anomaly Localization with Self-supervised Multi-scale Feature and Multivariate Gaussian Estimation
15:10-15:30	Authors: Feng Wang, Jiading Jiang and Lingling Zhang Title: Research on Ultra-Short-Term Wind Power Forecasting Based on Refactored Representation of Environmental Features
15:30-15:50	Authors: Li Xinguang, Yang Zhihe, Chen Shuai and Ma Shanxian Title: Research on A Machine Scoring Method of Role-Play Section in English Oral Test

Afternoon of November 20 (16: 00-18: 20, China Standard

Time (CST), UTC +8) : Session 3

Paper Report

Tencent Meeting: 234183705

Password: 123456

Host: Dr. Hui Zheng

(20 minutes for each paper report)

16:00-16:20	Authors: Chi Yang, Bo Zhou, Xiaohui Hu, Jianying Chen, Qianhua Cai and Yun Xue Title: Dual-Channel Domain Adaptation Model for Document-level Cross-domain Sentiment Analysis
16:20-16:40	Authors: Guojun Lu, Haibo Yu, Yun Xue, Zhixun Qiu and Weiyu Zhong Title: SCAN:Syntactic Knowledge and Commonsense Knowledge Adapter Based Network for Aspect-level Sentiment Classification
16:40-17:00	Authors: Yimu Ji, Xiaoying Xiao, Fei Wu, Fei Chen, Jing He and Shangdong Liu Title: BIDAC: Blockchain-enabled Identity-Based Data Access Control in IoT
17:00-17:20	Authors: Chunfang Dong, Xuchan Ju and Yue Ma Title: HRS: Hybrid Recommendation System basedon Attention Mechanism and Knowledge Graph Embedding
17:20-17:40	Authors: Yimu Ji, Feng Tian, Shangdong Liu, Sisi Shao, Kui Li, Qiang Liu and Zhaoxia Meng Title: Time-aware Service Recommendation Algorithm Based on K-means and Low-rank Matrix Factorization
17:40-18:00	Authors: Wen Zhang, Guangjie Qin and Qiang Wang Title: Handling Imbalance in Fraudulent Reviewer Detection based on Expectation Maximization and KL Divergence
18:00-18:20	Authors: Jianliang Gao, Cong Xu, Huiling Huang, Xiaoting Ying, Zhao Li, Peng Zhang, Jie Xiao, Jiarun Zhang and Jiangjian Luo Title: Predicting Price-Limit-Hitting Stocks with Hierarchical Graph Neural Network

Morning of November 21 (9:00-11:00, China Standard Time (CST), UTC +8) : Keynote

Tencent Meeting: 404235891

Password: 123456

Host: Professor Bo Mao

9:00-9:30	Keynote 1: Prof. Jing He A Polynomial-time Solution for Infinite Graph Isomorphism and Its Applications
9:30-10:00	Keynote 2: Prof. Yun Yang Cutting the Unnecessary Long Tail: Cost-Effective Big Data Clustering in the Cloud
10:00-10:30	Break
10:30-11:00	Keynote 3: Tianqing Zhu Fairness in Machine Learning: From fairness to privacy

Morning of November 21 (11:00-12:40, China Standard

Time (CST), UTC +8) : Session 4

Paper Report

Tencent Meeting: 404235891

Password: 123456

Host: Prof. Wen Zhang

(20 minutes for each paper report)

11:00-11:20	Authors: Fangtao Ren, Yawei Zhang, Xi Liu and Fan Zhang Title: Identification of Plant Stomata Based on YOLO v5 Deep Learning Model
11:20-11:40	Authors: Sohaib Mustafa, Wen Zhang and Rui Li Title: Does environmental awareness play a role in EV adoption? A value-based adoption model analysis with SEM-ANN approach
11:40-12:00	Authors: Wen Zhang, Jiangpeng Zhao and Song Wang Title: SusTriage: Sustainable Bug Triage with Multi-modal Ensemble Learning

第八届数据科学国际会议

12:00-12: 20	Authors: Mengjiao Guo, Chi-Hung Chi, Hui Zheng, Kai Zhang and Jing He Title: Homomorphic Encryption based Subgraph Isomorphism Protocol in Blockchain
12:20-12: 40	Authors: Tianmu Hu, Xiaodong Hu and Shuming Feng Title: Hierarchical Coverage Location Model of Urban Power Emergency Service Point

Afternoon of November 21 (15: 30-17: 30, China Standard

Time (CST), UTC +8) : Session 5

Paper Report

Tencent Meeting: 174741048

Password: 123456

(20 minutes for each paper report)

Host: Prof. Wen Zhang

13:30-13:50	Authors: Yawei Zhang, Fangtao Ren, Xi Liu and Fan Zhang Title: Prediction of Hepatocellular Carcinoma Diseases Based on Methylation Data and Screening of Hub Genes
14:50-14:10	Authors: Shuanghua Liang, Yongchang Zhang and Ruhua Sun Title: Study on Optimal Location of CO Monitoring Points in Coal Mine
14:10-14:30	Authors: Zhijie Han, Yinyun Fu and Xiaoyu Du Title: Embedding Cube-Connected Cycles into Grid Network for Minimum Wirelength
14:30-14:50	Authors: Jie Li, Xiaoyu Du and Zhijie Han Title: VBNet: A VLC Enabled Hybrid Data Center Network
14:50-15:10	Authors: Zhijie Han, Weiqiang Xue and Xiaoyu Du Title: Research on Clustering Protocol in Mobile Ad Hoc Networks
15:10-15:30	Authors: Zhijie Han, Jialiang Lu and Xiaoyu Du Title: Topology Design and Algorithm Analysis of VBCC in Hybrid Data Center Network
15:30-15:50	Authors: Zhijie Han, Yang Yang and Xiaoyu Du Title: VHCN : A Hybrid Data Center Network Based on VLC Link

**Afternoon of November 21 (16: 00-18: 10, China Standard
Time (CST), UTC +8) : Session 6**

Paper Report

Tencent Meeting: 174741048

Password: 123456

(20 minutes for each paper report)

Host: Dr. Hui Zheng

16:00-16:20	Authors: Xiaoyu Du, Keke Qin, Zhijie Han and Shuai Ding Title: Hamiltonian Properties of BCN Networks
16:20-16:40	Authors: Xu Libo, Li Xingsen and Huang Zhenrui Title: Integrated crossing pooling of representation learning for Vision Transformer
16:40-17:00	Authors: Sijing Yang, Aihua Li and Guijun Li Title: Evaluation index system and methodology for actively responding to ageing population
17:00-17:20	Authors: Bingjie Li, Jianyu Miao and Tiejun Yang Title: Overview of Deep Learning based Cardiac MR Image Segmentation Methods
17:20-17:40	Authors: Bingbing Xiao, Chenguang Jin, Zheng Li, Bingnan Zhu, Xiaoruo Li and Dong Wang Title: Proof of Importance: A Consensus Algorithm for Importance Based on Dynamic Authorization
17:40-18:00	Authors: Zhiqiang Gu and Yuejin Zhang Title: Research on online medical community doctor recommendation based on information fusion
18:00-18:30	Closing Ceremony Chair: Yong Shi

Guest Profile



Professor Lixin Tang
member of China Engineering Academy
Vice President of Northeastern University



Yun Yang is a full professor at School of Software and Electrical Engineering, Swinburne University of Technology. He received his PhD degree in computer science from the University of Queensland in 1992. He then worked at CRC for Distributed Systems Technology (DSTC) and Deakin University. His current research interests include cloud and edge computing, service-oriented computing, software development technologies, and workflow systems. He is on the editorial board of IEEE Transactions on Parallel and Distributed Systems.



Chengqi Zhang
Associate Vice President
University of Technology Sydney (UTS)



Professor Jun Shen
University of Wollongong



Wanlei Zhou
Vice Rector (Academic Affairs), Dean of Institute of Data Science
City University of Macau



Professor Tianqing Zhu, University of Technology, Sydney

第八届数据科学国际会议

The 8th International Conference on Data Science Advancement of Data Science and Blockchain

11月19日：9：30 - 19：30

直播地址：<https://meeting.tencent.com/j/15HrGfK1I4W5>

11月20日：9：00 - 19：00

直播地址：<https://meeting.tencent.com/j/FnycY5fy1puP>

11月21日：9：00 - 18：30

直播地址：<https://meeting.tencent.com/j/187zGLMen2pv>