

## Final Program



# The 6th IEEE/ACIS International Virtual Conference on Big Data, Cloud Computing, and Data Science Engineering (BCD 2021)

Sponsored by International Association for Computer and Information Science (ACIS)



**September 13-15, 2021**

**Beijing Institute of Technology (Zhuhai)**

**<http://acisinternational.org/conferences/bcd-2021/>**

## **Conference Organizers:**

### **General Chair:**

Prof. Xianli Zhao

### **Honorary Chair: Prof:**

Prof. Gongzhu Hu, Central Michigan University

### **Conference Chairs:**

Prof. Binghua Su, Beijing institute of technology (Zhuhai), Zhuhai, China

Chair Prof. Wencai Du, University of Saint Joseph, Macau

### **Program Chairs:**

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Prof. Simon Xu , Algoma University, Canada

### **Finance Chair:**

Associate Prof. Xiaoshou Zhou, Beijing Institute of Technology (Zhuhai), China

### **Registration Chair:**

Dr. Zhange En, Beijing Institute of Technology (Zhuhai), China

### **Publicity Chairs:**

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Prof. Yonggang Zhang, Jilin University, Chang Chun, China

Prof. Jieqing Tan, Hefei University of Technology, Hefei, China

Prof. Hongbo Zhu, Nanjing University of Posts and Telecommunications, Nanjing, China

### **Local Arrangement Chair:**

Associate Prof. En Zhange Beijing Institute of Technology (Zhuhai)

**Program at a Glance**

**Monday, September 13, 2021**

<b>Time (GMT+7)</b>	<b>Activity</b>	<b>Location</b>
9:30 – 12:00	Opening Ceremony (Combined with CSII 2021) Keynote 1 Keynote 2 <a href="https://meeting.tencent.com/dm/NNsqCLpWqXRS">https://meeting.tencent.com/dm/NNsqCLpWqXRS</a> Meeting ID:574 139 226	Virtual
12:00 - 13:30	Break	
13:30 - 15:10	Regular Session (1.1) Regular Session (1.2)  Click the link to join the meeting or to add it to your meeting list: <a href="https://meeting.tencent.com/dm/JTLmpJpb4NE?rs=28">https://meeting.tencent.com/dm/JTLmpJpb4NE?rs=28</a> Meeting ID : 723 511 305	
15:10 - 15:30	Break	
15:30 - 17:10	Regular Session (2.1) Regular Session (2.2)  Click the link to join the meeting or to add it to your meeting list: <a href="https://meeting.tencent.com/dm/gF7Ju5biRYB0?rs=25">https://meeting.tencent.com/dm/gF7Ju5biRYB0?rs=25</a> Meeting ID: 945 986 152	

**Tuesday, September 14, 2021**

<b>Time (GMT+7)</b>	<b>Activity</b>	<b>Location</b>
9:30 – 11:10	Regular Session (3.1) Click the link to join the meeting or to add it to your meeting list: <a href="https://meeting.tencent.com/dm/hjDkxULmFptz?rs=28">https://meeting.tencent.com/dm/hjDkxULmFptz?rs=28</a> Meeting ID : 528 192 228	Virtual

**Regular Session (3.2)**

Click the link to join the meeting or to add it to your meeting list:

<https://meeting.tencent.com/dm/qeeVL4uBPGAo?rs=25>

Meeting ID: 662 694 410

## Keynote 1

### Unsupervised Ensemble Learning and Its Application to Temporal Data Mining

Yun Yang Ph. D

Professor, National Pilot School of Software, Yunnan University, China

[yangyun@ynu.edu.cn](mailto:yangyun@ynu.edu.cn)

#### Abstract

Ensemble learning is originally proposed for classification tasks in a manner of supervised learning, the basic concept of ensemble learning is to train multiple base learners as ensemble members and combine their predictions into a single output that should have better performance on average than any other ensemble member. Recently, ensemble learning has been extended to unsupervised learning with different strategies, named as clustering/unsupervised ensemble. This has led to many real-world applications, such as gene classification, image segmentation, video retrieval, and so on. This presentation is going to concentrate on unsupervised ensemble learning technique, and talk about how such technique can deal with the challenge in clustering temporal data with various and high dimensionality, large volume, very high-feature correlation, and a substantial amount of noise.

#### Biography

Yun Yang received the B.Sc. (Hons.) degree with first class in information technology and telecommunication from Lancaster University, Lancaster, U.K., in 2004, the M.Sc. degree in advanced computing from Bristol University, Bristol, U.K., in 2005, and the M.Phil. degree in informatics and the Ph.D. degree in computer science from the University of Manchester, Manchester, U.K., in 2006 and 2011, respectively. He was a Research Fellow with the University of Surrey, Surrey, U.K., from 2012 to 2013. He is currently with the National Pilot School of Software, Yunnan University, Kunming, China, as a full Professor of Machine learning and Data Mining, he is also a Yunnan (China) distinguished professor (Yunnan Province High Level Overseas Talent Recruitment Program), and member of Yunnan University (China) Software School Academic Commission, Director of Kunming key laboratory of data science and intelligent computing, Director of Yunnan Provincial University Key Laboratory of Data Science and intelligent Computing, Deputy Secretary General of China information economics society-Internet economy and cross-border e-commerce Specialized Committee. He serves the Yunnan Provincial Academic Commission as proposal evaluator, project auditor. His current research interests include machine learning, data mining, pattern recognition and temporal data process and analysis. Dr. Yang has published more than 70 papers (including TKDE, TSMC, TNNLS, TII, TCBY, IF, PR) and 2 monograph books in the field of machine learning, data mining and pattern recognition, and serves as an Associate Editor for journal of Yunnan University (Natural Sciences Edition), Complex & Intelligent Systems, and Neural Networks, reviewers in more than 10 international journals, and the section chair or the PC member in some international conferences.

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## Keynote 2

### Data Security : From Data Generation to Data Processing

Yongkai Fan Ph. D

Associated Professor, Communication University of China, Beijing

[fanyongkai@google.com](mailto:fanyongkai@google.com)

#### Abstract

Data is the basic ingredient in our information era. Confidentiality, Integrity, and Availability are the vital characteristics of data. In this talk, we present our group's research works about data security, from data generation to data processing, the content includes: From the data generation aspect, Trustworthiness of data is vital to data analysis in the age of big data. The way that data originated from sensors is common in consideration of this cyber-physical world, how can we make sure the trustworthiness of data in the generation phase and transmission phase? From the data storing aspect, the uncertainty of cloud service providers and user devices poses new challenges for users' privacy protection and data security, how to keep data security in the storing aspect? From the data processing aspect, we share some viewpoints of processing data with the consideration of data security.

#### Biography

Yongkai Fan received the Bachelor, Master and Ph.D. degrees from Jilin University, Changchun, China, in 2001, 2003, and 2006. From 2006 to 2009, he was an assistant researcher at Tsinghua University, Beijing. He was a visiting scholar in the Department of Computer science and Engineering at Lehigh University in the USA ( 201508-201601 ) and was a visiting scholar in the Department of Computer Science and Engineering at Penn State University in the USA (201602-201608). Dr. Fan is the session chair of the workshop on Big data and machine learning for security in ICCCN 2020, and he is one of the Technical Program Committee in the Joint Workshop on CPS&IoT Security and Privacy in ACM Conference on Computer and Communications Security 2020. His current appointment is as an associate professor at the Communication University of China, and his current research interests include theories of software engineering and software security. He has published more than 50 journal/conference papers. His current research interests include theories of Data security, AI security and IoT security.

## Program in Detail

**Monday, September 13, 2021**

**9:30 - 9:50 – Opening Ceremony** **Virtual**

**9:50 - 10:50 – Keynote 1** **Virtual**

**10:50 - 11:00 – Break**

**11:00 - 12:00 – Keynote 2** **Virtual**

**12:00 - 13:30 – Break**

**13:30 - 15:10 – Regular Session (1.1)** **Virtual**

**Chair: TBC**

Image Recognition Algorithm of *Sousa Chinensis* based on deep learning

*Teng-Hui Wang, En Zhang, Bing-Hua Su, Jia-Lin Tang, Qing-Lang Su and Wei Si, Macao Polytechnic Institute and Beijing Institute of Technology Zhuhai, China*

A low-illumination image Enhancement Algorithm Based on Morphological-Retinex (MR) Operator

*Haokun Hu, Wei Cao, Jieyu Yuan and Juqing Yang, Key Laboratory of Photoelectric Imaging Technology and System, Beijing Institute of Technology, China*

Single Underwater Image Restoration by Multi-Scale Fusion In Multi-Color Space

*Zhuang Zhou, Lili Wang, Binghua Su, Jialin Tang, Yaqing Feng and Wei Si, Beijing Institute of Technology Zhuhai, China*

Efficient Attentive Knowledge Tracing for Long-Tail Distributed Records

*Yang Liu, Jing Zhou and Weiguo Lin, Communication University of China, China*

**13:30 - 15:10 – Regular Session (1.2)** **Virtual**

**Chair: TBC**

The Effect of Online Investor Sentiment on Stock Movements: An LSTM Approach

*Han Wang, Liang Xue, Huawei Ma, Fengling Wang, Pengsheng Li and Wencai Du, City University of Macau, Macau*

Topic Model based Ensemble Learning for Rating Prediction and Its Application

*Liwei Shao, Lei La and En Zhang, University of International Business and Economics, China*

Using Investor and News Sentiment in Tourism Stock Price Prediction based on XGBoost Model

*Yujia Hu, Lei La and Liwei Shao, University of International Business and Economics, China*

Covid-19 Related Topic Detection in Catering Industry with Online Review and Embedding

*Lei La, Liwei Shao and En Zhang, University of International Business and Economics, China*

**15:10 - 15:30 – Break**

**15:30 - 17:10 – Regular Session (2.1)** **Virtual**

**Chair: TBC**

Analysis of breast spectral data based on machine learning

*Xipeng Chen, Binghua Su, Kai Zhang, Wenquan Huang, Yao Qu, Yuhan Zhang, Zhuo Deng and Xuedan Pei, Beijing Institute of Technology Zhuhai, China*

Facial Expression Recognition using Deep Learning Methods

*Isidoros Perikos and Spyridon Kardakis, Computer Technology Institute and Press "Diophantus" and Computer Engineering & Informatics Department, University of Patras, Greece*

Emotion Recognition using Deep Learning techniques and Word Embeddings

*Isidoros Perikos, Spyridon Kardakis, Foteini Grivokostopoulou and Michael Paraskevas, Computer Technology Institute and Press "Diophantus" and Computer Engineering & Informatics Department, University of Patras, Greece*

A Machine Learning Approach to Predict the Trend of Obesity Prevalence at a Global Level

*Ala Barzinji, Chaoying Ma, Wencai Du and Jixin Ma, School of Computing and Mathematical Sciences, University of Greenwich, United Kingdom*

## **15:30 - 17:10 – Regular Session (2.2)**

**Virtual**

**Chair: TBC**

The Discovery of Historical Transition in Aesthetic Notions through Changes in Co-occurrence Words Mainly Used in Waka Poetry in Three Major Poetry Anthologies

*Aiha Ikegami, Ryotaro Okada and Takafumi Nakanishi, Department of Data Science, Musashino University, Japan*

Classification of breast cancer based on improved PSPNet

*Zhuo Deng, Kai Zhang, Binghua Su and Xuedan Pei, Beijing Institute of Technology, Zhuhai, China*

Study on breast optical spectrum classification based on machine learning

*Zhuo Deng, Kai Zhang, Binghua Su, Wenquan Huang, Xipeng Chen, Yao Qu and Yuhan Zhang, Beijing Institute of Technology, Zhuhai, China*

Dolphin Identification Method Based on Improved PST

*Shiyu Wang, Zhanchuan Cai, Wei Cao and Jieyu Yuan, Macau University of Science and Technology, Macau*

## **Tuesday, September 14, 2021**

### **09:30 - 11:10 – Regular Session (3.1)**

**Virtual**

**Chair: TBC**

Customer Review Analysis: A Systematic Review

*Storm Davis and Nasseh Tabrizi, East Carolina University, United States*

Performance and Cost Analysis of Sia, a Blockchain-Based Storage Platform

*Phillipe Austria, Chol Park, Alex Hoffman and Yoohwan Kim, University of Nevada, United States*

Identifying the Public's Changing Concerns during a Global Health Crisis: Text Mining and Comparative Analysis of Tweets during the COVID-19 Pandemic

*Jin-A Choi and Cyril Ku, William Paterson University, United States*

A Framework and Decision Algorithm to Determine the Best Feature Extraction Technique for Supporting Machine Learning-Based Hate Speech Detection

*Chun-Kit Ngan and Kashyap Bhuvan, Worcester Polytechnic Institute, United States*

### **09:30 - 11:10 – Regular Session (3.2)**

**Virtual**

**Chair: TBC**

A Cryptocurrency Prediction Model Using LSTM and GRU Algorithms



*Jongyeop Kim, Seongsoo Kim, Hayden Wimmer and Hong Liu, Department of Information Technology, Georgia Southern University, United States*

**A Streaming Data Collection and Analysis for Cryptocurrency Price Prediction using LSTM**

*Jongyeop Kim, Hayden Wimmer, Hong Liu and Seongsoo Kim, Department of Information Technology, Georgia Southern University, United States*

**Intrusion Prediction using Long Short-Term Memory Deep Learning with UNSW-NB15**

*Seongsoo Kim, Lei Chen and Jongyeop Kim, Department of Information Technology, Georgia Southern University, United States*

**Optimization and applications of numerical data stream sliding window length setting based on PSO**

*Guang Li, Bin Wang, Yuchun Li, Haizhen Guo, Xin Li and Guowa Wang, Henan institute of technology, China*

## 2021 Conference Schedule

Dates	Location	Conference Name	Acronym
Oct 13-15	Xi'An China	21 <sup>st</sup> IEEE/ACIS International Fall Conference on Computer and Information Science	ICIS 2021 Fall
Nov. 24-26	Taichung Taiwan	22 <sup>nd</sup> IEEE/ACIS International Fall Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing	SNPD 2021 Fall

## ACIS Journal Information

### **International Journal of Networked and Distributed Computing (IJNDC)**

IJNDC is a world-class international journal. IJNDC Journal has been indexed in ESCI and Scopus and will ultimately be indexed in SCI **approximately** within one year or so.

<http://www.atlantis-press.com/publications/ijn/dc/>

### **International Journal of Software Innovation (IJSI)**

IJSI is a world-class international journal. IJSI Journal has been indexed in ESCI and Scopus and will ultimately be indexed in SCI **approximately** within one year or so.

<http://www.igi-global.com/ij/si>

### **International Journal of Big Data Intelligence and Applications (IJBDA)**

IJBDA is a world-class international journal. IJBDA Journal has been indexed in Scopus.

<http://www.igi-global.com/ij/bdia>

## ACIS Official Website

<http://www.acisinternational.org>