

Final Program



23rd IEEE/ACIS International Conference on Computer and Information Science (ICIS 2023)



June 23-24, 2023

Wuxi, China

<http://acisinternational.org/conferences/icis-2023/>

Conference Organizing Committee Members

General Chair

Prof. Roger Y. Lee
Prof. Yuan Liu

Central Michigan University, USA
Jiangnan University, China

Conference Co-Chairs

Prof. Wei Fang
Prof. Fanzhang Li
Prof. Shitong Wang

Jiangnan University, China
Soochow University, China
Jiangnan University, China

Program Co-Chairs

Prof. Dongrui Wu
Prof. Yinghui Wang
Prof. Xiaojun Wu

Huazhong University of Science and Technology, China
Jiangnan University, China
Jiangnan University, China

Registration Chair

Prof. Yinghui Wang
Prof. Pengjiang Qian
Prof. Wei Song

Jiangnan University, China
Jiangnan University, China
Jiangnan University, China

Local Arrangement Chair

Prof. Wei Song
Prof. Pengjiang Qian
Prof. Guanghui Li
Prof. Jun Sun
Prof. Zhaohong Deng
Prof. Zhenping Xie
A.P. Qianyi Zhan
A.P. Xin Zhang
Dr. Chenglong Dai

Jiangnan University, China
Jiangnan University, China
Jiangnan University, China
Jiangnan University, China
Jiangnan University, China
Jiangnan University, China
Jiangnan University, China
Jiangnan University, China
Jiangnan University, China

Publicity Chair:

A.P. Yizhang Jiang

Jiangnan University, China

Finance Chairs

Prof. Yuan Liu
Prof. Zhilei Chai

Jiangnan University, China
Jiangnan University, China

Program at a Glance

Day 1 - Friday, June 23, 2023

Time (EST)	Activity	Concurrent Sessions	
		Room 1	Room 2
8:00 – 10:30 AM	Registration		
8:30 - 9:00 AM	Opening Ceremony	Plenary Session (Auditorium)	
9:00 – 10:00 AM	Keynote Prof. Dongrui Wu		
10:00 – 10:20 AM	Coffee Break		
10:20 – 11:20AM	Keynote Prof. Zhenyu Chen	Plenary Session (Auditorium)	
11:20AM – 1:00 PM	Luncheon		
1:00 – 3:00 PM	Sessions	A1: Artificial Intelligence I	B1: Special Session: Mathematical Research I
3:00 - 3:20 PM	Coffee Break		
3:20 – 5:20 PM	Sessions	A2: Artificial Intelligence II	B2: Special Session: Mathematical Research II
6:00 - 7:30 PM	Dinner Banquet		

Day 2 - Saturday, June 24, 2023

Time (EST)	Activity	Concurrent Sessions	
		Room 1	Room 2
8:00 – 10:00 AM	Sessions	A3: Modeling and Analysis	B3: Software Engineering
10:00 – 10:20 AM	Coffee Break		
10:20 – 12:00 AM	Sessions	A4: Artificial Intelligence III	B4: Machine Learning
12:00 – 12:15 AM	Closing Remark		

Keynote Speech I

Accurate, Secure and Privacy-Preserving Brain-Computer Interfaces

Prof. Dongrui Wu

School of Artificial Intelligence and Automation

Huazhong University of Science and Technology, China

drwu@hust.edu.cn

Abstract: Brain-computer interface (BCI) is a direct communication pathway between the brain and an external device. Because of individual differences and non-stationarity of brain signals, a BCI usually needs subject-specific calibration, which is time-consuming and user unfriendly. Sophisticated machine learning approaches can help reduce or even completely eliminate calibrations, improving the utility of BCIs. Recent studies also found that machine learning models in BCIs are vulnerable to adversarial attacks, and brain signals also contain lots of private information, so the security and privacy of BCIs are also important considerations in their commercial applications. This talk will introduce transfer learning approaches for expedite BCI calibration, and their adversarial attack and privacy protection approaches. The ultimate goal is to implement accurate, secure and privacy-preserving BCIs.

Biography:

Dongrui Wu (IEEE Fellow) received a B.E in Automatic Control from the University of Science and Technology of China, Hefei, China, in 2003, an M.Eng in Electrical and Computer Engineering from the National University of Singapore in 2006, and a PhD in Electrical Engineering from the University of Southern California, Los Angeles, CA, in 2009. He is now Professor and Deputy Director of the Key Laboratory of the Ministry of Education for Image Processing and Intelligent Control, School of Artificial Intelligence and Automation, Huazhong University of Science and Technology, Wuhan, China. Prof. Wu is the Editor-in-Chief of IEEE Transactions on Fuzzy Systems.

Prof. Wu's research interests include brain-computer interface, machine learning, computational intelligence, and affective computing. He has more than 200 publications (11000+ Google Scholar citations; h=54), including IEEE TPAMI, Proceedings of the IEEE, National Science Review, etc. He received the IEEE Computational Intelligence Society (CIS) Outstanding PhD Dissertation Award in 2012, the IEEE Transactions on Fuzzy Systems Outstanding Paper Award in 2014, the IEEE Systems, Man and Cybernetics (SMC) Society Early Career Award in 2017, the USERN Prize in Formal Sciences in 2020, the IEEE Transactions on Neural Systems and Rehabilitation Engineering Best Paper Award in 2021, the Chinese Association of Automation Early Career Award in 2021, and the Ministry of Education Young Scientist Award in 2022. His team won the First Prize of the China Brain-Computer Interface Competition in four successive years (2019-2022).

Keynote Speech II

Education Reform of Software Engineering in the Age of A.I.

Prof. Zhenyu Chen
Software Institute, Nanjing University, China
zychen@nju.edu.cn

Abstract: In the age of artificial intelligence(A.I.), software engineering is facing unprecedented changes. Software developers need to have a deep understanding of , especially large model technologies, since the traditional software development model cannot meet the new needs. Moreover, software engineering also needs to pay more attention to the value of data. The data-driven software development models are growing, and data analysis and machine learning technologies have also been widely used. Software development requires higher efficiency, quality, and flexibility. New methods such as agile development and DevOps have emerged. Software testing also needs to be more intelligent, and test automation has become an essential part in software engineering. This speech focuses on sharing the opportunities and challenges brought by GPT and other big models to software development and testing. It also looks forward to the changes brought by A.I. to software engineering education and how we coped. The reform of software engineering is an inevitable trend, and software developers need to constantly learn new technologies and master new methods in the age of A.I.

Biography: Zhenyu Chen is now Professor of Software Institute, Nanjing University, China. He is the director of the intelligent software engineering laboratory (iSElab.cn) of Nanjing University, and the founder of Moose Technology. Prof. Chen is the initiator of IEEE International Software Testing Competition, and the executive director of the Industrial Working Committee of Jiangsu Computer Society. He is the outstanding speaker of the China Computer Federation (CCF), and director of the national first-class undergraduate course “Software Testing”. Prof. Chen’s research interests include collective intelligence, deep learning testing and optimization, big data quality and mobile application testing. His research results have been transformed by well-known enterprises such as China Shipbuilding Heavy Industry, Aerospace Science and Technology Corporation, China Electronics Technology Corporation, State Grid, Baidu, Alibaba, Tencent, Huawei, etc. The research results have won the first prize of the 2012 Jiangsu Provincial Science and Technology Award, the first prize of the 2015 Hubei Provincial Science and Technology Progress Award, the 2017 CCF NASAC - Youth Software Innovation Award, the first prize of the 2021 China Electronics Society Science and Technology Progress Award, the special prize of the 2021 Jiangsu Provincial Teaching Achievement Award and one first prize and one second prize of the 2022 National Teaching Achievement Award.

Program in Detail

Day 1 - Friday, June 23, 2023

8:00 – 10:30 AM – Registration	Foyer
8:30 – 9:00 AM – Opening Ceremony	Auditorium
9:00 – 10:00 AM – Keynote – Dr. Dongrui Wu	Auditorium
10:00 – 10:20 AM – Coffee Break	Foyer
10:20 – 11:20 AM – Keynote – Dr. Zhenyu Chen	Auditorium
11:20 AM – 1:00 PM – Luncheon	

1:00 – 3:00 PM -- Session A1: Artificial Intelligence I **Room 1**
Chair: Fanyu Wang

Chinese Medical Short Text Matching Model Based on Fine-Tuning BERT-Attention-BiLSTM
Xuesong Hu, Huajun Zhang, Youjun Sun

Natural Tunisian Speech Preprocessing for Features Extraction
Latifa Iben Nasr, Abir Masmoudi, Lamia Hadrich Belguith

Text Analysis and Recognition of Emotional Content Using Deep Learning Methods and BERT
Isidoros Perikos, Efthymios Andrikakis, Ioannis Hatzilygeroudis

A New GNN-Based Object Detection Method for Multiple Small Objects in Aerial Images
Zhicheng Tang, Yang Liu, Shang Yi

Depression Diagnosis Algorithm Based on 2-Stream CNN Using Facial Image
Daegil Choi, Gengjia Zhang, Daeun Kim, Jaehyo Jung

1:00 – 3:00 PM -- Special Session B1: Mathematical Research I **Room 2**
Chair: Qian Zhen

New Exact Solutions for the Nonlinear Coupled Time-Fractional Boussinesq-Burger Equation Using G'/G-Expansion Method
Caixia Guo, Huapeng Li, Wenying Feng, Fu Chen

Periodic Solutions of a Second Order Nonlinear Differential Equations with Delay and Variable Coefficients in Extend B-metric Space
Lu Yao

Periodic Solutions of a Class of Second-Order Differential Equation with Time Delays and Variation Coefficients
Rong Zhang

Unique Nontrivial Solutions for a Class of Fractional Boundary Value Problem with Q-derivatives
Furi Guo, Shugui Kang

Existence and Uniqueness of Positive Solutions for a Class of Fractional Differential Equation with Infinite-Point Boundary Value Conditions
Fang Luo, Shugui Kang

Empirical Likelihood Inference for The Single-Species Occupancy Rate
Huapeng Li, Yang Liu

SIRSM Model with Media Information Influence
Haiyan Tian, Jianmin Guo, Shugui Kang

3:00 – 3:20 PM – Coffee Break

Foyer

3:20 – 5:20 PM -- Session A2: Artificial Intelligence II
Chair: Fanyu Wang

Room 1

Spatio-Temporal Wind Speed Prediction Based on CNN-GRU
Youjun Sun, Jinfu Du, Shuxuan Wang

The Fusion Model of ResNet and GRU Based on Simplified Self-Attention for ECG Classification on PTB-XL Dataset
Zicong Yang, Aitong Jin, Yan Liu, Wei Lv, Xiaolin Zhu

A Comparative Study of LSTM/GRU Models for Energy Long-Term Forecasting in IoT Networks
Amira Zrelli, Ghada Goui

Real Time Classification of Cotton Diseases with a Mobile App Using Transfer Learning
Emerson A. de Lemmus II, Brendan P McAntosh, Abm Rezbaul Islam, Kolby T Stafford

The Comparison of Handwritten Digital Image Classification Based on Different Neural Networks
Shengwei Li, Huajun Zhang

Multi-Branch Decoding Medical Image Segmentation Based on Transformer
Jinsong Zhang, Aiguo Chen, Junwei Zhang

3:20 – 5:20 PM -- Special Session B2: Mathematical Research II
Chair: Qian Zhen

Room 2

Uniqueness of Meromorphic Function for Differential Polynomials Sharing a Small Function
Huicai Xu, Qingcai Zhang, Shugui Kang, Jia Chen

A Kind of Mathematical Model of Financial Investment Return and its Empirical Study
Haijuan Jin

On the Li-Yorke's and Sharkovskii's theorems
Hongfeng Ren, Mingyao Wen, Changjian Wu, Guang Zhang

Extensions and Improvements for the Liu-Xiao's Lemma

Changjian Wu, Hongfen Ren, Mingyao Wen, Guang Zhang

Stability Analysis and H_∞ Control for Singular LPV Systems with Time-Delay
Jianmin Guo, Caixia Guo, Shugui Kang

Thoughts on Visualization of Numerical Simulation for A Dynamical System
Mingyao Wen, Changjian Wu, Hongfeng Ren, Guang Zhang

Dynamics of A Stochastic Predator-Prey Model with Modified Leslie-Gower Gilpin-Ayala Schemes
Yuan Jiao, Haijuan Jin

Existence of Three Positive Solution for Boundary Value Problem of Fractional Difference Equations
Shugui Kang, Yonghui Han, Caixia Guo, Wenying Feng, Ying Gao

6:00 – 7:30 PM – Dinner Banquet

TBD

Day 2 - Saturday, June 24, 2023

8:00 – 10:00 AM -- Session A3: Modeling and Analysis
Chair: Fanyu Wang

Room 1

The Co-Simulation of PMSM Control System Based on the Equivalent Circuit Extraction Model
Sifang Zhao, Dewen Tian, Yongliang Ni, Yaqing Wang, Jiawei Chen, Jiaqun Xu

A Frequency Offset Estimation/Tracking Algorithm Based on TRS for 5G NR
Yahong Zhao

Edge Intelligence-Based E-Health Wireless Sensor Network Systems
Bintao Hu, Matilda Isaac, Anwar P.P. Abdul Majeed, Hengyan Liu

Alignment of Business Process and Information System Models Through Explicit Traceability
Aljia Bouzidi, Kais Haddar, Nahla Zaaboub

DEPS: A Demand-Oriented Framework for Edge Intelligent Production System
Jiadong Sun, Deji Chen, Rongjie Li, Yang Xiao

8:00 – 10:00 AM -- Session B3: Software
Chair: Qian Zhen

Room 2

Smart Microfinance Platform Service for Migrant Workers
Tsao Li-Ling and Tsaih Rua-Huan

Developing a Green Ecosystem Service Platform for EU Environmental Regulations using Design Science Research Methodology
Ying-Lun Mao, Shari S. C. Shang

Uncovering the Malpractices in Publishing: A Global Review System Using Disruptive Technologies

Pethigamage Perera

Improvement of Social Force Model Based on Expected Rate Model

Boyu Chen, Xuesong Hu, Jinfu Du

A Method of Complicated Motion Ship Imaging

Jinfu Du, Huaqun Zhang, Youjun Sun

10:00 – 10:20 AM – Coffee Break

Foyer

10:20 AM – 12:00 PM -- Session A4: Artificial Intelligence III

Room 1

Chair: Yufan Wang

Real-time Lightweight Hand Detection Model Combined with Network Pruning

Xiangxian Zhu, Zhao Jiang, Yilun Lou

Research Progress of Water Surface Object Detection

Xiaochuan Wang, Fei Wang, Hao Dou, Jun Ding, Songcheng Miao, Yunqian He

Reconstruction of ABP Waveform from the ECG or PPG Signals Using Enhanced 1-D U-network

Gengjia Zhang, Daegil Choi, Da Eun Kim, Jaehyo Jung

Scale-Aware Graph Convolutional Network for Fine-Grained Image Classification

Dongmei Chen, Wei Song

ZPF-DLSTM: An Efficient Deep Network with Low Time latency

Yuhua Wang, Yuhao Lian

10:20 AM – 12:00 PM -- Session B4: Machine Learning

Room 2

Chair: Qian Zhen

Ball Trajectory and Landing Point Prediction Model Based on EKF Algorithm

Jiann-Liang Chen, Han-Chuan Hsieh, Hung-Tse Chiang, Bor-Yao Tseng

Extraction and Updation of Alumni Information From Web Profiles Using Web Scraping

Pushya Chaparala, Amar Jukuntla, V.Sasidhar Reddy, Pavani Sudha Thipparthi, Vishnu Vinayak Veera

Land Productivity Evaluation Based on Data Mining

Mingliang Duan, Min Zhu

Digital Word-of-Mouth and Purchase Intention. An Empirical Study in Millennial Female and Consumers

Melissa del Pilar Usurin-Flores, Miguel Humberto Panez-Bendezú, Jorge Alberto Vargas-Merino

Ship Navigation Safety Assessment Based on Improved Particle Swarm Algorithm

Shuxuan Wang, Youjun Sun, Shulin Hu

12:00 – 12:15 PM – Closing Remark

