

Program

24th IEEE/ACIS International Conference on Computer and Information Science (ICIS 2024)



**Shanghai Polytechnic University
Shanghai, China
September 20-22, 2024**

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Program at a Glance

Friday, September 20, 2024

Time	Activity	Location
15:00 – 22:00	Registration and Reception	Building 19, Shanghai Polytechnic University

Saturday, September 21, 2024

Time	Activity	Location
08:30 – 11:00	Registration	Building 19, Shanghai Polytechnic University
09:00 – 09:15	Opening Ceremony	Room 201, International Conference Hall, Building 19
09:15 – 09:40	Coffee Break	Corridor, Floor 2, Building 19
09:40 – 11:40	Keynote	Room 201, International Conference Hall, Building 19
12:00 – 13:30	Lunch	Restaurant, Building 19, Shanghai Polytechnic University
13:30 – 15:00	Regular Session 1 Regular Session 2 Regular Session 3 Regular Session 4	Building 28, Shanghai Polytechnic University
15:00 – 15:30	Coffee Break	Corridor, Floor 9, Building 28
15:30 – 17:00	Regular Session 5 Regular Session 6 Regular Session 7 Regular Session 8	Building 28, Shanghai Polytechnic University
18:00 – 20:30	Dinner Banquet	Banquet hall, Radisson Blu Shanghai Pudong Jin Qiao

Sunday, September 22, 2024

Time	Activity	Location
09:00 – 11:00	Regular Session 9 Regular Session 10 Regular Session 11	Building 28, Shanghai Polytechnic University
11:30 – 13:00	Lunch	1002, Building 28, Shanghai Polytechnic University
13:00 – 15:00	Campus Visit	Shanghai Polytechnic University

Keynote 1

Engineering Smart Cyber-Physical Systems

Mara Nikolaidou

Harokopio University of Athens, Greece

Mara@hua.gr

Abstract

IoT paradigm has revolutionized our daily routine life, connecting a plethora of smart devices, sensors, frameworks, intelligent systems and humans, to provide innovative solutions to everyday problems. With the advent of emerging technologies, Cyber-Physical Systems (CPSs) have shown great potential in recent years in various application areas, such as healthcare, urban environments, agriculture, transportation, environment monitoring, home automation etc. As they comprise parts interacting with the physical environment and others having computing and communication capabilities, they constitute a prominent example of systems-of-systems, while the autonomous operation of their components should be ensured. Autonomous components should be smart enough to adjust to the environment where they operate while learning from their peers. The presentation targets open issues in CPS engineering to promote their autonomy utilizing AI tools, and methods and discusses ongoing projects on smart CPS in three different levels: 1) Smart aggregators to manage sensors and actuators and collaborate within each at the edge with no central control. The principles of developing a self-control management middleware for this purpose along with implementation results will be explored; 2) Service integration in a smart CPS environment ensuring the quality of complex services provided to users. A quality-aware event-based platform for the coordination of micro-services aiming at the development of CPS applications and the notion of event fabrication to manage missing events from sensors will be presented; 3) The integration of humans into smart CPS and their wiliness to become part of them. A multi-view design approach focusing on human concerns towards smart systems and the concept of human criticality will be discussed. These efforts are presented in the context of specific case studies from prominent CPS domains, targeting smart building management, smart farm management and remote patient monitoring.

Biography

Mara Nikolaidou is a Professor in the Department of Informatics and Telematics at Harokopio University of Athens, since 2007. Prior to her appointment, she worked as a computer engineer in the private sector and as an IT consultant for the government. She currently serves as the Rector of the University (since 2016). She is appointed as the representative of Greek Universities in the European University Association (EUA) for 2023-2024. Her research focuses on distributed systems and complex system design. Over the last few years, she actively participated in numerous research projects funded by national, European and international agencies on system engineering, the Internet of Things, Cloud and Edge computing, Cyber-physical Systems and Smart Cities, emphasizing human-in-the-loop and autonomous systems. Recently, she has explored responsible computing and ethical requirements in system design. She has published more than 200 papers in international journals and conferences, and actively participates in the organization of international conferences in software and systems engineering. She is a member of IEEE (SMC society) and Systems Council. She also participates in OMG, in the working groups for SysML and in responsible computing.

Keynote 2

AI for Service Computing: Research and Application

Guobing Zou

Vice Dean of the School of Computer Engineering and Science

Shanghai University, China

gbzou@shu.edu.cn

Abstract

In the era of interconnected networks, digitization and big data, Artificial Intelligence (AI) technology is developing rapidly and has been widely applied in various research and application fields through innovative patterns. First, the correlative research background, various service models, and key research issues in service computing will be introduced. Then, we will discuss the latest research advancements and challenges of predicting Quality of Service (QoS) by deep learning techniques in different computing paradigms. Furthermore, we will provide the construction and application effectiveness of a Smart Recycling Collection Service Platform. Finally, we summarize the future research hotspots and application trends in AI for service computing.

Biography

Guobing Zou is a full professor and vice dean of the School of Computer Engineering and Science, at Shanghai University, China. He received his PhD in Computer Science in 2012 from Tongji University, Shanghai, China. He has been a Research Associate in the Department of Computer Science and Engineering at Washington University in St. Louis from 2009 to 2011, USA. His research interests mainly focus on services computing, edge computing, data mining and intelligent algorithms, and recommender systems. He has published more than 110 papers in premier international journals and conferences, including IEEE Transactions on Services Computing, IEEE Transactions on Network and Service Management, IEEE ICWS, ICSOC, AAAI, Information Sciences, Expert Systems with Applications, Knowledge-Based Systems, etc.

He served as organization chair of the International Conference on Service Science (ICSS 2018), vice chair of the IEEE International Conference on Big Data (IEEE BigData 2021), PC chair of the CCF National Conference on Services Computing (NCSC 2023), chair of “Service Computing Top Conference Top Journal Forum” of China Digital Service Conference 2021 to 2023, and guest editor of International Journal of Services Technology and Management.

Keynote 3

Research of the School of Computer and Information Engineering

Shaojing Song

Vice Dean of the School of Computer and Information Engineering

Shanghai Polytechnic University, China

sjsong@spsu.edu.cn

Abstract

School of Computer and Information Engineering was established in 2002. The school consists of 4 departments including the Department of Computer Science and Technology, the Department of Software Engineering, the Department of Artificial Intelligence, Department of Information and Communication Engineering. The school has taken the lead in building the university's first master's degree program in Electronic Information. The school has nearly 80 post-graduate supervisors whose research topics cover big data, computers and artificial intelligence, image processing and machine vision, distributed computing, Software engineering, Cybersecurity, etc. The school has completed 3 National Natural Science Foundation of China (NSFC) General projects, 8 National Natural Science Foundation of China (NSFC) Youth projects, and 4 Shanghai Natural Science Foundation of China (NSFC) projects. We awarded 1 Magnolia Talent Plan, 2 Talent Plan in Shanghai Rising-Star Program supported by the Shanghai Municipal Education Commission (SMEC) and Shanghai Educational Development Foundation (SEDF), and 2 Chenguang Plan supported by SMEC and SEDF. As an example of our research, this presentation will show the latest research on vehicle-to-infrastructure collaboration and heterogeneous point cloud registration, including a novel coarse-to-fine 8 approach to heterogeneous point cloud registration (C2F-HPCR), establishing the inaugural benchmark for point cloud 9 registration in intricate vehicle-infrastructure collaboration contexts.

Biography

Shaojing Song is a professor at Shanghai Polytechnic University, he serves as Vice Dean of the School of Computer and Information Engineering. His research interests encompass intelligent measurement and control systems, machine vision, data communication, and intelligent driving systems. Professor Song is an active member of several professional organizations, including the China Computer Federation, the Society of Automotive Engineers of China, and the Shanghai Institute of Electronics. He has made significant contributions to the fields of image processing and analysis, pattern recognition, and intelligent control systems based on visual systems. He has published over 20 papers in core domestic and international journals and conferences, with 10 papers indexed by SCI and 4 papers by EI. He has led 8 research projects and participated in 3 projects, including a project which received the Second Prize in the National Science and Technology Progress Award. Additionally, he holds 5 authorized national invention and utility model patents and 3 software copyrights.

Keynote 4

Deep Learning Platform + Large AI Models Accelerates Industrial Intelligence

Longzhi Wang

Software Engineer of Beijing Baidu Netcom Science Technology Co., Ltd.

wanglongzhi@baidu.com

Abstract

This presentation is about Large Language Models (LLM) Usher in a New Era of Artificial General Intelligence. Baidu's Ernie Bot Large Language Model will be introduced, and following that its diverse range of application scenarios will be discussed. Notably, Ernie Bot has extremely strong comprehension and reasoning capabilities, and topped the Chinese benchmark CharacterEval, while empowering various business scenarios of Baidu, spanning from Baidu Search to Baidu Comate and Baidu Translate. In addition, the industry-level deep learning framework – PaddlePaddle will be demonstrated to show how it efficiently propels and accelerates the training and inference processes of Ernie Bot.

Biography

Longzhi Wang is working on LLM inference acceleration and Paddle deep learning framework development as a software engineer at Baidu. His research interests include computer vision and natural language processing. Longzhi holds a BSc. from Hangzhou Dianzi University and an MSc. from the University of Electronic Science and Technology of China.

Program in Detail

Friday, September 20, 2024

15:00 – 22:00 Registration & Reception Building 19, Shanghai Polytechnic University

Saturday, September 21, 2024

Morning: Opening Ceremony & Keynote

08:00 – 11:00 Registration Building 19, Shanghai Polytechnic University

09:00 – 09:15 Opening Ceremony Room 201, International Conference Hall, Building 19

09:15 – 09:40 Coffee Break Corridor, Floor 2, Building 19

09:40 – 11:40 Keynote Room 201, International Conference Hall, Building 19

12:00 – 13:30 Lunch Restaurant, Building 19, Shanghai Polytechnic University

Afternoon: Session 1-8

13:30 – 15:00 Regular Session 1 (Artificial Intelligence) Room 1 (Room 916, Building 28)

Chair: Prof. Mara Nikolaidou, Dr. Ao Shen

- Interpretable roadside 2D object detection based on axial attention
Fan Wu, Shaojing Song and Jinyan Hu
- Acoustic Tomography of Wood Internal Defects with Convolutional Neural Network
Ki Tung Tse, Ka Hei Tsang and K. W. Sum
- Prediction of stroke hematoma expansion using a machine learning model with stacked generalization
Zhicheng Xiang, Shaojing Song, Xinjian Li, Fan Wu, Bohao Li and Qinying Wu
- A Deep Subdomain Adaptation learning framework for Cross-Domain Modulation Classification
Si Li, Wen Deng, Xiang Wang, Liting Sun and Zhitao Huang

13:30 – 15:00 Regular Session 2 (Distributed Systems) Room 2 (Room 918, Building 28)

Chair: Dr. Toshikuni Sato, Dr. Ruiling Gao

- SGMss: a real-time dynamic grey model for soil settlement prediction
Ke Ma, He Weng, Yumin Chen, Binyu Jiang and Zhi Fang
- Asynchronous federated learning for personal credit assessment based on copula reputation
Shuangqin Zhang, Sen Niu, Guobing Zou and Bofeng Zhang
- Exploring WiSeR, a workplace individualized stress-efficiency response system vis-à-vis a Gamified Movement-Music Therapy (GMMT) approach
Xinyi Chen and Joseph Tan
- Quantum-safe hash time-locked cross-chain transaction mechanism
Xiaoming Hu, Wenqiang Cheng, Shuangjie Bai, Chuang Ma and Yan Liu

13:30 – 15:00 Regular Session 3 (Cyber Security)

Room 3 (Room 1004, Building 28)

Chair: Prof. Zhendong Liu, Dr. Mengqi Gao

- SecureSDNLab: an open-source dockerized platform for SDN information security and research
Fredy Mendoza-Cardenas, Andres J. Aparcana-Tasayco and Daniel Diaz-Ataucuri
- Multi-level federated learning framework with group signatures
Shuangjie Bai, Jinwei Zhu, Xiaoming Hu, Chuang Ma, Ruiling Gao and Qiang Zhou
- RSChat: intelligent question answering model for railway safety knowledge
Jinyu Li, Chao Li, Sen Niu and Bingrong Dai
- L-DATR: A Limited-Memory Distributed Asynchronous Trust-Region Method
Mohammad Jalali, Saeed Soori and Hadis Barati

13:30 – 15:00 Regular Session 4 (Communication Systems) Room 4 (Room 1006, Building 28)

Chair: Prof. Wenan Tan, Dr. Xiankai Meng

- InsureTVQA: a progressive text-visual question answering method for insurance domain
Weijie Tang, Ruiling Gao, Wenan Tan and Jin Zhang
- Learning to rank with alpha divergence and entropy regularization
Xiaohai Zhang
- Deep learning-based satellite communication anti-jamming system
Weinan Han, Xiaohan Song, Yixuan Huang, Fangwei Yan, Qingze Yin and Tongpo Zhang
- Application scenario analysis of large language models education based on activity theory
Zonghu Zhang, Mingzhu Hu, Bofeng Zhang and Xuying Jin

15:00 – 15:30 Coffee Break

Corridor, Floor 9, Building 28

15:30 – 17:00 Regular Session 5 (Artificial Intelligence)

Room 1 (Room 916, Building 28)

Chair: Dr. Fangshu Chen, Dr. Jiahui Wang

- Research on Concurrent Destruction of Embedded High-availability Distributed Computing Platform
Qinhan He, Jinhui Liu and Lijun He
- Class incremental learning with forward memory
Mingzhu Hu, Yonghao Kong, Mingjun Dai and Yadi Gu
- Deep deterministic strategy gradient method using plot experience Playback
Quan Liu and Jun Zhang
- Predicting illnesses from medical sensors readings using artificial intelligence model
Wen Zeng, Haydar A Jawad, Wenxuan Wang, Vasileios Germanos, Francois Siewe and Carlos Molina-Jimenez

15:30 – 17:00 Regular Session 6 (Neural Networks)

Room 2 (Room 918, Building 28)

Chair: Prof. Tian Xia, Dr. Min Xu

- Extracting unique keywords related to customer engagement from review text using uncorrelated weights estimation in neural networks
Toshikuni Sato and Takumi Kato
- Design and Implementation of an Efficient Parallel Algorithm for Sparse Principal Component Analysis
Hadis Barati, Mohammad Jalali and Abdorreza Torabi
- Diagnosability of the strong product of paths and cycles under PMC Model
Bu Chen and Feng Li

- Carbon emission prediction model based on LSTM enhanced by attention mechanism and Elman neural network
Bohao Li, Shaojing Song, Yang Gu, Haihua Yu, Yu Chai and Fan Wu

15:30 – 17:00 Regular Session 7 (Visual and Multimedia Computing)

Room 3 (Room 1004, Building 28)

Chair: Dr. Yingying Liu, Dr. Feiyi Fang

- Tremor Suppression using Functional Electrical Stimulation based Repetitive Control
Qingze Yin and Tongpo Zhang
- Design and Implementation of a Desktop Cloud Systems for Multinational Corporations Operating in the Yangtze River Delta Region
Wen Zeng, Wenxuan Wang, Yu Qi and Bofeng Zhang
- Detecting and classifying invasive breast carcinoma with the Faster R-CNN with Resnet 50
Sirui Chen, Tengfei Yu, Wen He, Yicheng Wang, Qi Lei and Zhongbao Chen
- Research on color image classification algorithm based on TensorFlow
Yao Xiuhong, Li Bingchun, Zhang Bofeng and Wang Yali

15:30 – 17:00 Regular Session 8 (Cyber Security)

Room 4 (Room 1006, Building 28)

Chair: Dr. Wen Zeng, Dr. Bowen Sun

- Governance of cyber threat information sharing for public-private partnerships: comparative analysis of national cases
Su-Hyeon Park and Hun-Yeong Kwon
- A Model-based IoT Architecture for Enhancing Safety in Supply Chain Systems
Wen Zeng, Nicholas Kit Lam Wan, Yuqi Jia, Vasileios Germanos and Leandros Maglaras
- Unlocking excellence: the impact of voucher incentives on cybersecurity education
Jianhua Li, Shang Gao, Michelle Harvey and Trina Myers
- A business plan for data security and privacy services
Abigail Smith, Moira Carroll-Mayer, Wen Zeng, Vasileios Germanos and Francois Siewe

18:00 – 20:30 Dinner Banquet

Banquet hall, Radisson Blu Shanghai Pudong Jin Qiao

Sunday, September 22, 2024

9:00 – 11:00 Regular Session 9 (Artificial Intelligence) Room 1 (Room 916, Building 28)

Chair: Dr. Ruiling Gao, Dr. Xiankai Meng

- Building Sentiment Analysis Pipeline: A Case Study On Amazon Reviews
Hynek Boril, Kyle King, Grant Strenski, Andrew Olson and William Husen
- Machine learning enhanced point of sale system
Md. Nibir Ahmed, Maliha Anzum Maisha, Md. Tahsinu Islam, Samin Shams Ahmed and Mohammad Rashedur Rahman
- Using deep learning models and FinBERT to predict the stock price of top banks in the Dhaka Stock Exchange
Mahir Ayaan Begh Jeet, Rakei Matiul Haque, Md. Aminul Islam Sayem, Asif Arman and Mohammad Rashedur Rahman
- Intelligent Live Broadcast Shot Switching System Based on Semantics
Xinquan Luo, Nan Yang and Wanting Cao

9:00 – 11:00 Regular Session 10 (Distributed Systems) Room 2 (Room 918, Building 28)

Chair: Dr. Qingze Yin, Dr. Bowen Sun

- Ball-type Small Objection Algorithm based on YOLOv8
Xinquan Luo, Kaiyi Quan and Yilong Liu
- Underwater Image Enhancement Method Based on Polarized Images Fusion and Quality Evaluation
Bowen Guan, Yan Wang and Jiankai Yin
- A brief overview of encrypted traffic classification: The datasets, representation dimensions, analysis approaches and future thinking
Zhihong Wang, Ying Yang and Yongjian Wang
- A Significant Approach Based on Women's Safety Wearable Bracelet
Prof. Rekha Kotwal, Prathamesh Shinde, Rudra Shejwal, Vaibhavi Kamble and Shruti Kuwar

9:00 – 11:00 Regular Session 11 (Distributed Systems) Room 3 (Room 1004, Building 28)

Chair: Dr. Tongpo Zhang, Dr. Xiaomeng Si

- A GRU-SAPD Neural Network for Short-text sentiment classification
Yuancheng Deng and Tian Xia
- College Exam Grader using LLM AI models
Jung Lee and Yeong-Tae Song
- M2M Protocols: an overview on LwM2M and XMPP Machine-to-Machine Protocols in IoT context
Ala Khalifeh and Maysam Alkwiefi
- Explainable emotion recognition in social networks with transformer
Isidoros Perikos

11:30 – 13:00 Lunch

Room 1002, Building 28

13:00 – 15:00 Campus Visit

Shanghai Polytechnic University