

Final Program



21st IEEE/ACIS International Conference on Computer and Information Science (ICIS 2021-fall)



Oct 13-15, 2021

Northwestern Polytechnical University, Xi'an

<http://acisinternational.org/conferences/icis-2021-fall/>

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Program at a Glance

Wednesday, Oct 13, 2021

Time CST (UTC+8)	Activity	Location
8:30 –9:00	Registration	ZOOM virtual meeting room 1 ZOOM#: 953 8153 7578
9:00 – 9:40	Opening Ceremony	
9:45	Virtual Meeting Photo	
9:50-10:25	Keynote	
10:30-12:10	Regular Session A	ZOOM virtual meeting room 1 ZOOM#: 953 8153 7578
	Special Session 2(A)	ZOOM virtual meeting room 2 ZOOM#: 975 4357 3063
	Special Session 2(B)	ZOOM virtual meeting room 3 ZOOM#: 964 8542 4481
	Special Session 2(C)	ZOOM virtual meeting room 4 ZOOM#: 988 3110 9730
14:00-16:00	Regular Session B	ZOOM virtual meeting room 1 ZOOM#: 953 8153 7578
	Regular Session C	ZOOM virtual meeting room 2 ZOOM#: 975 4357 3063
	Regular Session D	ZOOM virtual meeting room 3 ZOOM#: 964 8542 4481
TBD	Special Session 1	ZOOM virtual meeting room * ZOOM#: *****

Keynote 1

Enhancing cyber-physical systems with machine learning -- Drilling holes into the walls between disciplines

Prof. Peter Marwedel
TU Dortmund, Germany
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Abstract

In the talk, we will introduce the notion of cyber-physical systems (CPS). For CPS, there is a complex interaction between the physical environment, hardware platforms, and the software running on them. We will briefly introduce CPS characteristics as well as challenges for their design. Mechanical, energy, thermal and dependability issues have to be considered, leading to the requirement of multidisciplinary design. Sensors may be providing huge amounts of data requiring sophisticated data analysis in order to generate reliable information. The collaborative research center CRC 876 at TU Dortmund (see <http://sfb876.tu-dortmund.de>) addresses the need for data analysis and multidisciplinary. Its focus is on resource constrained machine learning and its applications. With this focus, it merges fundamentals of embedded systems and machine learning with applications in many scientific areas such as physics, medicine, logistics, and factory automation. In the second part of the talk, we will present exemplary results from cooperative work at the collaborative research center. These results will demonstrate the potential of interdisciplinary research using concrete examples. Final remarks will concern approaches for CPS education.

Biography

Dr. Peter Marwedel studied physics at the University of Kiel, Germany. He received a Dr. rer. nat. degree in physics in 1974 and a Dr. habil. degree in computer science in 1987. He held a chair for computer engineering and embedded systems at the computer science department of TU Dortmund from 1989 until 2014, where he currently serves as a senior professor. He is chairing ICD, a local spin-off. His research interests include design automation for embedded systems, in particular the generation of efficient embedded and cyber-physical system software. Focus is on energy efficiency, timing predictability, reliability and tradeoffs between design objectives. Dr. Marwedel has published a text book on embedded systems foundations of cyber-physical systems. The book is complemented by videos available on youtube and by publicly available slides. He served as the vice-chair of the collaborative research center SFB 876, aiming at resource-efficient analysis of large data sets. He is an IEEE Fellow, recipient of the Teaching

Award at TU Dortmund in 2003, DATE fellowship in 2008, the EDAA Lifetime Achievement Award in 2013, the 2014 ACM SIGDA Distinguished Service Award and the ESWEEK Lifetime Achievement Award in 2014.

Program in Detail

Wednesday, Oct 13, 2021

8:30am - 9:00pm – Registration **ZOOM meeting room 1**

9:30am - 9:40am – Opening Ceremony

9:40am - 9:45am – Virtual Meeting Photo

9:50am – 10:35am – Keynote

10:40am - 12:10pm – Regular Session A **ZOOM meeting room 1**
Chair: Qun Chen (Northwestern Polytechnical University)

SoC-AIC: Service-oriented Cloud-cooperative Autonomous Intersection Controller for SoC-ITS
Kailong Zhang, Qiang Li, Wenwen Fu, Qidi Zhao, Jingkai Feng, Thi-Mai-Trang Nguyen and Arnaud de La Fortelle

Service Bursting based on Binary PSO in Hybrid Cloud Environment
Wissem Abbes, Zied Kechaou, Amir Hussain and Adel M. Alimi

A Distributed Obstacle Avoidance Method for Swarm UAVs based on Behavioral Approach and Route Planning
Haixiang Wang, Pencheng Wen and Linting Bai

A Gram-Schmidt Transformation-based Hierarchical Urban Road Centerline Extraction Method
Lipeng Gao, Sitong Sun, Fei Wang, Jun Zhu and Peng Luo

Research on Complex System Intelligent Maintenance Decision Method
Peng Li and Wei Niu

Multi-level Modeling and Cooperation Mechanisms of Tasks for Swarm Intelligent Systems
Peng Li, Wenwen Fu, Hongjun You, Yuxi Liu, Zhihao Wu, Ran Qu, Yahui Li and Kailong Zhang

10:40am – 12:10pm – Special Session 2(A) **ZOOM meeting room 2**
Chair: Lijun Zhang (Northwestern Polytechnical University)

An Adaptive Control Scheme for Deadline-aware Streaming
Yongbei Yang, Yuan Zhang, Yang Chen and Jinyao Yan

Blockchain-Based Video Copyright Detection
Jianxiang Cao, Miaoran Song, Wenqian Shang

Chinese Word Segmentation for Sub-character Representation
Taozheng Zhang, Chenyang Shang

RO-TextCNN Based MUL-MOVE-Net for Camera Motion Classification
Zeyu Chen, Yana Zhang, Lianyi Zhang, Cheng Yang

Point Cloud Foot Model Extraction Algorithm for 3D Foot Model Scanner

Muchong Gao, Chunfang Li, Minyong Shi

Rate Control with Delay Constraint for H.265/HEVC
Hong Gao, Yuan Zhang

10:40am – 12:10pm – Special Session 2(B) ZOOM meeting room 3
Chair: Pengfei Yang (Xidian University)

An Athlete's Foot Data Platform with 3D Point Cloud Processing and Management Technology
Yanyan Wang, Chunfang Li, Jiangnan Sun

Research on Chinese Sentiment Analysis Based on Bi-LSTM Networks
Taozheng Zhang, Jiaqi Guo

Research On Human-computer Dialogue Based On Improved Seq2seq Model
Wenqian Shang, Sunyu Zhu, Xiao Dong

Load Balancing of Multi-Core Heterogeneous CPU Based on BP Neural Network and Weighted Round-Robin Algorithm
Wan Lei, Dai Bin, Jiang Han, Yang Yi, Zhu xianjun

The COVID-19 Question Answering System Based on Knowledge Graph
Yuze Sun, Yifei Cai, Yunkai Shen, Qianchi Zhang, Xiaolong Feng, Mengmeng Yin, Dongmei Li

Perceptual Content-Aware Bitrate Adaptation for HTTP Streaming using Markov Decision Process
Xue Jiang, Yuan Zhang

10:40am – 12:10pm – Special Session 2(C) ZOOM meeting room 4
Chair: Wenqian Shang (Communication University of China)

A Neural Network Feature Enhancement Method Based on Feedback Compensation Mechanism
Zhebin Feng, Chunhua Wang, Wenqian Shang, Weiguo Lin

Research on Internet Public Opinion Recognition Method Based on High Frequency Co-occurrence
Zhigang Song, Kang Song, Nanchang Cheng, Jiao Li, Wenqian Shang, Yu Zou

A Music Playback Control System Based on Facial Expression Recognition
Guanbin Li

Research on Chinese Short Text Segmentation for New Media Comments
Peiwen Gao, Yana Zhang, Suyu Zhang, Zeyu Chen

FastGR: A Group Recommendation Algorithm Based on Neural Collaborative Filtering
Wenqian Shang, Yuan Cao

Personalized Semantic Retrieval System based on Statistical Language Model
Xianghao Meng, Dongmei Li, Qichen Han

2:00pm - 3:30pm – Regular Session B ZOOM meeting room 1
Chair: Lichen Zhang (Shaanxi Normal University)

Research on Parallel LSTM Algorithm Based on Spark
Yangyang Zhao, Wei Niu and Meinan Wang

An Improved Similarity-based Prognostics Method for Remaining Useful Life Estimation of Aero-Engine
Bingjie Han, Jichao Wang and Wei Niu

A Collaborative Modeling Method for Multi-behavior Models of Electromechanical CPS Systems
Wei Niu, Juan Cheng and Yangyang Zhao

A survey of GPGPU parallel processing architecture performance optimization
Shiwei Jia, Ze Tian and Yueyuan Ma

Localization in LoRa Networks Based on Time Difference of Arrival
Ioannis Daramouskas, Vaggelis Kapoulas, Dimitrios Mitroulias, Isidoros Perikos and Michael Paraskevas

An Efficient Attention Based Image Adversarial Attack Algorithm with Differential Evolution on Realistic High-Resolution Images
Hao Yuan, Shaofei Li, Wanzhen Sun, Zheng Li and Xin Steven

Feature Selection for Human Trafficking Detection Models
Chawit Wiriyakun and Werasak Kurutach

2:00pm - 3:30pm – Regular Session C ZOOM meeting room 2
Chair: Chen Ding (Xi'an University of Posts & Telecommunications)

Applicability Testing Technique of Intelligent Processor for Embedded Computing System
Linting Bai, Pengcheng Wen, Yulin Hai, Ze Gao, Taoran Cheng and Heng Wang

Design of Controller for Laser Semi-active Proportional Navigation Device Based on LQG/LTR
Jun Zhao, Changyu Wang, Tiezhu Ai, Yanfei Huang and Gang Zhao

Operational architecture framework for Information Technology Solutions: diffusion of innovation perspective
Tiko Iyamu

Remaining Useful Life Prediction of Capacitor Based on Genetic Algorithm and Particle Filter
Meinan Wang, Wei Niu and Yangyang Zhao

Macau License Plate Character Segmentation Through ROI detection and Redundant Region Removal Method
Bingshu Wang, Yiping Zhao, Jiangbin Zheng and Shuang Feng

An Approach to Critical Success Factors in Designing Cloud-based Application Solutions
Shin-Jer Yang, Zi-Ling Lai and Ming-Chin Hung

Research on International Standardization of Software Quality and Software Testing
Yi Zhao, Yun Hu and Jiayu Gong

2:00pm - 3:30pm – Regular Session D ZOOM meeting room 3
Chair: Luyang Wang (Chang'an University)

A Guide for selecting big data analytics tools in an organisation
Wandisa Nyikana and Tiko Iyamu

A signal periodic impact component extraction method based on matching pursuit
Guozhen Wang, Wei Niu and Jianping Zhao

The HSPRec E-Commerce System Open Source Code Implementation
Christie Ezeife, Mahreen Nasir, Ritu Chaturvedi and Angel Veliz Castro

Multi-DeepNet: A Novel Weakly-Supervised Multi-Task and Multi-View-Oriented Convolution Neural Network for COVID-19 Diagnosis from CT Images
Richard Xue, Longquan Jiang, Peng Wang, Rui Feng and Fei Shan

Research on Fault Diagnosis Model of Convolutional Neural Network Based on Signal Decomposition
Sen Wang, Peng Li and Wei Niu

A Persona Design Method Based on Data Augmentation by Social Simulation
Kikuchi Takamasa and Takahashi Hiroshi

TBD – Special Session 1

ZOOM meeting room ***

Chair: *Miguel Garcia-Ruiz*

Assessing the Fun Experience with FunQ
Gabriella Tisza

Assessing Computational Thinking Pedagogy in Serious Games Through Questionnaires, Think-aloud Testing, and Automated Data Logging
Joey Fanfarelli

An Overview of Cooking Video Games and Testing Considerations
Miguel Garcia-Ruiz, Omar Alvarez-Cardenas, Adriana L. Iniguez-Carrillo

Physical and Physiological Data for Customizing Immersive VR Training
Alvaro Uribe-Quevedo, Bill Kapralos, David Rojas Gualdron, Adam Dubrowski, Sharman Perera, Fahad Alam and Simon Xu

Experiences in Developing and Testing BBC Micro:bit Games in a K-12 Coding Club during the COVID-19 Pandemic
Miguel Garcia-Ruiz, Omar Alvarez-Cardenas, Adriana L. Iniguez-Carrillo

Automatic Voice Recognition for Portuguese with Small Data Set
Yapeng Wang, Ray Jia, Chan Tong Lam, Ka Cheng Choi, Koon Kei Benjamin Ng, Xu Yang and Sio Kei Im

2021 Conference Schedule

Dates	Location	Conference Name	Acronym
Jan 28-30	Hochiminh City Vietnam	21 st ACIS International Winter Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing	SNPD 2021 Winter
June 23-25	Shanghai China	20 th IEEE/ACIS International Summer Conference on Computer and Information Science 1 st ACIS International Conference on Artificial Intelligence (co-located with CIS 2021)	ICIS 2021 Summer IAI 2021
Sept. 13-15	Zhohai China	6 th IEEE/ACIS International Conference on Big Data, Cloud Computing, and Data Science Engineering *Technically sponsored by IEEE 8 th ACIS International Conference on Computational Science/Intelligence & Applied Informatics (co-located with BCD 2021)	BCD 2021 CSII 2021
June 20-22	Kanezawa Japan	18 th IEEE/ACIS International Conference on Software Engineering, Management and Applications 8 th ACM/ACIS International Conference on Applied Computing & Information Technology (co-located with SERA 2021)	SERA 2021 ACIT 2021
Nov. 24-26	Taichung Taiwan	22 nd IEEE/ACIS International Summer Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing	SNPD 2021 Summer
Oct 13-15	Xi'An China	21 st IEEE/ACIS International Fall Conference on Computer and Information Science	ICIS 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/ijsi>

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/ijbdia>

ACIS International Official Website

<http://www.acisinternational.org>