The IEEE Cybermatics Congress 2024 Program

IEEE Blockchain/iThings/GreenCom/CPSCom/SmartData 2024

19-22 August 2024

The 7th IEEE International Conference on Blockchain (Blockchain 2024)

The 17th IEEE International Conference on Internet of Things (iThings 2024)

The 20th IEEE International Conference on Green Computing and Communications (GreenCom 2024)

The 17th IEEE International Conference on Cyber, Physical and Social Computing (CPSCom 2024)

The 10th IEEE International Conference on Smart Data (SmartData 2024)

19 August 2024 (Denmark Time Zone - GMT+2)					
8:45-10:00	Opening Ceremony and Keynote 1 (Room M1)				
Parallel Room	M1	S01	S09	S04	S12
10:00-10:20	Coffee Break				
10:20-12:00	Blockchain-I	iThings-I	GreenCom-I	BSS Workshop-I	SmartData-I
12:00-13:30	Lunch				
13:30-14:30	Keynote 2 (Room M1)				
14:30-15:30	Blockchain-II	iThings-II	GreenCom-II	CPSCom-I	SmartData-II
15:30-15:50	Coffee Break				
15:50-17:50	Blockchain-III	iThing-III	GreenCom-III	BSS Workshop-II & FBS Workshop-I	SmartData-III
18:00-20:00	Welcome Reception				

20 August 2024 (Denmark Time Zone - GMT+2)					
9:00-10:00	Keynote 3 (Room M1)				
Parallel Room	M1	S01	S02	S04	S12
10:00-10:20	Coffee Break				
10:20-12:00	Blockchain-IV	iThings-IV	FBS Workshop-II	IBTA Workshop-I	The 2024 Smart Grid Colloquium
12:00-13:30	Lunch				
13:30-14:30	Keynote 4 (Room M1)				
14:30-15:30	Blockchain-V	iThings-V	SPB Workshop-I	TrustChain Workshop-I	The 2024 Smart Grid Colloquium
15:30-15:50	Coffee Break				
15:50-17:50	Blockchain-VI	iThing-VI	SPB Workshop-II	TrustChain Workshop-II	The 2024 Smart Grid Colloquium
18:00-21:00	Banquet				

21 August 2024 (Denmark Time Zone - GMT+2)					
Parallel Room	M1	S01	S09	S04	S12
9:00-10:00	Blockchain-VII	Business Meeting	Project Meeting (by invitation)	iThings Workshop-I	TrustChain Workshop-III
10:00-10:20	Coffee Break				
10:20-12:00	Blockchain-VIII	iThings-VII	GreenCom Workshop-I	iThings Workshop-II	SmartData Workshop-I
12:00-13:30	Lunch				
13:30-15:30	Blockchain-IX	Blockchain-X	Project Meeting (by invitation)	iThings Workshop-III	Project Meeting (by invitation)
15:30-15:50	Coffee Break				
15:50-16:30	Closing Remarks (Room M1)				

22 August 2024 (Denmark Time Zone - GMT+2)	
Whole Day	Farewell and Leaving

Proceedings

If you are interested in reading papers during the presentations, here is the proceedings:

Blockchain 2024:
https://conferences.computer.org/blockchainpub24
username: blockchainpub24

iThings-GreenCom-CPSCom-SmartData 2024:
https://conferences.computer.org/ithings-greencom-cpscom-smartdata-cybermaticspub24
username: ithingspub24

Keynote 1

(Keynote Chair: Man Lin, St. Francis Xavier University, Canada)

Convergence of Mathematical Models in System Performance and AI, for Optimizing QoS, Sustainability and Security

Erol Gelenbe

Institute of Theoretical & Applied Informatics Polish Academy of Sciences, and King's College London, UK

Abstract: AI and Machine Learning (ML) have become important tools for evaluating the cybersecurity of computer networks and systems, with very large data sets that contain attack and benign network workload. At the same time AI is also used to optimize the allocation of workload and resources so as to improve overall quality of service and sustainability of Information and Communication Technologies (ICT). Indeed, AI Driven Cognitive Packet Networks exploit the Random Neural Network to optimize both the QoS, Security and Energy Consumption of Complex Edge Systems and Core Networks. However the Random Neural Network (RNN) is mathematically identical to Queueing Networks with Negative and Positive Customers, whose Product Form Solutions (PFS) are at the core of conventional performance optimization. Thus, in this talk we show how a single mathematical queueing network abstraction known as G-Networks is useful both for AI, and for conventional performance analysis.

Bio: Prof. Erol Gelenbe FIEEE FACM FIFIP FAAIA, is a computer science researcher whose work spans the performance, security, and energy consumption of computer systems and networks. He is the inventor of mathematical models such as G-Networks and Random Neural Networks. His recent work includes the dynamic control of large scale self-aware computer systems and the Internet using Machine Learning and optimization algorithms. His role in EU funded research includes the coordination of the Horizon 2020 Projects NEMESYS and SerIoT on the cybersecurity of Mobile Networks and the Internet of Things (IoT). He is currently Principal Investigator in the Horizon 2020 Projects DOSS. Over the years, he has received numerous peer reviewed highly competitive research funding from CNRS, INRIA, NSF, ONR and ARO (USA), FNRS (Belgium), EPSRC and MoD (UK), and European Union ESPRIT, FP6, FP7 and Horizon Programs. According to the American Mathematical Society, Erol has graduated 95 PhDs in a career that spans leading institutions in France (University of Paris-Saclay, University Paris-Descartes), USA (Duke University), Belgium (University of Liege), UK (Imperial College) and currently Poland IITIS-PAN (Polish Academy of Sciences). Elected a Fellow of the Royal Academy of Sciences of Belgium, the French National Academy of Technologies, and the Science Academies of Hungary, Poland and Turkey, he has published over 300 papers and several books which are listed on google scholar.

Keynote 2

(Keynote Chair: Zheng Yan, Xidian University, China)

On the State of Metaverse

Nirwan Ansari

New Jersey Institute of Technology, USA

Abstract: This talk examines the current status and future prospects of the metaverse, an emerging concept often heralded as the next phase of the internet. While not entirely new, given the long history of virtual and augmented reality, the metaverse's promise of an immersive, interconnected digital universe continues to generate significant interest and debate. This talk traces the evolution of the metaverse, from its origins in earlier virtual and augmented realities to its current form, integrating advanced technologies and next-generation networks. By exploring existing and potential applications, we assess the feasibility of creating experiences that seamlessly blend the virtual and tangible worlds.

The discussion also covers technological enablers and research methodologies that have driven the progress and optimization of metaverse-related technologies. To provide a balanced perspective, we highlight key research challenges that must be addressed to fully realize the metaverse's potential. Additionally, we review recent developments indicating a possible cooling of market enthusiasm, as evidenced by major tech companies suspending their metaverse research initiatives. This suggests that while the metaverse holds substantial promise, significant hurdles remain before it can achieve widespread adoption and success.

Bio: Nirwan Ansari, Distinguished Professor of Electrical and Computer Engineering at the New Jersey Institute of Technology (NJIT), holds a Ph.D. from Purdue University, an MSEE from the University of Michigan, and a BSEE (summa cum laude with a perfect GPA) from NJIT. He is a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and a Fellow of the National Academy of Inventors (NAI).

He authored Green Mobile Networks: A Networking Perspective (Wiley-IEEE, 2017) with T. Han, and co-authored two other books. He has also (co-)authored over 700 technical publications, with more than half of them published in widely cited journals and magazines. He has served as a guest editor for numerous special issues on various emerging topics in communications and networking. Currently, he serves as the Editor-in-Chief of IEEE Wireless Communications and has been on the editorial/advisory board of over ten journals. His current research focuses on green communications and networking, edge computing, drone-assisted networking, and various aspects of broadband networks.

Keynote 3

(Keynote Chair: Weizhi Meng, DTU, Denmark)

AIGC for Wireless Data

Shiwen Mao

Auburn University, USA

Abstract: The performance of deep learning (DL) empowered wireless communications, networking, and sensing depends on the availability of sufficient high-quality radio frequency (RF) data, which is more difficult and expensive to collect than other types. To overcome this obstacle, we proposal several AIGC approaches to generate synthetic RF data labeled with specified human activities for multiple wireless sensing platforms, such as WiFi, RFID, mmWave radar, including a conditional Recurrent Generative Adversarial Network (R-GAN) approach and diffusion model based approaches. The high quality of the generated RF data is validated by metrics of Structural Similarity Index (SSIM) and Frechet Inception Distance (FID), as well as representative downstream tasks of human activity recognition (HAR), where the model trained with sufficient synthesized data outperforms the model trained by real data.

Bio: Shiwen Mao (S'99-M'04-SM'09-F'19) is a Professor and Earle C. Williams Eminent Scholar, and Director of the Wireless Engineering Research and Education Center at Auburn University. Dr. Mao's research interest includes wireless networks, multimedia communications, and smart grid. He is the editor-in-chief of IEEE Transactions on Cognitive Communications and Networking. He received the IEEE ComSoc MMTC Outstanding Researcher Award in 2023, the 2023 SEC Faculty Achievement Award for Auburn, the IEEE ComSoc TC-CSR Distinguished Technical Achievement Award in 2019, the Auburn University Creative Research & Scholarship Award in 2018, the NSF CAREER Award in 2010, and several service awards from IEEE ComSoc. He is a co-recipient of the 2022 Best Journal Paper Award of IEEE ComSoc eHealth Technical Committee, the 2021 Best Paper Award of Elsevier/KeAi Digital Communications and Networks Journal, the 2021 IEEE Internet of Things Journal Best Paper Award, the 2021 IEEE Communications Society Outstanding Paper Award, the IEEE Vehicular Technology Society 2020 Jack Neubauer Memorial Award, the 2018 Best Journal Paper Award and the 2017 Best Conference Paper Award from IEEE ComSoc MMTC, the 2004 IEEE Communications Society Leonard G. Abraham Prize in the Field of Communications Systems, and 10 IEEE best conference paper/demo awards.

Keynote 4

(Keynote Chair: Man Ho Au, Hong Kong Polytechnic University, China)

Das non-physical Kapital

Roman Beck

IT University of Copenhagen, University of the Faroe Islands, and Halmstad University

Abstract: The way values are created, as well as what is considered as valuable, has changed, while theorizing about value creation and capture is still based on concepts and models going back to the industrial age. With the emergence of information technology, foremost the Internet, the creation and capture of value became possible in more or less virtual environments, where digital, non-physical forms of value became increasingly new forms of "hard" capital (sometimes also described as "from moving atoms to moving bytes"). Theorizing about the role of information technology as transformative force for value creation and capture focused is still based on existing concepts of goods and capital, as well as how they can be created by companies, disseminated on markets.

In this presentation, I will talk about the role of reciprocity and embedded ties in value creation and how they are extended by decentralized technologies, as well as how decentralized systems overcoming market failure in providing goods typically not provided by companies or markets. With decentralized systems at the center of this economic shift, we will discuss the move away from reactive automatic to proactive autonomous digital systems.

Bio: Prof. Beck is a Full Professor at the Business IT Department and Head of the European Blockchain Center at ITU (www.ebcc.eu) and Affiliated Professor at the Faculty of Science and Technology at the University of the Faroe Islands. According to the German newspaper Wirtschaftswoche, Roman is among the top 2% of all German professors in business administration in terms of research output. He is also ranked among the top 1% of all information systems researchers in the world. As a blockchain economist, his research focuses on the changing nature of institutions due to blockchain with a focus on governance and value creation and capturing in decentralized systems. As a visiting scholar, he spent three months at CRITO, University of California at Irvine in 2003 and further two months at the School of Information, University of Michigan at Ann Arbor in 2004. In 2008, he was visiting professor at the CIS Robinson College of Business, Georgia State University at Atlanta for three months and spent another two months at NYU Stern in 2010. During his research sabbatical in 2012, he was a visiting fellow at the Australian National University in Canberra for three months.

IEEE Blockchain 2024 Presentation

Blockchain-I (Room M1, Session Chair: Hess Lee, Hong Kong Polytechnic University)

A Novel Timechain-Level Approach to the Modeling of the Bitcoin Lightning Network

Davide Patti (University of Catania), Salvatore Monteleone (Niccolò Cusano University), Enrico Russo (University of Catania), Maurizio Palesi (University of Catania), Vincenzo Catania (University of Catania)

An AI Multi-Model Approach to DeFi Project Trust Scoring and Security

Viraaji Mothukuri (Kennesaw State University, USA), Reza M. Parizi (Kennesaw State University, USA), James L. Massa (Kennesaw State University, USA), Abbas Yazdinejad (University of Guelph, Canada)

Attacks in Distributed Routing Protocols in PCNs

Neeraj Sharma (Indian Institute of Technology, India), Kalpesh Kapoor (Indian Institute of Technology, India)

Benchmarking Blockchain Bridge Aggregators

Shankar Subramanian (University of Massachusetts, Amherst), André Augusto (Universidade de Lisboa), Rafael Belchior (Universidade de Lisboa; Blockdaemon), André Vasconcelos (Universidade de Lisboa), Miguel Correia (Universidade de Lisboa)

Blockchain-II (Room M1, Session Chair: Matteo Vaccargiu, University of Cagliari, Italy)

Blind Vote: Economical and Secret Blockchain-Based Voting

Amir Kafshdar Goharshady (Hong Kong University of Science and Technology, China), Zhaorun Lin (Hong Kong University of Science and Technology, China)

Blockchain-Based Federated Learning Utilizing Zero-Knowledge Proofs for Verifiable Training and Aggregation

Elmira Ebrahimi (TU Hamburg, Germany), Michael Sober (TU Hamburg, Germany), Anh-Tu Hoang (TU Hamburg, Germany), Can Umut Ileri (IOTA Foundation, Germany), William Sanders (IOTA Foundation, Germany), Stefan Schulte (TU Hamburg, Germany)

Decentralized Ledger Technology for EPCIS 2.0: Utilizing NFTs for Enhanced Product Traceability

Fausto Neri da Silva Vanin (Universidade do Vale do Rio dos Sinos (Unisinos), Brazil), Yalew Kidane Tolcha (Korea Advanced Institute of Science and Technology, South Korea), Rodrigo da Rosa Righi (Universidade do Vale do Rio dos Sinos (Unisinos), Brazil), Cristiano André da Costa (Universidade do Vale do Rio dos Sinos (Unisinos), Brazil), Daeyoung Kim (Korea Advanced Institute of Science and Technology, South Korea)

Blockchain-III (Room M1, Session Chair: Davide Patti, University of Catania, Italy)

DPPS: A Decentralised Publish-Process-Subscribe Middleware with Verifiable Computations

Amir Jabbari (Queensland University of Technology, Australia), Gowri Ramachandran (Queensland University of Technology, Australia), Sidra Malik (CSIRO, Australia), Raja Jurdak (Queensland University of Technology, Australia)

Embedded Elapsed Time in Trusted Execution Environments for Lightweight Blockchain

Quentin Jayet (University Grenoble Alpes, France), Christine Hennebert (University Grenoble Alpes, France), Yann Kieffer (University Grenoble Alpes, France), Vincent Beroulle (University Grenoble Alpes, France)

FELLMVP: An Ensemble LLM Framework for Classifying Smart Contract Vulnerabilities

Yu Luo (University of Missouri-Kansas City, USA), Weifeng Xu (University of Baltimore, USA), Karl Andersson (Luleå University of Technology, Sweden), Mohammad Shahadat Hossain (University of Chittagong, Bangladesh), Dianxiang Xu (University of Missouri-Kansas City, USA)

From CoWs to Multi-Chain AMMs: A Strategic Optimization Model for Enhancing Solvers

Zeshun Shi (Delft University of Technology, the Netherlands), Sydney Sweck (Composable Foundation, Switzerland), Omar Zaki (Composable Foundation, Switzerland)

GOvNet: A Blockchain Overlay Network for Governments and Privacy-Oriented Applications

Luigi Lunardon (nChain AG, Switzerland), Alessio Pagani (nChain, UK Ltd, United Kingdom; University of Bath, United Kingdom)

GrAC: Graph-Based Anonymous Credentials From Identity Graphs on Blockchain

Wenyi Tang (University of Notre Dame, USA), Shankha Shubhra Mukherjee (University of Notre Dame, USA), Seongho Park (Hanyang University, South Korea), Changhao Chenli (Indiana Institute of Technology, USA), Hyunok Oh (Hanyang University, South Korea), Jihye Kim (Kookmin University, South Korea), Taeho Jung (University of Notre Dame, USA)

A Blockchain-Based Privacy-Preserving Auditable Data Structure Framework

Domenico Tortola (University of Pisa), Claudio Felicioli (Traent), Andrea Canciani (Geckosoft), Fabio Severino (Traent)

Blockchain-IV (Room M1, Session Chair: Thanasis Papaioannou, National and Kapodistrian University of Athens, Greece)

Hash Time Lock with Dynamic Premium Based on Credit in Cross-Chain Transaction

Kai Wang (Beijing University of Post and Telecommunications, China), Dongbin Wang (Beijing University of Posts and Telecommunications, China; National Engineering Laboratory for Mobile Network, China), Hui Zhi (TravelSky Technology Limited, China), Yujie Chen (Beijing University of Post and Telecommunications, China; Engineering Research Center of Blockchain and Network Convergence Technology Ministry of Education, China), Xu Zhang (Beijing University of Post and Telecommunications, China)

Leveraging Timestamps to Create Secure and Feeless Evidence Management

Iifan Tyou (NTT Social Informatics laboratories, Japan; The University of Tokyo, Japan), Shigenori Ohashi (NTT Social Informatics laboratories, Japan), Justin Yu (NTT Social Informatics laboratories, Japan; The University of British Columbia, Canada), Takayuki Miura (NTT Social Informatics laboratories, Japan), Takuro Hosoi (The University of Tokyo, Japan), Kanta Matsuura (The University of Tokyo, Japan)

Maximizing Blockchain Performance: Mitigating Conflicting Transactions Through Parallelism and Dependency Management

Faisal Haque Bappy (Syracuse University, USA), Tarannum Shaila Zaman (Computer and Information Science, SUNY Polytechnic Institute, USA), Sajidul Islam Sajid (Towson University, USA), Mir Mehedi Ahsan Pritom (Tennessee Tech University, USA), Tariqul Islam (Syracuse University, USA)

On the Impact of the Lightning Network on Bitcoin Transaction Fees and Network Value

Saulo dos Santos (University of Manitoba, Canada), Japjeet Singh (Sats Capital LTDA, Brazil), Bakhshish Singh Dhillon (University of Winnipeg, Canada), Ruppa K. Thulasiram (University of Manitoba, Canada), Cuneyt Akcora (University of Central Florida, USA), Shahin Kamali (York University, Canada)

Options and Futures Imperil Bitcoin's Security

Soroush Farokhnia (Hong Kong University of Science and Technology, Hong Kong), Amir Kafshdar Goharshady (Hong Kong University of Science and Technology, Hong Kong)

Blockchain-V (Room M1, Session Chair: Cheng-Liang Lu, Technical University of Denmark)

OTEx: Ownership Transfer and Execution Protocol for Blockchain Interoperability

Shantanu Dangat (IIT Hyderabad, India), Suparna Kar (IIT Hyderabad, India), Bhavesh Toshniwal (IIT Hyderabad, India), Kotaro Kataoka (IIT Hyderabad, India), Yawen Huang (Denso Corporation, Japan), Hiroki Abe (Denso Corporation, Japan), Xin Xu (Denso Corporation, Japan)

Peer-To-Peer Energy Trading With Privacy and Fair Exchange

Dongkun Hou (Monash University, Australia), Jie Zhang (Xi'an Jiaotong-Liverpool University, China), Shujie Cui (Monash University, Australia), Joseph K. Liu (Monash University, Australia)

Private Dispute Resolution on Ethereum

Andrea Gangemi (Politecnico di Torino, Italy), Aida Manzano Kharman (Imperial College London, United Kingdom)

Blockchain-VI (Room M1, Session Chair: Xiaofu Chen, Technical University of Denmark)

Proof of Privacy-Preserving Machine Learning: A Blockchain Consensus Mechanism with Secure Deep Learning Process

Huilin He (East China Normal University, China), Jiachen Shen (East China Normal University, China), Zhenfu Cao (East China Normal University, China), Xiaolei Dong (East China Normal University, China), Haiqin Wu (East China Normal University, China)

Proof of Success Rate: A Past Behaviour-Based Consensus Protocol

Damilare Peter Oyinloye (Norwegian University of Science and Technology, Norway), Jingyue Li (Norwegian University of Science and Technology, Norway)

Quantifying Fairness Granularity as a Fair Ordering Policy Towards MEV Mitigation for Rollups

Zeinab Alipanahloo (École de Technologie Supérieure, Canada), Kaiwen Zhang (École de Technologie Supérieure, Canada), Emmanuel Awosika (Independent Researcher, USA)

Smart Contract-Based Decentralized Mining Pools for Proof-Of-Work Blockchains

A.M. Papathanasiou (Athens University of Economics and Business, Greece), C.D. Nassar Kyriakidou (Athens University of Economics and Business, Greece), I. Pittaras (Athens University of Economics and Business, Greece), G.C. Polyzos (Athens University of Economics and Business, Greece; Chinese University of Hong Kong, China)

State-Based Invariant Property Generation of Solidity Smart Contracts Using Abstract Interpretation

Raju Halder (Indian Institute of Technology Patna, India)

Unveiling Dynamics and Patterns: A Comprehensive Analysis of Spreading Patterns and Similarities in Low-Labelled Ransomware Families

Francesco Zola (Vicomtech, Basque Research and Technology Alliance (BRTA), Spain), Mikel Gorricho (Vicomtech, Basque Research and Technology Alliance (BRTA), Spain), Jon Ander Medina (Vicomtech, Basque Research and Technology Alliance (BRTA), Spain), Lander Segurola (Vicomtech, Basque Research and Technology Alliance (BRTA), Spain), Raul Orduna-Urrutia (Vicomtech, Basque Research and Technology Alliance (BRTA), Spain)

Blockchain-VII (Room M1, Session Chair: Raju Halder, Indian Institute of Technology Patna, India)

Systematic Study of Compilers and Vulnerability Scanners Using the Example of Integer Bugs

Monika di Angelo (TU Wien, Austria), Rafael Mohr (TU Wien, Austria), Gernot Salzer (TU Wien, Austria)

Token Fungibility Duality: Technical and Graphical Analysis on 404 Standards

Hou-Wan Long (The Chinese University of Hong Kong, Hong Kong), Yain-Whar Si (University of Macau, Macau)

Ransomware Criminal Smart Contract

Aka Sai Lalith Kumar (Independent Researcher), Sweta Mishra (Shiv Nadar Institution of Eminence, India)

Blockchain-VIII (Room M1, Session Chair: Damilare Peter Oyinloye, Norwegian University of Science and Technology, Norway)

WBRP: Consensus Algorithm Based on Weak Proof of Work

Jiarui Li (Beijing University of Post and Telecommunications, China), Dongbin Wang (Beijing University of Post and Telecommunications, China; National Engineering Laboratory for Mobile Network, China), Hui Zhi (TravelSky Technology Limited, China), Wencheng Zhu (Beijing University of Post and Telecommunications, China; Key Laboratory of Ministry of Education and Trustworthy Distributed Computing and Service, China), Jianing Li (Beijing University of Post and Telecommunications, China), Zedong Wang (Beijing University of Post and Telecommunications, China)

zkSSI: A Zero-Knowledge-Based Self-Sovereign Identity Framework

Anh-Tu Hoang (Hamburg University of Technology, Germany), Can Umut Ileri (IOTA Foundation, Germany), William Sanders (IOTA Foundation, Berlin, Germany), Stefan Schulte (Hamburg University of Technology, Germany)

A Dynamic Sharding Scheme for Blockchain Based on Graph Partitioning

Huan Li (Beijing University of Post and Telecommunications, China), Dongbin Wang (Beijing University of Post and Telecommunications, China; National Engineering Laboratory for Mobile Network, China), Hui Zhi (TravelSky Technology Limited, China), Yuchen Wang (Beijing University of Post and Telecommunications, China; Cyberspace Security Research Center, Peng Cheng Laboratory, China), Tao Yang (Beijing University of Post and Telecommunications, China), Jiang Song (Beijing University of Post and Telecommunications, China)

Bilateral Secure and Decentralized Crowdsourcing Task Matching Atop Consortium Blockchain

Liang Li (East China Normal University, China), Haiqin Wu (East China Normal University, China), Boris Düdder (University of Copenhagen, Denmark), Jiachen Shen (East China Normal University, China), Zhenfu Cao (East China Normal University, China)

Blockchain-Based Zero Knowledge Proof Platform With Secure Common Reference String

Moonhyeon Chung (POSTECH, South Korea), Chanik Park (POSTECH, South Korea)

Blockchain-IX (Room M1, Session Chair: Hess Lee, Hong Kong Polytechnic University)

BlockDEV: Blockchain-Based Decentralized Charging Service Provider Selection for Electric Vehicles

Muhammad Muneem Shabir (École de technologie supérieure, Canada), Syed Muhammad Danish (École de technologie supérieure, Canada), Kaiwen Zhang (École de technologie supérieure, Canada)

ControlPay: An Adaptive Payment Controller for Blockchain Economies

Oguzhan Akcin (The University of Texas at Austin), Robert P. Streit (The University of Texas at Austin), Benjamin Oommen (The University of Texas at Austin), Sriram Vishwanath (The University of Texas at Austin), Sandeep Chinchali (The University of Texas at Austin)

CountChain: A Decentralized Oracle Network for Counting Systems

Behkish Nassirzadeh (University of Waterloo, Canada), Albert Heinle (CoGaurd, Canada), Stefanos Leonardos (King's College London, UK), Anwar Hasan (University of Waterloo, Canada), Vijay Ganesh (Georgia Institute of Technology, USA)

Effective Ethereum Staking in Cryptocurrency Exchanges

Yuto Takei (Mercari, Inc., and Tokyo Institute of Technology), Kazuyuki Shudo (Kyoto University)

Mitigating Centralization in Access Control System With Blockchain and Distributed Storage

Banghong Qin (Beihang University, China), Jianwei Liu (Beihang University, China), Xinxin Xing (Beihang University, China), Weizhi Meng (Technical University of Denmark, Denmark), Yizhong Liu (Beihang University, China)

PAVA: Privacy-Preserving Attribute-Based Verifiable Authentication in Healthcare Using Smart Contracts

Mostafa Chegenizadeh (University of Zurich, Switzerland), Claudio J. Tessone (University of Zurich, Switzerland)

Blockchain-X (Room M1, Session Chair: Xiaofu Chen, Technical University of Denmark)

Prevoke: Privacy-Preserving Configurable Method for Revoking Verifiable Credentials

Praveensankar Manimaran (University of Oslo, Norway, Norway), Arlindo F. da Conceição (Federal University of São Paulo, Brazil), Thiago Garrett (University of Oslo, Norway), Mayank Raikwar (University of Oslo, Norway), Roman Vitenberg (University of Oslo, Norway)

PRFX: A Privacy-Preserving Prefix Summation Protocol on Blockchain with Zero-Knowledge Proof

Goshgar C. Ismayilov (Bogazici University, Turkey), Can Ozturan (Bogazici University, Turkey)

Proof-of-Collaborative-Learning: A Multi-Winner Federated Learning Consensus Algorithm

Amirreza Sokhankhosh (University of Manitoba, Canada), Sara Rouhani (University of Manitoba, Canada)

Theoretical Analysis on Block Time Distributions in Byzantine Fault−Tolerant Consensus Blockchains

Akihiro Fujihara (Chiba Institute of Technology, Japan)

Analysis of Input/Output Count and Transaction Size in Bitcoin

Mohammad Hossein Tabatabaei (University of Oslo, Norway), Thiago Garrett (University of Oslo, Norway), Roman Vitenberg (University of Oslo, Norway)

Understanding the Blockchain Interoperability Graph Based on Cryptocurrency Price Correlation

Ori Mazor (Technion - Israel Institute of Technology), Ori Rottenstreich (Technion - Israel Institute of Technology)

Worst-Case Analysis of the Soundness of Efficient Verifiable Delay Function

Souvik Sur (Indian Institute of Technology, India), Dipanwita Roychowdhury (Indian Institute of Technology, India)

BSS Workshop-1 (Room S04, Session Chair: João Paulo de Brito Gonçalves, Instituto Federal do Espírito Santo)

A Responsibility Pillar: Exploring and Assessing Decentralized Intelligence (Online with Video Hyperlink)

Qin Wang (CSIRO & UNSW, Australia); Guangsheng Yu (CSIRO, Australia); Tingting Bi (The University of Western Australia, Australia); Herath Mudiyanselage Nelanga Dilum Bandara (Commonwealth Scientific and Industrial Research Organisation & University Of New South Wales, Australia); Shiping Chen (CSIRO Data61 & UNSW, Australia)

Cross-Chain Notification and Awareness Management

Ferda Özdemir Sönmez (Imperial College of London, United Kingdom (Great Britain)); William J Knottenbelt (Imperial College, United Kingdom (Great Britain))

Leveraging Blockchain and RFID/NFC Technology for Secure and Traceable Logistics for Documents With Digital Twin

Terry C. Y. Ng (R Square Innovation Technology Limited, Hong Kong); Dennis Y. W. Liu (Monash University, Australia & The Hong Kong Polytechnic University, Hong Kong); Alven C. Y. Leung (The Hong Kong Polytechnic University, Hong Kong)

LLMSmartSec: Smart Contract Security Auditing With LLM and Annotated Control Flow Graph

Viraaji Mothukuri; Reza M. Parizi; James L Massa

BSS Workshop-II & FBS Workshop-I (Room S12, Session Chair: Akihiro Fujihara, Chiba Institute of Technology)

SCAFT: A Scalable Crowd-Assisted Fair Trading Protocol

Changhao Chenli, Wenyi Tang, Shankha Shubhra Mukherjee and Taeho Jung (University of Notre Dame, USA)

A Blockchain-Enabled and Transparent Evaluation of ML Models in the Decentralised Marketplace (Online with Video Hyperlink)

Hamid Yazdaninejad (University of London, UK), Muttukrishnan Rajarajan (University of London, UK), Michal Krol (University of London, UK)

Comparative Analysis of Permissioned Blockchains: Cosmos, Hyperledger Fabric, Quorum, and XRPL

Pedro H. Barcha Correia (Universidade de São Paulo, Brazil), Marcos A. Marques (Universidade de São Paulo, Brazil), Marcos A. Simplicio (Universidade de São Paulo, Brazil), Luciano Ermlivitch (Universidade de São Paulo, Brazil), Charles C. Miers (Universidade do Estado de Santa Catarina, Brazil), Mauricio A. Pillon (Universidade do Estado de Santa Catarina, Brazil)

Correlation Analysis of Reward Rate in a DPoS Blockchain

Hidemasa Tanaka (Tokyo Institute of Technology, Japan), Shiori Hironaka (Kyoto University, Japan), Kazuyuki Shudo (Kyoto University, Japan)

Enhancing Blockchain Storage Efficiency in Mobile IoT through Multidimensional Structures and Collective Signing (Online with Video Hyperlink)

Hussein Zangoti (Florida International University, USA ; Faculty of Computer Science & Information Technology, Jazan University, Saudi Arabia), Alex Pissinou Makki (Frost Institute of Data Science and Computing, University of Miami, USA), Wazir Zada Khan (University of Wah, Pakistan), Niki Pissinou (Florida International University, USA)

U-spaceChain: A Decentralized Approach to Unmanned Traffic Management Services Provision (Online with Video Hyperlink)

Balita Rakotonarivo (Ecole Nationale de l'Aviation Civile, France); Murat Bronz (ENAC, France)

FBS Workshop-II (Room S02, Session Chair: Harry Min, University of Cambridge)

Exploring User Perceptions of Crypto Signals: An Empirical Study From Social Media Posts (Online with Video Hyperlink)

Shawal Khalid (Virginia Tech), Huayu Liang (Virginia Tech), Chris Brown (Virginia Tech)

Pixiu: Optimal Block Production Revenues on Cardano

Togzhan Barakbayeva (Hong Kong University of Science and Technology, Hong Kong), Soroush Farokhnia (Hong Kong University of Science and Technology, Hong Kong), Amir Goharshady (Hong Kong University of Science and Technology, Hong Kong), Markus Gufler (Cardano Foundation, Switzerland), Sergei Novozhilov (Hong Kong University of Science and Technology, Hong Kong)

Scatter Protocol: An Incentivized and Trustless Protocol for Decentralized Federated Learning

Samrat Sahoo (Georgia Institute of Technology, USA), Sudheer Chava (Georgia Institute of Technology, USA)

SD-BLS: Privacy Preserving Selective Disclosure of Verifiable Credentials with Unlinkable Threshold Revocation

Denis Roio (Dyne.org Foundation, The Netherlands), Rebecca Selvaggini (University of Trento, Italy), Gabriele Bellini (University of Milano, Italy), Andrea D'Intino (Forkbomb B.V., Denmark)

Versioned Analysis of Software Quality Indicators and Self-Admitted Technical Debt in Ethereum Smart Contracts with Ethstractor

Khalid Hassan (University of Manitoba, Canada), Saeed Moradi (University of Manitoba, Canada), Shaiful Chowdhury (University of Manitoba, Canada), Sara Rouhani (University of Manitoba, Canada)

IBTA Workshop-I (Room S04, Session Chair: Tongtong Cheng, China Academy of Information and Communications Technology. China)

A Performance Study of Block Proposing Mechanism in Ethereum 2.0

Zijie Liu (Macau University of Science and Technology, China), Qinglin Zhao (Macau University of Science and Technology, China), Shuhan Qi (Macau University of Science and Technology, China), Li Feng (Macau University of Science and Technology, China), Xiaofen Wang (University of Electronic Science and Technology of China, China), Sun Yi (Chinese Academy of Sciences, China)

Data Blocks Scheduling Scheme for Regional Distributed Storage Networks

Tongtong Cheng (China Academy of Information and Communications Technology, China), Yang Liu (China Academy of Information and Communications Technology, China), Cheng Chi (China Academy of Information and Communications Technology, China), Zihang Yin (China Academy of Information and Communications Technology, China)

Research and Application Framework for Trusted Circulation of Food Industry Data Based on Blockchain and Federated Learning

Xin Zhang (Beijing Technology and Business University, China), Yan Ren (Beijing Technology and Business University, China), Jiping Xu (Beijing Technology and Business University, China), Cheng Chi (China Academy of information and communication, China)

Research on Distributed Node Resource Optimization Mechanism for Multi-Agent Systems Combined with Blockchain Technology

Zihang Yin (China Academy of Information and Communications Technology, China), Bing Bai (China Academy of Information and Communications Technology, China), Yang Liu (China China Academy of Information and Communications Technology, China), Tongtong Cheng (China Academy of Information and Communications Technology, China)

SPB Workshop-I (Room S02, Session Chair: Matteo Vaccargiu, University of Cagliari, Italy)

A Comparison of Impermant Loss for Various CFMMs

Hyoung Joong Kim (Hoseo University, Korea), Gyu M. Lee (Pusan National University, Korea), Jongwon Lee (Hoseo University, Korea), Sora Kang (Hoseo University, Korea), Seong Wook Chae (Hoseo University, Korea), Jun-Seok Park (Kookmin University, Korea)

A State-Function-Driven Consensus Protocol for Blockchain Networks

Dan Lu (ME Research LLC, USA)

Blockchain-Enabled Accountability in Data Supply Chain: A Data Bill of Materials Approach (Online with Video Hyperlink)

Yue Liu (Data61, CSIRO, Australia), Dawen Zhang (Data61, CSIRO, Australia), Boming Xia (Data61, CSIRO, Australia), Julia Anticev (IM&T, CSIRO, Australia), Tunde Adebayo (IM&T, CSIRO, Australia), Zhenchang Xing (Data61, CSIRO, Australia), Moses Machao (IM&T, CSIRO, Australia)

SPB Workshop-II (Room S02, Session Chair: Xueqin Liang, Xidian University, China)

Detect and Isolate an Adversary in Fakey and Griefing-R Attack on Lightning Network

Prerna Arote (Indian Institute of Science, India), Joy Kuri (Indian Institute of Science, India)

Slicing PBFT Consensus Algorithm Based on VRF

Pengyu Chen (Guizhou University, China), Yuling Chen (Guizhou University, China), Chaoyue Tan (Guizhou University, China), Yuxiang Yang (Guizhou University, China), Bo Li (Guizhou University, China), Jiachen Huang (Guizhou University, China)

Taming Smart Contracts With Blockchain Transaction Primitives: A Possibility?

Sogolsadat Mansouri (North Carolina State University, USA), Habib Mohammed (North Carolina State University, USA), Nodirbek Korchiev (North Carolina State University, USA), Kemafor Anyanwu (North Carolina State University, USA)

Towards Credential-Based Device Registration in DApps for DePINs With ZKPs

Jonathan Heiss (TU Berlin, Germany), Fernando Castillo (TU Berlin, Germany), Xinxin Fan (IoTeX, USA)

ZKP Enabled Identity and Reputation Verification in P2P Marketplaces

Jan Kalbantner (Royal Holloway University of London, United Kingdom), Konstantinos Markantonakis (Royal Holloway University of London, United Kingdom), Darren Hurley-Smith (Royal Holloway University of London, United Kingdom), Carlton Shepherd (Newcastle University, United Kingdom)

A New Consensus Mechanism for Blockchained Federated Learning Systems Using Optimistic Rollups

João Paulo de Brito Gonçalves (Federal Institute of Espirito Santo (Ifes), Brazil), Rodolfo da Silva Villaça (Federal University of Espirito Santo (Ufes), Brazil)

TrustChain Workshop-I (Room S04, Session Chair: Marcello Maugeri, University of Catania, Italy)

A Blockchain Identity Privacy Management Framework for a Healthcare Application

Sofia Sakka (University of Ioannina, Greece), Vasiliki Liagkou (University of Ioannina, Greece), Chrysostomos Stylios (University of Ioannina/ ATHENA Research Center, Greece)

A Systematisation of Knowledge: Connecting European Digital Identities with Web3

Ben Biedermann (Islands and Small States Institute, University of Malta, Malta), Matthew Scerri (WIDE Consortium, Germany), Victoria Kozlova (ACURRAENT UG, Germany), Joshua Ellul (Centre for DLT, University of Malta, Malta)

Automated Gateways: A Smart Contract-Powered Solution for Interoperability Across Blockchains

Koosha Esmaeilzadeh Khorasani (University of Manitoba, Canada), Sara Rouhani (University of Manitoba, Canada), Rui Pan (Grain Discovery, Canada), Vahid Pourheidari (Futurix Technologies, Canada)

TrustChain Workshop-II (Room S04, Session Chair: Marcello Maugeri, University of Catania, Italy)

Defining Unified Signature API for Mobile Apps to Integrate with Secure Signature Creation Devices (SSCDs)

Ammar Bukhari (Methics Oy, Finland), Jarmo Miettinen (Methics Oy, Finland), Muttukrishnan Rajarajan (City University of London, United Kingdom)

Designing Inclusive Technology Solutions for Global Communities

Manuel Knott (Hora eV, Austria), Sarra-Maryam Fezzani (Hora eV, Austria)

Enhancing Security and Scalability in Electronic Voting Through Privacy-Preserving Cryptography and Efficient Data Structures

George Misiakoulis (Konnecta Systems IKE, Greece), Harris Niavis (Konnecta Systems IKE, Greece), Stephane Kundig (Konnecta Systems IKE, Greece), Konstantinos Loupos (Konnecta Systems IKE, Greece)

SURE: A New Privacy and Utility Assessment Library for Synthetic Data

Dario Brunelli (Clearbox AI, Italy), Shalini Kurapati (Clearbox AI, Italy), Luca Gilli (Clearbox AI, Italy)

The On-Chain and Off-Chain Mechanisms of DAO-To-DAO Voting

Thomas Lloyd (South East Technological University, Rep. of Ireland), Daire O'Broin (South East Technological University, Rep. of Ireland), Martin Harrigan (South East Technological University, Rep. of Ireland)

Towards a Blockchain-Enabled Trustworthy Market Framework

Thanasis G. Papaioannou (National and Kapodistrian University of Athens, Greece), Dimitris Mantzonis (National and Kapodistrian University of Athens, Greece), Vaios Ritas (National and Kapodistrian University of Athens, Greece)

TrustChain Workshop-III (Room S12, Session Chair: Siraj Munir, University of Urbino Carlo Bo, Italy)

Trust and Resilience in Federated Learning Through Smart Contracts Enabled Decentralized Systems

Lorenzo Cassano (University of Bologna, Italy), Jacopo D'Abramo (University of Bologna, Italy), Siraj Munir (University of Urbino Carlo Bo, Italy), Stefano Ferretti (University of Bologna, Italy; University of Urbino Carlo Bo, Italy)

User-Empowered Federated Learning in Automotive

Marcello Maugeri (University of Catania, Italy), Mirko Ignazio Paolo Morana (University of Catania, Italy), Sergio Esposito (University of Catania, Italy), Giampaolo Bella (University of Catania, Italy)

OIDC-PRINCE: OpenID Connect With Privacy-Enhanced Consents

Tiago Galvão (University of Coimbra, CISUC, DEI), Bernardo Arzileiro (University of Coimbra, CISUC, DEI), Bruno Sousa (University of Coimbra, CISUC, DEI)

IEEE iThings 2024 Presentation

iThings-I (Room S01, Session Chair: Harry Min, University of Cambridge)

A Containerized IoT Simulation Environment for Network Warfare Training (Online with Video Hyperlink)

Ruihao Chen (Fujian Normal University, China), Chengcheng Lyu (Fujian Normal University, China), Wenzhao Wang (Fujian Normal University, China), Hui Lin (Fujian Normal University, China), Qingxin Lin (Fuzhou University Zhicheng College, China)

A Framework for BMC Firmware Vulnerability Analysis and Exploitation (Online with Video Hyperlink)

Jiapeng Wang (Beijing Institute of Technology, China), Zhihan Zheng (Beijing Institute of Technology, China), Kefan Qiu (Beijing Institute of Technology, China), Yu-an Tan (Beijing Institute of Technology, China), Chen Liang (Beijing Information Science & Technology University, China), Wenjuan Li (The Education University of Hong Kong, China)

A Novel Diversified API Recommendation for Power System Sensors (Online with Video Hyperlink)

Minhao Zhu (Nari Group Corporation, China); Huanhuan Gu (Nanjing University of Science and Technology, China), Xun Che (Nanjing University of Science and Technology, China), Jingfei Chen (Nanjing University of Science and Technology, China), Qian Zhao (Guodian Nanjing Automation Co., Ltd., China), Fan Liu (Nanjing University of Science and Technology, China), Yu Zheng (Nanjing University of Science and Technology, China)

A Secure Ethernet Passive Optical Network Protocol for Industrial Internet of Things (Online with Video Hyperlink)

Huanhuan Gu (Nanjing University of Science and Technology, China; Nanjing Sinovatio Technology Co., Ltd., China), Jing Shang (Nanjing University of Science and Technology, China), Xun Che (Nanjing University of Science and Technology, China), Qian Zhao (Guodian Nanjing Automation Co., Ltd., China), Pengchuan Wang (Nanjing University of Science and Technology, China), Jingfei Chen (Nanjing University of Science and Technology, China), Fan Liu (Nanjing University of Science and Technology, China)

A Trusted and Decentralized Federated Learning Framework for IoT Devices in Smart City

Sheng Wang (Nanjing Construction Market Supervision Station, China), Chun Chen (Jiangsu Public Works Co.Ltd, China), Bing Han (Nanjing University of Aeronautics and Astronautics, China), Jun Zhu (City University of Hong Kong, China)

iThings-II (Room S01, Session Chair: Peter Herrmann, Norwegian University of Science and Technology, Norway)

A Walk-Through Type Authentication System Using Real-Time Gaze & Motion Detection (Online with Video Hyperlink)

Yanmei Jiao (Tokyo University of Technology, Japan), Kiminori Sato (Tokyo University of Technology, Japan), Bo Wu (Tokyo University of Technology, Japan)

Bridging IoT Protocols with the Web of Things: A Path to Enhanced Interoperability

Zakaria Benomar (National Institute for Research in Digital Science and Technology, France), Marco Garofalo (University of Messina, Italy), Nikolaos Georgantas (National Institute for Research in Digital Science and Technology, France), Francesco Longo (University of Messina, Italy; CINI: National Interuniversity Consortium for Informatics, Italy), Giovanni Merlino (University of Messina, Italy; CINI: National Interuniversity Consortium for Informatics, Italy), Antonio Puliafito (University of Messina, Italy; CINI: National Interuniversity Consortium for Informatics, Italy)

Civil Engineering Design in IoT: Leveraging Improved Swarm Intelligence Optimization (Online with Video Hyperlink)

Weiheng Fu (Fuzhou University, China), Rongzhong Chen (Xiamen Meteorological Bureau, China), Kaiwen Chen (Florida Transportarion Engineeeing, United States), Xiaojun Xie (Fuzhou University, China)

iThings-III (Room S01, Session Chair: Session Chair: Peter Herrmann, Norwegian University of Science and Technology, Norway)

Cubic-DUCAG: A New Modeling and Probabilistic Computing Approach for Cyclic Network Attacks (Online with Video Hyperlink)

Chunling Dong (Comunication University of China, China), Yu Feng (Comunication University of China, China)

Deep Reinforcement Learning for Energy-Efficient Selection of Embedded Services at the Edge

Hugo Hadjur (aivancity School for Technology, Business & Society, France; Inria, Univ Lyon, EnsL, UCBL, CNRS, LIP), Doreid Ammar (aivancity School for Technology, Business & Society, France; Inria, Univ Lyon, EnsL, UCBL, CNRS, LIP), Laurent Lefèvre (Inria, Univ Lyon, EnsL, UCBL, CNRS, LIP, France)

Deep Reinforcement Learning-Based AoI Minimization in UAV-Assisted Multi-Platoon Vehicular Networks (Online with Video Hyperlink)

Bochun Du (Ningbo University, China), Long Qu (Ningbo University, China)

Digital Microfluidic Biochips Test Path Planning Based on Swarm Intelligence Optimization and Internet of Things Technology (Online with Video Hyperlink)

Zhongliao Yang (Fuzhou University, China), Zhengye Xie (Fuzhou University, China), Chen Dong (Fuzhou University, China), Xinmin Fan (Fujian Normal University, China), Zhenyi Chen (University of South Florida, USA)

Elevating Smart Contract Defenses: A Coordinated NLP-Based Strategy for Vulnerability Detection (Online with Video Hyperlink)

Chengyu Lin (Fujian Normal University, China), Xiaoding Wang (Fujian Normal University, China), Hui Lin (Fujian Normal University, China)

Energy Efficient and Low Latency Computation Offloading via Truly PPO in Mobile Edge Computing Networks with Multi-UAV (Online with Video Hyperlink)

Shuang Fu (Nanjing University of Aeronautics and Astronautics, China), Xiangping Bryce Zhai (Nanjing University of Aeronautics and Astronautics, China), Changyan Yi (Nanjing University of Aeronautics and Astronautics, China), Lei Pang (Zugo Intelligent Technology Company, China), Chee Wei Tan (Nanyang Technological University, Singapore)

iThings-IV (Room S01, Session Chair: Marcello Maugeri, University of Catania, Italy)

Enhancing Sales Forecasting Accuracy in the Presence of Missing Data (Online with Video Hyperlink)

Jun Tang (Sichuan University, China), Jingpeng Sun (University of Birmingham, UAE), Bing Guo (Sichuan University, China), Yan Shen (Chengdu University of Information Technology, China), Shengxin Dai (Sichuan University, China), Peng Wang (Sichuan University, China)

Enhancing Visual Inertial Odometry Performance Using Deep Learning-Based Sensor Fusion (Online with Video Hyperlink)

Raoof Doorshi (Malmö University, Sweden), Hajira Saleem (Malmö University, Sweden), Reza Malekian (Malmö University, Sweden)

IoT Meets Computer Vision: An Improved Detection of Tomato Pests and Diseases (Online with Video Hyperlink)

Junling Wang (Nanjing University of Science and Technology, China), Dongyang Wu (Nanjing Forestry University, China), Yupeng Wang (Nanjing University of Science and Technology, China)

Local-GAN: An Anomaly Detection Method Based on Local Key Features and GAN for IoT (Online with Video Hyperlink)

Huixia Lai (Fujian Normal University, China), Fan Zhou (Fujian Normal University, China), Bo Wang (Fujian Meteorological Information Centre, China), Hongrui Chen (Fujian Normal University, China), Shi Zhang (Fujian Normal University, China)

malDetect: Malware Classification Using API Sequence and Comparison With Transformer Encoder (Online with Video Hyperlink)

Jingjing Lin (Fuzhou University, China), Jingsong Lin (Fuzhou University, China), Chenxi Lyu (Fuzhou University, China), Xinmin Fan (Fujian Normal University, China), Chen Dong (Fuzhou University, China)

iThings-V (Room S01, Session Chair: Vira Shendryk, Sumy State University, Ukraine)

Minimizing Data Transmission Delay in Vehicular Networks Through Network Coding-Based Broadcasting (Online with Video Hyperlink)

Jiali Hu (Ningbo University, China), Long Qu (Ningbo University, China), Qinglin Song (Ningbo University, China), Ran Zhu (Zhejiang Faraday Laser Technology co. LTD, China)

Multi-Domain and Multi-View Oriented Deep Neural Network for Sentiment Analysis in Large Language Models (Online with Video Hyperlink)

Keito Inoshita (Faculty of Data Science, Shiga University, Japan), Xiaokang Zhou (Faculty of Business Data Science, Kansai University, Japan), Shohei Shimizu (Faculty of Data Science, Shiga University and RIKEN AIP, Japan; RIKEN AIP, Japan)

Prediction of Social Influence in Social Networks

Shiyu Chen (Nanjing University of Science and Technology, China), Qianmu Li (Nanjing University of Science and Technology, China)

iThings-VI (Room S01, Session Chair: Vira Shendryk, Sumy State University, Ukraine)

Priority-Considered Channel Access for Registration-Backoff-Time (RBT) -Based IEEE 802.11ah IOT Network

Chung-Ming Huang (National Cheng Kung University, Taiwan), Chia-Hsiang Chen (National Cheng Kung University, Taiwan), Jianhua Ma (Hosei University, China)

RADIO: Reinforcement Learning-Aided Deployment of Wi-Fi Routers in 5G Networks for Indoor Drone Orchestrating (Online with Video Hyperlink)

Alireza Famili (WayWave Inc, USA), Amin Tabrizian (George Washington University, USA), Tolga Atalay (Virginia Tech, USA), Angelos Stavrou (WayWave Inc, USA; Virginia Tech, USA)

Recommendation Algorithm Based on Social Influence Diffusion

Xin Jin (Nanjing University of Science and Technology, China), Shiyu Chen (Nanjing University of Science and Technology, China)

TGIEN: An Interpretable Image Editing Method for IoT Applications Based on Text Guidance

Yifei Wang (Nanjing University of Science and Technology, China), Mengzhu Pan (Nanjing University of Science and Technology, China), Qianmu Li

The Pipeline of VAE Base Network Traffic Anomaly Detection Algorithm (Online with Video Hyperlink)

Honglei Fu (Nanjing University of Posts & Telecommunications, China), Pan Wang (Nanjing University of Posts & Telecommunications, China), Xuejiao Chen (Nanjing Vocational College of Information Technology, China)

iThings-VII (Room S01, Session Chair: Zheng Zhu, Technical University of Denmark)

TinyML on Mobile Devices for Hybrid Energy Management Systems

Olha Boiko (Sumy State University, Ukraine; Malmö University, Sweden), Anton Komin (Sumy State University, Ukraine), Vira Shendryk (Sumy State University, Ukraine; Malmö University, Sweden), Reza Malekian (Malmö University, Sweden), Paul Davidsson (Malmö University, Sweden)

Unsupervised Real-Time Flow Data Drift Detection Based on Model Logits for Internet of Things Network Traffic Classification

Pan Wang (Nanjing University of Posts & Telecommunications, China), Min Yao Liu (Nanjing University of Posts & Telecommunications, China), Zeyi Li (Nanjing University of Posts & Telecommunications, China), Zixuan Wang (Nanjing University of Posts & Telecommunications, China), Xuejiao Chen (Nanjing Vocational College of Information Technology, China)

A Comparative Analysis of Query Generation Methods for IoT Middleware Evaluation

Ravindi de Silva (Deakin University, Australia), Arkady Zaslavsky (Deakin University, Australia), Seng W. Loke (Deakin University, Australia), Prem Prakash Jayaraman (Swinburne University of Technology, Australia)

A Domain-Adaptive Large Language Model With Refinement Framework for IoT Cybersecurity (Online with Video Hyperlink)

Xun Che (Nanjing University of Science and Technology, China), Yu Zheng (Nanjing University of Science and Technology, China), Minhao Zhu (Nari Group Corporation, China), Qianmu Li (Nanjing University of Science and Technology, China), Xu Dong (Nanjing University of Science and Technology, China)

The Integrated Monitoring System for Rail Transit and the Switching Method for the Main and Backup Control Centers (Online with Video Hyperlink)

Jing Song (NR Electric Co., Ltd, China), Changkai Zhang (NR Electric Co., Ltd, China), Xun Che (Nanjing University of Science and Technology)

iThings Workshop-I (Room S04, Session Chair: Cheng-Liang Lu, Technical University of Denmark)

A Dynamic Risk-Aware Routing Recommendation Using Deep Reinforcement Learning (Online with Video Hyperlink)

Difeng Zhu (Hangzhou City University, China), Hang Zhou (Zhejiang University, China), Anchen Lin (Hangzhou City University, China), Binbin Zhou (Hangzhou City University, China)

A Framework for Privacy-Preserving Efficient Collaborative Learning

Jianxiang Cao (Communication University of China, China), Xing Song (Communication University of China, China), Wenqian Shang (Communication University of China, China)

A Machine Learning Model for Prediction of Malaria from Microscopic Blood Cell Images (Online with Video Hyperlink)

Samson Otieno (Adventist University of Africa, Kenya), Charles Theuri Kagwi (University of Eastern Africa)

iThings Workshop-II (Room S04, Session Chair: Yingli Duan, Technical University of Denmark)

Ambient Intelligence Ecosystem for Elderly Pattern Detection and Care Using Social Robots

Raúl Gómez-Ramos (ITAP-DISA, University of Valladolid, Spain), Jaime Duque-Domingo (ITAP-DISA, University of Valladolid, Spain), Eduardo Zalama (ITAP-DISA, University of Valladolid, Spain), Jaime Gómez-García-Bermejo (ITAP-DISA, University of Valladolid, Spain)

An Architectural Reference Model for IoT Device Management

Dominik Grüdl (Coburg University of Applied Sciences and Arts, Germany), Thomas Wieland (Coburg University of Applied Sciences and Arts, Germany), Daniela Nicklas (University of Bamberg, Germany)

Analyzing and Predicting the Power Consumption of a Publish/Subscribe IoT-Broker

Franc Pouhela (German Research Center for Artificial Intelligence (DFKI GmbH), Germany), Maryam Arabshahi (German Research Center for Artificial Intelligence (DFKI GmbH), Germany), Hans D. Schotten (German Research Center for Artificial Intelligence (DFKI GmbH), Germany)

Building a First Prototype of a Multi-Scale Modular Distributed Display

Frederic Lassabe (FEMTO-ST Institute, CNRS, UTBM, France), Dominique Dhoutaut (FEMTO-ST Institute, CNRS, Univ. Franche-Comte, France), Benoit Piranda (FEMTO-ST Institute, CNRS, Univ. Franche-Comte, France), Olga Kouchnarenko (FEMTO-ST Institute, CNRS, Univ. Franche-Comte, France), Julien Bourgeois (FEMTO-ST Institute, CNRS, Univ. Franche-Comte, France)

Combatting the TrickBot Threat: Analysis, Impact, and Defensive Strategies in Cybersecurity (Online with Video Hyperlink)

Jintao Cao (Miami University, USA), Allie Null (Miami University, USA), Marissa Stewart (Miami University, USA), Suman Bhunia (Miami University, USA), Mohammad Salman (University of Anbar, Iraq)

iThings Workshop-III (Room S04, Session Chair: Zheng Zhu, Technical University of Denmark)

Development of a User-Friendly and Efficient Control System for Smart Home (Online with Video Hyperlink)

Pushpendu Kar (University of Nottingham, China), Puttipatt Ingkasit (University of Nottingham, China)

DEVS-RPL: Design Formal Discrete Event Model of Routing Protocol Over LLN

Hussah Albinali (King Fahd University of Petroleum and Minerals, Saudi Arabia), Farag Azzedin (King Fahd University of Petroleum and Minerals, Saudi Arabia), Muhammad Riaz (King Fahd University of Petroleum and Minerals, Saudi Arabia)

Integrating Synthetic Data Modelling into an Adaptive Sampling Framework for IoT Devices

Faiga Alawad (Norwegian University of Science and Technology (NTNU), Norway), Peter Herrmann (Norwegian University of Science and Technology (NTNU), Norway), Vajira Thambawita (Simula Metropolitan Center for Digital Engineering, Norway)

Inverse-PID: A Mathematical Approach Towards Detecting Real-World Wear-And-Tear in Industrial Machines (Online with Video Hyperlink)

Severin Pang (ei3 Corporation Data Science Division, Switzerland), Justas Katkus (ei3 Corporation Data Science Division, Switzerland), Stefan Hild (ei3 Corporation Data Science Division, Switzerland)

MMQP: A Lightweight, Secure and Scalable IoT Communication Protocol

Franc Pouhela (German Research Center for Artificial Intelligence (DFKI GmbH), Germany), Pierre Sogo Sanon (German Research Center for Artificial Intelligence (DFKI GmbH), Germany), Dennis Krummacker (German Research Center for Artificial Intelligence (DFKI GmbH), Germany), Hans D. Schotten (German Research Center for Artificial Intelligence (DFKI GmbH), Germany; University of Kaiserslautern (RPTU), Germany)

Monitoring of In-Field Risk of Infection Events by Foliar Pathogens Using Smart IoT Nodes

Hassan Hammoud (IGEPP, INRAE, France; INRIA, Rennes University, France), Frédéric Weis (IRISA, Rennes University, France), Christophe Langrume (IGEPP, INRAE, France), Melen Leclerc (IGEPP, INRAE, France), Jean-Marie Bonnin (IRISA, IMT Atlantique, France)

Privacy Threats and Countermeasures in Federated Learning for Internet of Things: A Systematic Review

Adel ElZemity (University of Kent, United Kingdom), Budi Arief (University of Kent, United Kingdom)

IEEE GreenCom 2024 Presentation

GreenCom-I (Room S09, Session Chair: Yaxin Luo, Technical University of Denmark)

A Framework to Optimize the Energy Cost of Securing Neural Network Inference

Tanjina Islam (University of Amsterdam, The Netherlands), Ana Oprescu (University of Amsterdam, The Netherlands), Zoltán Ádám Mann (University of Amsterdam, The Netherlands), Sander Klous (University of Amsterdam, The Netherlands)

A Review of Early Time Series Classification Methods on Machinery Dataset

Mohammad Ali Nemer (Femto-St Institute, Universite de Franche-Comte, France), Joseph Azar (Femto-St Institute, Universite de Franche-Comte, France), Abdallah Makhoul (Femto-St Institute, Universite de Franche-Comte, France), Julien Bourgeois (Femto-St Institute, Universite de Franche-Comte, France)

Achieving Asymptotically Optimal Throughput and Fairness for Energy Harvesting Sensors in IoT Network Systems (Online with Video Hyperlink)

Omer Melih Gul (Istanbul Technical University, Turkiye)

Comparison of the Performance and Energy Efficiency Evaluation of 5G User-Plane Functions

Raffaele Bolla (University of Genoa, Italy), Roberto Bruschi (University of Genoa, Italy), Franco Davoli (University of Genoa, Italy), Paolo Ghiorzo (University of Genoa, Italy), Lorenzo Ivaldi (University of Genoa, Italy), Chiara Lombardo (University of Genoa, Italy), Beatrice Siccardi (University of Genoa, Italy)

Creation of Topological Maps of Energy Consumption for IP Networks

Alejandro Muñiz Da Costa (Telefónica ID, Spain; Universidad Politécnica de Madrid, Spain), Pablo Armingol Robles (Telefónica ID, Spain; Universidad Carlos III de Madrid, Spain), Luis M. Contreras (Telefónica ID, Spain), Óscar Gonzalez de Dios (Telefónica ID, Spain)

GreenCom-II (Room S09, Session Chair: Ashkan Tashk, University of Copenhagen, Denmark)

Design and Development of a Real-Time IoT Infrastructure for a Future Workspace - Energy Efficiency and Sustainability (Online with Video Hyperlink)

Hamza Saadaoui (Amaris Research Unit, France), Hajer Rabii (Amaris Research Unit, France), Zeynep Tulumen (Amaris Research Unit, France)

Enhanced Pedestrian Detection and Tracking using Multi-Person Pose Extraction and Deep Convolutional LSTM Network

Ashkan Tashk (University of Copenhagen, Denmark), Mohammad Ali Alavianmehr (Shiraz University of Technology, Iran)

How Much RF Energy Can Be Harvested From V2X Communications? An Experimental Assessment

Federico Librino (Italian National Research Council, Italy), Francesca Martelli (Italian National Research Council, Italy), Giovanni Resta (Italian National Research Council, Italy), Glauco Cecchi (University of Pisa, Italy), Andrea Motroni (University of Pisa, Italy), Andrea Ria (University of Pisa, Italy)

GreenCom-III (Room S09, Session Chair: Yingli Duan, Technical University of Denmark)

Low-Cost Green Computing-As-a-Service Testbed for SMEs: Leveraging AI and 6G for Enhanced Productivity

Mohammad N. Patwary (Faculty of Science and Engineering, University of Wolverhampton, UK), Samiya Khan (University of Greenwich, UK), Junaid Nawaz Syed (COMSATS University Islamabad, Pakistan)

On Three Fundamental Graph Enumeration Problems and the Corresponding Graph Generation Algorithms

Antoine Bossard (Kanagawa University, Japan)

PowerHeat: A Non-Intrusive Approach for Estimating the Power Consumption of Bare Metal Water-Cooled Servers

Maxime Agusti (OVHcloud, France; Université de Lyon (UCBL Lyon1), CNRS, ENS de Lyon, LIP, France), Eddy Caron (Université de Lyon (UCBL Lyon1), CNRS, ENS de Lyon, LIP, France),

Benjamin Fichel (OVHcloud, France), Laurent Lefèvre (Université de Lyon (UCBL Lyon1), CNRS, ENS de Lyon, LIP, France), Olivier Nicol (OVHcloud, France), Anne-Cécile Orgerie (Univ. Rennes, Inria, CNRS, IRISA, France)

Rivercare: Shaping the Decentralized Identity of Mother Nature on Blockchain Through Care Activities of Stewards

Hung-Ming Sung (National Taiwan University, Taiwan), You-Shin Tsai (National Taiwan University, Taiwan), Timothy Chen (National Taiwan University, Taiwan), Ju-Chun Ko (National Taiwan University, Taiwan), Yi-Ping Hung (National Taiwan University, Taiwan)

GreenCom Workshop-I (Room S09, Session Chair: Hess Lee, Hong Kong Polytechnic University)

Carbon-Aware Workload Shifting for Mitigating Environmental Impact of Generative AI Models

Eddie Zhang (Troy High School, USA), Daniel Wu (Thomas Jefferson High for Science and Technology, USA), Jeffrey Boman (Montgomery Blair High School, USA)

A Number of Conceptual Scalable Node-Organizing Multi-Tiered Blockchain Architectures for IoT

Riham Elsaadany (Université du Québec à Montréal), Guy Bégin (Université du Québec à Montréal)

An Ethereum Oracle-Based Solution for P2P Energy Trading Market

Matteo Vaccargiu (University of Cagliari, Italy), Roberto Tonelli (University of Cagliari, Italy)

High-Bandwidth Node Selection in Compact Block Relay

Shinnosuke Masuda (Kyoto University), Tsuyoshi Hasegawa (Kyoto University), Taishi Nakai (Kyoto University), Akira Sakurai (Kyoto University; Tokyo Institute of Technology), Kazuyuki Shudo (Kyoto University)

IEEE SmartData 2024 Presentation

SmartData-I (Room S12, Session Chair: Xiaofu Chen, Technical University of Denmark)

AggreMark: Efficient Watermarking in Federated Learning via Weighted Averaging

Zhuotao Lian (Kyushu University, Japan), Weiyu Wang (University of Aizu, Japan), Chunhua Su (University of Aizu, Japan), Kouichi Sakurai (Kyushu University, Japan)

Assessing the Syllogistic Logic and Fact-Checking Capabilities of Large Language Models

Cecilia Delgado-Solorzano (Clemson Universitiy, USA), Manuel DelaFlor (Metacognitive institute, UK), Carlos Toxtli (Clemson University, USA)

CRT-Paillier Homomorphic Privacy Protection Scheme Based on BLS Signatures in Mobile Vehicular Networks (Online with Video Hyperlink)

Yuquan Zhou (Hunan University of Science and Engineering, China), Hejin Huang (Xiangtan University, China), Wenyu Liao (Hunan University of Science and Engineering, China), Jiyan Liu (Hunan University of Technology and Business, China), Xiangdong Ying (Hunan University of Science and Engineering, China), Chen Zhang (Guangdong University of Technology, China), Entao luo (Hunan University of Science and Engineering, China)

Defense Contrastive Poisoning: An Application of JPEG to Self-Supervised Contrastive Learning Indiscriminate Poisoning Attacks (Online with Video Hyperlink)

Weihao Guo (Hainan University, China), Xiaoji Ma (Hainan University, China; University of Chinese Academy of Sciences, China), Pingyuan Ge (Hainan University, China; University of Chinese Academy of Sciences, China), Ying Chen (Hainan University, China; University of Chinese Academy of Sciences, China), Qiuling Yue (Hainan University, China), Yuqing Zhang (Hainan University, China; University of Chinese Academy of Sciences, China)

TimesInformer: An Approach to Predicting Urban Water Supply with Multi-Periodic Features (Online with Video Hyperlink)

Jiayu Zhang (Nanjing University of Aeronautics and Astronautics, China), Canyao Lu (Nanjing University of Aeronautics and Astronautics, China), Juan Xu (Nanjing University of Aeronautics and Astronautics, China), Xiangping Bryce Zhai (Nanjing University of Aeronautics and Astronautics, China)

SmartData-II (Room S12, Session Chair: Yaxin Luo, Technical University of Denmark)

Graph-CoRe: Graph Representation Learning with Contrastive Subgraph Replacement (Online with Video Hyperlink)

Jie Kang (Laboratory for Big Data and Decision, National University of Defense Technology, China), Shixuan Liu (Laboratory for Big Data and Decision, National University of Defense Technology, China), Kuihua Huang (Laboratory for Big Data and Decision, National University of Defense Technology, China), Changjun Fan (Laboratory for Big Data and Decision, National University of Defense Technology, China), Hua He (Laboratory for Big Data and Decision, National University of Defense Technology, China), Chao Chen (Laboratory for Big Data and Decision, National University of Defense Technology, China)

LLM4HIN: Discovering Meta-Path With Large Language Model for Reasoning on Complex Heterogeneous Information Networks (Online with Video Hyperlink)

HaoXiang Cheng (Laboratory for Big Data and Decision, National University of Defense Technology, China), Shixuan Liu (Laboratory for Big Data and Decision, National University of Defense Technology, China), Changjun Fan (Laboratory for Big Data and Decision, National University of Defense Technology, China), Kuihua Huang (Laboratory for Big Data and Decision, National University of Defense Technology, China), Hua He (Laboratory for Big Data and Decision, National University of Defense Technology, China), Xianghan Wang (Laboratory for Big Data and Decision, National University of Defense Technology, China), Zhong Liu (Laboratory for Big Data and Decision, National University of Defense Technology, China)

Long-Term Time-Stamping Schemes Based on MACs, Archives, and Transient Keys

Long Meng (University of Surrey), Liqun Chen (University of Surrey)

SmartData-III (Room S12, Session Chair: Marcello Maugeri, University of Catania, Italy)

On the Security and Privacy Implications of Large Language Models: In-Depth Threat Analysis

Luis Ruhländer (Vienna University of Economics and Business, Austria), Emilian Popp (Vienna University of Economics and Business, Austria), Maria Stylidou (Vienna University of Economics and Business, Austria), Sajjad Khan (Vienna University of Economics and Business, Austria), Davor Svetinovic (Khalifa University, UAE)

PentraFormer: Learning Agents for Automated Penetration Testing via Sequence Modeling (Online with Video Hyperlink)

Yunfei Wang (National University of Defense Technology, China), Shixuan Liu (National University of Defense Technology, China), Wenhao Wang (National University of Defense Technology, China), Cheng Zhu (National University of Defense Technology, China), Changjun Fan (National University of Defense Technology, China), Kuihua Huang (National University of Defense Technology, China), Chao Chen (National University of Defense Technology, China)

STIOS: A Novel Self-Supervised Diffusion Model for Trajectory Imputation in Open Environment Scenarios (Online with Video Hyperlink)

Zhijing Hu (National University of Defense Technology, China), Hao Yan (Central South University, China), Yuhao Zheng (Central South University, China), Hua He (National University of Defense Technology, China), Chao Chen (National University of Defense Technology, China), Changjun Fan (National University of Defense Technology, China), Kuihua Huang (National University of Defense Technology, China)

Enhancing Data-Free Robustness Stealing Attack via Boundary Data Generation (Online with Video Hyperlink)

Xiaoji Ma (Hainan University, China; University of Chinese Academy of Science, China), Weihao Guo (Hainan University, China; University of Chinese Academy of Science, China), Pingyuan Ge (Hainan University, China; University of Chinese Academy of Science, China), Ying Chen (Hainan University, China; University of Chinese Academy of Science, China), Qiuling Yue (Hainan University, China), Yuqing Zhang (Hainan University, China; University of Chinese Academy of Science, China)

IoT-Based Visual Crack Detection Based on Multi-Scale Self-Attention Neural Network (Online with Video Hyperlink)

John Dian (IEEE)

Data-Driven Ship Inspection Planning Based on Evolutionary Game

Le Hong (Zhejiang University, China), Ran Yan (Nanyang Technological University, Singapore), Ruihan Wang (Nanyang Technological University, Singapore), Hao Chen (Zhejiang University, China), Weicheng Cui (Westlake University, China)

SmartData Workshop-I (Room S12, Session Chair: Yaxin Luo, Technical University of Denmark)

Analysis of Blockchain-IoT Connection Patterns Based on Clients Type

Shahid Abbas (Austrian Blockchain Center — ABC Research GmbH, Austria), Sana Amjad (Austrian Blockchain Center — ABC Research GmbH, Austria), Stefan Craß (Austrian Blockchain Center — ABC Research GmbH, Austria), Seyed Amid Moeinzadeh Mirhossein (Austrian Blockchain Center — ABC Research GmbH, Austria)

Application for Electronic Signatures Using Blockchain Technology to Support Trust, Sovereignty and Privacy

Michael Hofmeier (University of the Bundeswehr Munich, Germany), Wolfgang Hommel (University of the Bundeswehr Munich, Germany)

Social Media Integration in Public Transportation: A Case Study of Sweden

Azadeh Sarkheyli (Halmstad University, Sweden), Elnaz Sarkheyli (Malmö University, Sweden)

The Use of AI-Powered Language Tools in Crowdsourcing to Reduce Language Barriers

Cecilia Delgado-Solorzano (Clemson University, USA), Carlos Toxtli Hernández (Clemson Universitiy, USA)

Understanding Blockchain Trilemma, Causes and Solutions (Online with Video Hyperlink)

Monu Chaudhary (Miami University), Suman Bhunia (Miami University)

IEEE CPSCom 2024 Presentation

CPSCom-I (Room S04, Session Chair: Cheng-Liang Lu, Technical University of Denmark)

Isolation Forest Algorithm Against UAV's GPS Spoofing Attack (Online with Video Hyperlink)

Ahmed Burhan Mohammed (ENET'Com of Sfax University, Tunisia), Lamia Chaari Fourati (Sfax University, Tunisia), Ahmed M. Fakhrudeen (University of Kirkuk, Iraq)

Research on Recognition and Feature Extraction of SQL Attack Action (Online with Video Hyperlink)

Guorui Chen (Hunan University of Science and Engineering, China), Jiyan Liu (Hunan University of Technology and Business, China), Chaoliang Li (Hunan University of Technology and Business, China), Chen Zhang (Guangdong University of Technology, China), Sirui Jiang (Jinggangshan University, China), Bin Zhang (Hunan University of Science and Engineering, China), Entao luo (Hunan University of Science and Engineering, China)

Poster: Green Network Optimization with Multi-Agent Reinforcement Learning: Work in Progress

Vladimir Marbukh (National Institute of Standards and Technology, USA)