



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	Tutorial		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				
15:50-17:50	Blockchain-XI	Panel Discussion-I	Project Meeting (by invitation)	Panel Discussion-II	Project Meeting (by invitation)
18:00-18:30	Closing Remarks (Room M1)				

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

Keynote 1

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

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

AIGC for Wireless Data



Shuwen 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 propose 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 Fréchet 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: Shuwen 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

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:)

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

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

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

Reza M. Parizi and Viraaji Mothukuri (Kennesaw State University, USA); James L Massa (Decentralized Science Lab, USA); Abbas Yazdinejad (University of Guelph, Canada & Postdoctoral Research Fellow, Cyber Science Lab (CSL), Canada Cyber Foundry, University of Guelph, Canada)

Attacks in Distributed Routing Protocols in PCNs

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

Benchmarking Blockchain Bridge Aggregators

Shankar Subramanian (University of Massachusetts, Amherst, USA); André Augusto (INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Rafael Belchior (Instituto Superior Técnico & INESC-ID & Blockdaemon Ltd., Portugal); André Vasconcelos (INESC-ID, Instituto Superior Técnico, Universidade de Lisboa, Portugal); Miguel Correia (INESC-ID & Instituto Superior Técnico, Portugal)

Blockchain-II (Room M1, Session Chair:)

Blind Vote: Economical and Secret Blockchain-Based Voting

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

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

Elmira Ebrahimi (Hamburg University of Technology, Germany); Michael Sober (TU Hamburg, Germany); Anh-Tu Hoang (Hamburg University of Technology, Germany); Can Umut Ileri (IOTA Foundation, The Netherlands); William Sanders (IOTA Foundation, Norway); Stefan Schulte (Hamburg University of Technology, 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 K Tolcha (KAIST, Korea (South)); Rodrigo Righi (Unisinos, Brazil); Cristiano A Costa (Universidade Do Vale Do Rio Dos Sinos, Brazil); Daeyoung Kim (KAIST, Korea (South))

Blockchain-III (Room M1, Session Chair:)

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

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

Embedded Elapsed Time in Trusted Execution Environments for Lightweight Blockchain

Quentin Jayet (CEA LETI, France); Christine Hennebert (CEA-LETI, France); Yann Kieffer (University Grenoble Alpes, Grenoble INP, France); Vincent Berouille (University of Grenoble Alpes, France)

FELLMVP: An Ensemble LLM Framework for Classifying Smart Contract Vulnerabilities

Yu Luo (University of Missouri - Kansas City, USA); Frank Xu (The 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, The Netherlands)

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

Luigi Lunardon (nChain, Switzerland); Alessio Pagani (nChain, United Kingdom (Great Britain) & IMI University of Bath, United Kingdom (Great Britain))

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

Wenyi Tang and Shankha Shubhra Mukherjee (University of Notre Dame, USA); Seongho Park (Hanyang University, Korea (South)); Changhao Chenli (University of Notre Dame, USA); Hyonok Oh (Hanyang University, Korea (South)); Jihye Kim (Kookmin University, Korea (South)); Taeho Jung (University of Notre Dame, USA)

A Blockchain-Based Privacy-Preserving Auditable Data Structure Framework

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

Blockchain-IV (Room M1, Session Chair:)

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

Kai Wang and Dongbin Wang (Beijing University of Posts and Telecommunications, China)

Leveraging Timestamps to Create Secure and Feeless Evidence Management

Iifan Tyou and Shigenori Ohashi (NTT, Japan); Justin Yu (UBC, Canada); Takayuki Miura (NTT, Japan); Takuro Hosoi and Kanta Matsuura (University of Tokyo, Japan)

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

Faisal Haque Bappy and Tariqul Islam (Syracuse University, USA); Tarannum Shaila Zaman (SUNY Polytechnic Institute, USA); Md Sajidul Islam Sajid (Towson University, USA); Mir Mehedi Ahsan Pritom (Tennessee Tech 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 and Bakhshish Singh Dhillon (Sats Capital LTDA, Brazil); Shahin Kamali (York University, Canada); Ruppa K. Thulasiram (University of Manitoba, Canada); Cuneyt Akcora (University of Central Florida, USA)

Options and Futures Imperil Bitcoin's Security

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

Blockchain-V (Room M1, Session Chair:)

OTEx: Ownership Transfer and Execution Protocol for Blockchain Interoperability

Shantanu Shyamsunder Dangat and Suparna Kar (Indian Institute of Technology Hyderabad, India); Bhavesh Toshniwal (Indian Institute of Technology, Hyderabad, India); Kotaro Kataoka (Indian Institute of Technology Hyderabad, India); Yawen Huang (DENSO Corporation, Japan); Hiroki Abe (DENSO, 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 and Joseph Liu (Monash University, Australia)

Private Dispute Resolution on Ethereum

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

Blockchain-VI (Room M1, Session Chair:)

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

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

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

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

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

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

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

Athanasia Maria Papathanasiou (Athens University of Economics and Business, Greece); Chalima Dimitra Nassar Kyriakidou (Athens University of Economics and Business (AUEB), Greece); Iakovos Pittaras (Athens University of Economics and Business,

Greece); George C. Polyzos (Chinese University of Hong Kong, Shenzhen, China & Athens University of Economics and Business, Greece)

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

Raju Halder (IIT Patna, India)

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

Francesco Zola, Mikel Gorricho, Jon Ander Medina, Lander Seguro Gil and Raul Orduna Urrutia (Vicomtech, Spain)

Blockchain-VII (Room M1, Session Chair:)

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

Monika di Angelo and Rafael Mohr (TU Wien, Austria); Gernot Salzer (Technische Universität 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, Macao)

Ransomware Criminal Smart Contract

Aka Sai Lalith Kumar (Microsoft & Shiv Nadar University, India); Sweta Mishra (Shiv Nadar University, India)

Blockchain-VIII (Room M1, Session Chair:)

WBRP: Consensus Algorithm Based on Weak Proof of Work

Jiarui Li and Dongbin Wang (Beijing University of Posts 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, The Netherlands); William Sanders (IOTA Foundation, Norway); Stefan Schulte (Hamburg University of Technology, Germany)

A Dynamic Sharding Scheme for Blockchain Based on Graph Partitioning

Huan Li and Dongbin Wang (Beijing University of Posts and Telecommunications, China)

Bilateral Secure and Decentralized Crowdsourcing Task Matching Atop Consortium Blockchain

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

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

Moonhyeon Chung (Pohang University of Science and Technology, Korea (South))

Blockchain-IX (Room M1, Session Chair:)

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

Muhammad Muneem Shabir (Ecole de Technologie Supérieure, Canada); Syed Muhammad Danish (École de Technologie Supérieure ÉTS, Canada); Kaiwen Zhang (École de Technologie Supérieure, Canada)

ControlPay: An Adaptive Payment Controller for Blockchain Economies

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

CountChain: A Decentralized Oracle Network for Counting Systems

Behkish Nassirzadeh (University of Waterloo, Canada); Stefanos Leonardos (Kings College London, United Kingdom (Great Britain)); Albert Heinle (CoGuard, Canada); Anwar Hasan (University of Waterloo, Canada); Vijay Ganesh (Georgia Institute of Technology, USA)

Effective Ethereum Staking in Cryptocurrency Exchanges

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

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 & University of Copenhagen, Denmark)

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

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

Blockchain-X (Room M1, Session Chair:)

Prevoke: Privacy-Preserving Configurable Method for Revoking Verifiable Credentials

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

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

Goshgar Ismayilov (Bogazici University, Turkey); Can Ozturan (Bogazici Univ., Turkey)

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

Amirreza Sokhankhosh and 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, Thiago Garrett and Roman Vitenberg (University of Oslo, Norway)

Understanding the Blockchain Interoperability Graph Based on Cryptocurrency Price Correlation

Ori Mazor and Ori Rottenstreich (Technion, Israel)

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

Souvik Sur and Dipanwita Roy Chowdhury (Indian Institute of Technology Kharagpur, India)

BSS Workshop-1 (Room S04, Session Chair:)

A Responsibility Pillar: Exploring and Assessing Decentralized Intelligence

Qin Wang (CSIRO & UNSW, Australia); Guangsheng Yu (CSIRO, Australia); Tingting Bi (The University of Western Australia, Australia); Herath Mudiyansele 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:)

SCAFT: A Scalable Crowd-Assisted Fair Trading Protocol

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

U-spaceChain: A Decentralized Approach to Unmanned Traffic Management Services Provision

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

A Blockchain-Enabled and Transparent Evaluation of ML Models in the Decentralised Marketplace

Hamid Yazdaninejad (City University of London, United Kingdom (Great Britain)); Muttukrishnan Rajarajan (City University London, United Kingdom (Great Britain)); Michal Krol (City, University of London, United Kingdom (Great Britain))

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

Pedro H. Barcha Correia (Universidade de São Paulo, Brazil); Marcos A. Simplicio Jr. (University of São Paulo, Brazil); Charles Christian Miers (Santa Catarina State University, Brazil); Mauricio Pillon (Universidade do Estado de Santa Catarina & UDESC, Brazil); Marco Antonio Marques and Luciano Ermilivitch (Universidade de São Paulo, Brazil)

Correlation Analysis of Reward Rate in a DPoS Blockchain

Hidemasa Tanaka (Rakuten, Japan); Shiori Hironaka and Kazuyuki Shudo (Kyoto University, Japan)

Enhancing Blockchain Storage Efficiency in Mobile IoT through Multidimensional Structures and Collective Signing

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

FBS Workshop-II (Room S02, Session Chair:)

Exploring User Perceptions of Crypto Signals: An Empirical Study From Social Media Posts

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

Pixiu: Optimal Block Production Revenues on Cardano

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

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

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

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

Andrea D'Intino (Forkbomb BV, The Netherlands); Denis Roio (Dyne, The Netherlands); Rebecca Selvaggini (UniTN, Italy)

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

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

IBTA Workshop-I (Room S04, Session Chair:)

A Performance Study of Block Proposing Mechanism in Ethereum 2.0

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

Data Blocks Scheduling Scheme for Regional Distributed Storage Networks

Tongtong Cheng (CAICT, China)

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

Ren Yan (Beijing Technology and Business University, China)

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

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

SPB Workshop-I (Room S02, Session Chair:)

A Comparison of Impermanent Loss for Various CFMMs

Hyoung Joong Kim (Korea University, Korea (South))

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

Yue Liu (Data61, CSIRO, Australia); Dawen Zhang (Data61, CSIRO & The University of New South Wales, Australia); Boming Xia (Data61, CSIRO & University of New South Wales, Australia); Julia Anticev and Tunde Adebayo (Information Management & Technology, CSIRO, Australia); Zhenchang Xing (Data61, CSIRO, Australia); Moses Machao (Information Management & Technology, CSIRO, Australia)

SPB Workshop-II (Room S02, Session Chair:)

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

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

Slicing PBFT Consensus Algorithm Based on VRF

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

Taming Smart Contracts With Blockchain Transaction Primitives: A Possibility?

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

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

Jonathan Heiss (TU Berlin, Germany); Fernando J Castillo (Technische Universität Berlin, Germany); Xinxin Fan (IoTeX, USA)

ZKP Enabled Identity and Reputation Verification in P2P Marketplaces

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

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

Joao Paulo de Brito Goncalves (Federal Institute of Espirito Santo (Ifes), Brazil); Rodolfo da Silva Villaca (Federal University of Espirito Santo (Ufes), Brazil)

TrustChain Workshop-I (Room S04, Session Chair:)

A Blockchain Identity Privacy Management Framework for a Healthcare Application

Sofia Sakka (University of Ioannina, Greece)

A Systematisation of Knowledge: Connecting European Digital Identities with Web3

Ben Biedermann (University of Malta & ACURRAENT UG, Malta); Matthew Scerri (WIDE Consortium, Malta); Victoria Kozlova (ACURRAENT UG (haftungsbeschränkt), Germany); Joshua Ellul (University of Malta, Malta)

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

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

TrustChain Workshop-II (Room S04, Session Chair:)

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

Ammar Bukhari and Jarmo Miettinen (Methics Oy, Finland); Muttukrishnan Rajarajan (City University London, United Kingdom (Great Britain))

Designing Inclusive Technology Solutions for Global Communities

Manuel Knott (Canada); Sarra-Maryam Fezzani (Author, Canada)

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

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

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

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

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

Thomas Lloyd, Daire OBroin and Martin Harrigan (South East Technological University, Ireland)

Towards a Blockchain-Enabled Trustworthy Market Framework

Thanasis G. Papaioannou (National and Kapodistrian University of Athens (NKUA), Greece & Athens University of Economics and Business, Greece); Vaios Ritas (University of Athens, Greece); Dimitris Mantzonis (NKUA, Greece)

TrustChain Workshop-III (Room S12, Session Chair:)

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

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

User-Empowered Federated Learning in Automotive

Marcello Maugeri and Mirko Ignazio Paolo Morana (University of Catania, Italy); Sergio Esposito and Giampaolo Bella (Università degli Studi di Catania, Italy)

OIDC-PRINCE: OpenID Connect With Privacy-Enhanced Consents

Bruno Miguel Sousa, Bernardo Arzileiro and Tiago Galvão (University of Coimbra, Portugal)

IEEE iThings 2024 Presentation

iThings-I (Room S01, Session Chair:)

A Containerized IoT Simulation Environment for Network Warfare Training

Ruihao Chen, Chengcheng Lyu, Wenzhao Wang and Hui Lin (Fujian Normal University, China); qingxin lin (Fuzhou University & Department of Computer Engineering, China)

A Framework for BMC Firmware Vulnerability Analysis and Exploitation

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

A Novel Diversified API Recommendation for Power System Sensors

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

A Secure Ethernet Passive Optical Network Protocol for Industrial Internet of Things

Huanhuan Gu (Nanjing University of Science and Technology, China)

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

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

iThings-II (Room S01, Session Chair:)

A Walk-Through Type Authentication System Using Real-Time Gaze & Motion Detection

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

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

Zakaria Benomar (INRIA, France); Marco Garofalo (Università Degli Studi di Messina, Italy); Nikolaos Georgantas (INRIA, France); Francesco Longo, Giovanni Merlino and Antonio Puliafito (University of Messina, Italy)

Civil Engineering Design in IoT: Leveraging Improved Swarm Intelligence Optimization

Weiheng Fu (Fuzhou University, China); Rongzhong Chen (Xiamen Meteorological Bureau, China); Kaiwen Chen (Florida Transportation Engineering, USA); Xiaojun Xie (Fuzhou University, China)

iThings-III (Room S01, Session Chair:)

Cubic-DUCAG: A New Modeling and Probabilistic Computing Approach for Cyclic Network Attacks

Chunling Dong and yu feng (Communication University of China, China)

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

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

Deep Reinforcement Learning-Based AoI Minimization in UAV-Assisted Multi-Platoon Vehicular Networks

Bochun Du and Long Qu (Ningbo University, China)

Digital Microfluidic Biochips Test Path Planning Based on Swarm Intelligence Optimization and Internet of Things Technology

Zhongliao Yang, Zhengye Xie and 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

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

Energy Efficient and Low Latency Computation Offloading via Truly PPO in Mobile Edge Computing Networks With Multi-UAV

Shuang Fu, Xiangping Bryce Zhai and 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:)

Enhancing Sales Forecasting Accuracy in the Presence of Missing Data

Jun Tang and Bing Guo (Sichuan University, China); Yan Shen (Chengdu University of Information Technology, China); Shengxin Dai (Sichuan University, China)

Enhancing Visual Inertial Odometry Performance Using Deep Learning-Based Sensor Fusion

Raoof Doorshi, Mr (Malmö University, Sweden); Hajira Saleem (Malmö University, Sweden); Reza Malekian (Malmö University & University of Pretoria, Pretoria, Sweden)

IoT Meets Computer Vision: An Improved Detection of Tomato Pests and Diseases

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

Huixia Lai and Fan Zhou (Fujian Normal University, China); Bo Wang (China Meteorological Administration, China); Hongrui Chen and Shi Zhang (Fujian Normal University, China)

malDetect: Malware Classification Using API Sequence and Comparison With Transformer Encoder

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

iThings-V (Room S01, Session Chair:)

Minimizing Data Transmission Delay in Vehicular Networks Through Network Coding-Based Broadcasting

Jiali Hu, Long Qu and 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

Keito Inoshita (Shiga University, Japan); Xiaokang Zhou (Kansai University, Japan); Shohei Shimizu (Shiga University, Japan)

Prediction of Social Influence in Social Networks

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

iThings-VI (Room S01, Session Chair:)

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

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

RADIO: Reinforcement Learning-Aided Deployment of Wi-Fi Routers in 5G Networks for Indoor Drone Orchestrating

Alireza Famili (Virginia Tech, USA); Amin Tabrizian (George Washington University, USA); Tolga O Atalay (Virginia Tech, USA); Angelos Stavrou (Virginia Tech & Kryptowire, USA); Peng Wei (George Washington University, USA)

Recommendation Algorithm Based on Social Influence Diffusion

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

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

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

The Pipeline of VAE Base Network Traffic Anomaly Detection Algorithm

Honglei Fu and Pan Wang (Nanjing University of Posts and Telecommunications, China)

iThings-VII (Room S01, Session Chair:)

TinyML on Mobile Devices for Hybrid Energy Management Systems

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

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

Pan Wang and Minyao Liu (Nanjing University of Posts and Telecommunications, China)

A Comparative Analysis of Query Generation Methods for IoT Middleware Evaluation

Ravindi Iroshinee De Silva, Arkady Zaslavsky and 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

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

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

iThings Workshop-I (Room S04, Session Chair:)

A Dynamic Risk-Aware Routing Recommendation Using Deep Reinforcement Learning

Difeng Zhu (Zhejiang University City College, China); Hang Zhou (Zhejiang University, China); Binbin Zhou (Hangzhou City University, China)

A Framework for Privacy-Preserving Efficient Collaborative Learning

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

A Machine Learning Model for Prediction of Malaria From Microscopic Blood Cell Images

Samson Otieno Ooko (Adventist University of Africa, Kenya); Charles Kagwi (UEAB, Kenya)

iThings Workshop-II (Room S04, Session Chair:)

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

Raúl Gómez-Ramos (CARTIF Technological Center, Spain); Jaime Duque-Domingo (ITAP-DISA, University of Valladolid, Spain); Eduardo Zalama (Universidad de Valladolid, Spain); Jaime Gómez-García-Bermejo (ITAP-DISA, University of Valladolid, Spain)

An Architectural Reference Model for IoT Device Management

Dominik Gründl and Thomas Wieland (Coburg University of Applied Sciences and Arts, Germany); Daniela Nicklas (University of Bamberg & Faculty Information Systems and Applied Computer Science, Germany)

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

Franç Pouhela (German Research Center for Artificial Intelligence, Germany); Maryam Arabshahi (German Research Center for Artificial Intelligence (DFKI), Germany); Hans D. Schotten (University of Kaiserslautern, Germany)

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

Lassabe Frédéric (UTBM, CNRS, FEMTO-ST Institute, France); Dominique Dhoutaut (FEMTO-ST Institute, Université de Franche-Comté, CNRS, France); Benoit Piranda (University of Franche-Comté & Femto-ST Institute, France); Olga Kouchnarenko (University of Franche-Comté, CNRS, FEMTO-ST Institute, France); Julien Bourgeois (UFC, FEMTO-ST Institute, CNRS, France)

Combating the TrickBot Threat: Analysis, Impact, and Defensive Strategies in Cybersecurity

Suman Bhunia (Miami University, Ohio, USA); Mohammed Salman (Miami University, USA)

iThings Workshop-III (Room S04, Session Chair:)

Development of a User-Friendly and Efficient Control System for Smart Home

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

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

Hussah Albinali (King Fahd University for Petroleum and Minerals, Saudi Arabia); Farag Azzedin (King Fahd University of Petroleum & 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, Norway & SimulaMet, Norway); Peter Herrmann (Norwegian University of Science and Technology, Norway); Vajira Thambawita (Simula Research, Norway)

Inverse-PID: A Mathematical Approach Towards Detecting Real-World Wear-And-Tear in Industrial Machines

Severin Pang, Justas Katkus and Stefan Hild (Ei3, Switzerland)

MMQP: A Lightweight, Secure and Scalable IoT Communication Protocol

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

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

Hassan Hammoud (INRIA, France); Frédéric Weis (IRISA / University Rennes, France); Christophe Langrume and Melen Leclerc (INRAE, France); Jean-Marie Bonnin (Institut Mines Telecom / IMT Atlantique & IRISA - Inria, France)

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

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

IEEE GreenCom 2024 Presentation

GreenCom-I (Room S09, Session Chair:)

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

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

A Review of Early Time Series Classification Methods on Machinery Dataset

Mohammad Ali Nemer (University of Franche-Comte - UFC, France); Joseph Azar (Université de Franche-Comté - UFC & FEMTO-ST/DISC, France); Abdallah Makhoul (University of Franche-Comté & FEMTO-ST, France); Julien Bourgeois (FEMTO-ST, France)

Achieving Asymptotically Optimal Throughput and Fairness for Energy Harvesting Sensors in IoT Network Systems

Omer M Gul (Istanbul Technical University, Turkey)

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

Chiara Lombardo (University of Genoa & CNIT- Research Unit of the University of Genoa, Italy); Raffaele Bolla (University of Genoa, Italy); Roberto Bruschi (CNIT, Italy); Franco R. Davoli (University of Genoa & National Inter-University Consortium for Telecommunications (CNIT), Italy); Lorenzo Ivaldi (University of Genoa, Italy); Beatrice Siccardi and Paolo Ghiorzo (DITEN - University of Genoa, Italy)

Creation of Topological Maps of Energy Consumption for IP Networks

Alejandro Muñiz, Pablo Armingol and Luis M. Contreras (Telefonica, Spain); Oscar González de Dios (Telefonica I+D, Spain)

GreenCom-II (Room S09, Session Chair:)

Design and Development of a Real-Time IoT Infrastructure for a Future Workspace - Energy Efficiency and Sustainability

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

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

Ashkan Tashk (University of Copenhagen (UCPH), Denmark & KU, Denmark); Mohammad Ali Alavianmehr (ICT Organization of Shiraz Municipality & Shiraz University of Technology, Iran)

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

Federico Librino (IIT-CNR, Italy); Francesca Martelli (Istituto di Informatica e Telematica (IIT) - Consiglio Nazionale delle Ricerche (CNR), Italy); Giovanni Resta (Istituto di Informatica e Telematica, Italy); Andrea Motroni, Glauco Cecchi and Andrea Ria (University of Pisa, Italy)

GreenCom-III (Room S09, Session Chair:)

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

Mohammad N. Patwary (University of Wolverhampton, United Kingdom (Great Britain)); Samiya Khan (University of Greenwich, United Kingdom (Great Britain)); 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 (Ecole Normale Supérieure de Lyon & OVHcloud, France); Eddy Caron (ENS-Lyon, France); Benjamin Fichel (OVHcloud, France); Laurent Lefevre (INRIA, France); Olivier Nicol (OVHcloud, France); Anne-Cécile Orgerie (CNRS & IRISA, France)

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

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

GreenCom Workshop-I (Room S09, Session Chair:)

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

Riham Elsaadany (Université Du Québec À Montréal, USA); Guy Begin (UQAM, Canada)

An Ethereum Oracle-Based Solution for P2P Energy Trading Market

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

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

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

High-Bandwidth Node Selection in Compact Block Relay

Shinnosuke Masuda, Taishi Nakai, Tsuyoshi Hasegawa, Akira Sakurai and Kazuyuki Shudo (Kyoto University, Japan)

IEEE SmartData 2024 Presentation

SmartData-I (Room S12, Session Chair:)

AggreMark: Efficient Watermarking in Federated Learning via Weighted Averaging

Zhuotao Lian (Kyushu University, Japan); Weiyu Wang and 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 University, USA); Manuel Delaflor (Human-AI Empowerment Lab, USA); Wangfan Li and Carlos Toxtli Hernandez (Clemson University, USA)

CRT-Paillier Homomorphic Privacy Protection Scheme Based on BLS Signatures in Mobile Vehicular Networks

Yuquan Zhou, Hejin Huang and Wenyu Liao (Hunan University of Science and Engineering, China); Jiyan Liu (Hunan University of Technology and Business, China); Yin Xiangdong and Entao Entao (Hunan University of Science and Engineering, China)

Data-Driven Ship Inspection Planning Based on Evolutionary Game

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

Defense Contrastive Poisoning: An Application of JPEG to Self-Supervised Contrastive Learning Indiscriminate Poisoning Attacks

Weihaio Guo, Xiaoji Ma, Pingyuan Ge, Ying Chen and Qiuling Yue (Hainan University, China); Zhang Yu qing (Graduate University of Chinese Academy of Science, China)

SmartData-II (Room S12, Session Chair:)

Graph-CoRe: Graph Representation Learning With Contrastive Subgraph Replacement

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

LLM4HIN: Discovering Meta-Path With Large Language Model for Reasoning on Complex Heterogeneous Information Networks

HaoXiang Cheng, Shixuan Liu, Changjun Fan and Kuihua Huang (National University of Defense Technology, China); Zhong Liu (National University of Defence Technology, China); Hua He and Xianghan Wang (National University of Defense Technology, China)

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

Long Meng and Liqun Chen (University of Surrey, United Kingdom (Great Britain))

SmartData-III (Room S12, Session Chair:)

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

Luis Ruhlander, Emilian Popp, Maria Styliadou and Sajjad Khan (Vienna University of Economics and Business, Austria); Davor Svetinovic (Khalifa University, United Arab Emirates)

PentraFormer: Learning Agents for Automated Penetration Testing via Sequence Modeling

Yunfei Wang (National Key Laboratory of Information Systems Engineering, National University of Defense Technology, China); Shixuan Liu and Wenhao Wang (National University of Defense Technology, China); Cheng Zhu (National Key Laboratory of Information Systems Engineering, National University of Defense Technology, China); Changjun Fan and Kuihua Huang (National University of Defense Technology, China); Chao Chen (Laboratory for Big Data and Decision, National University of Defense Technology, China)

STIOS: A Novel Self-Supervised Diffusion Model for Trajectory Imputation in Open Environment Scenarios

Zhijing Hu (National University of Defense Technology, China); Hao Yan and Yuhao Zheng (Central South University, China); Hua He (National University of Defense Technology, China); Chao Chen (Laboratory for Big Data and Decision, National University of Defense Technology, China); Jianjun Li, Changjun Fan and Kuihua Huang (National University of Defense Technology, China)

Enhancing Data-Free Robustness Stealing Attack via Boundary Data Generation

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

TimesInformer: An Approach to Predicting Urban Water Supply With Multi-Periodic Features

Jiayu Zhang and Canyao Lu (Nanjing University of Aeronautics and Astronautics, China); Juan Xu (Nanjing University of Aeronautics and Astronautics & College of Computer Science and Technology, China); Xiangping Bryce Zhai (Nanjing University of Aeronautics and Astronautics, China)

IoT-Based Visual Crack Detection Based on Multi-Scale Self-Attention Neural Network

John Dian (BCIT, Canada)

SmartData Workshop-I (Room S12, Session Chair:)

Analysis of Blockchain-IoT Connection Patterns Based on Clients Type

Shahid Abbas (ABC Research GmbH, Austria); Sana Amjad (COMSATS University Islamabad, Pakistan); Stefan Craß and Seyed Amid Moeinzadeh Mirhosseini (ABC Research GmbH, Austria)

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

Michael Hofmeier and Wolfgang F. Hommel (University of the Bundeswehr Munich)

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 and Carlos Toxtli Hernandez (Clemson University, USA)

Understanding Blockchain Trilemma, Causes and Solutions

Suman Bhunia (Miami University, Ohio, USA); Monu Chaudhary (Miami University, USA)

IEEE CPSCoM 2024 Presentation

CPSCoM-I (Room S04, Session Chair:)

Isolation Forest Algorithm Against UAV's GPS Spoofing Attack

Ahmed Burhan Mohammed (University of Kirkuk, Iraq); Lamia Chaari Fourati (Institut Supérieur d'Informatique et de Multimédia de Sfax, Tunisia); Ahmed M. Fakhrudeen (University of Kirkuk, Iraq)

LC-CNN Research on Recognition and Feature Extraction of SQL Attack Action

Entao Entao (Hunan University of Science and Engineering, China); zheng Wu (Central South University, China); Guoyun Duan (Hunan University, China); Bin Zhang (Hunan University of Science and Engineering, China); Jiyan Liu and Chaoliang LI (Hunan University of Technology and Business, China)

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

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