

IEEE

CITS 2024

**2024 International Conference on
Computer, Information and Telecommunication Systems**

Girona, Spain
July 17-19, 2024

Technical Sponsors:





CITS 2024 General Chairs' Message

Welcome to the 2024 International Conference on Computer, Information and Telecommunication Systems (CITS 2024). This year's conference marks the 12th anniversary of CITS, which is being held on annual basis.

CITS 2024 offers a unique forum for researchers and practitioners from academia, industry, business, and government to share their expertise results and research findings in all areas of Computer, Information and Telecommunication Systems.

This year's conference includes an outstanding technical program, and several distinguished keynote speakers. The conference will be held in Girona, Spain.

CITS 2024 technical program consists of several technical tracks. Each track consists of several sessions of top-quality papers. The topics covered in the program include, Artificial Intelligence (AI), machine learning, data analytics/science, cybersecurity, computer networks, wireless networks, wireless sensor networks, telecommunications, cyber security, information security, cell network systems, parallel and distributed computing, real-time systems, modeling and simulation, performance evaluation, digital signal processing, image processing, pattern recognition, multimedia systems and video processing, neural networks, deep learning, security and information assurance, and E-Systems, among others.

This year, we received a large number of quality papers. Only very high-quality papers have been accepted. The acceptance ratio is about **45%**. This is an indicative of the diligent work of the senior program chair, program committee chairs, technical program committee members and reviewers. The accepted papers come from all over the World with representation from academia, industry, business and government. Moreover, accepted papers will appear in IEEE Xplore and SCOPUS.

Many individuals have contributed to the success of this high caliber international conference. Our sincere appreciation goes to all authors including those whose papers were not included in the program. Many thanks are also due to our distinguished keynote speakers for their valuable contribution to the conference.

Special thanks are also due to the senior program chair, Prof. Petros Nicopolitidis, for his exceptional role in leading the technical program efforts. Thanks also are due to the other program chairs. Many thanks also go to the technical program committee members and reviewers for their timely work and efforts.

Many thanks to Prof. Kuei-Fang Hsiao for her great role as a Registration Chair and Executive General Chair.

Special thanks go to the publication chairs and assistant general chair, Dr. Yu Guo for his outstanding work and dedication. Thanks to our dedicated Webmaster Prof. Antonio Bueno for his timely great and reliable work. Special thanks go to the international publicity committee members and international liaisons for their excellent work.

Special thanks are due to the international steering committee of the CITS. Thanks to the leaders, faculty, staff and students of the University of Girona for hosting the Conference and for putting the resources of the University under the disposal of the Conference. We also like to thank the IEEE Communication Society for technical co-sponsorship of the conference.

Finally, on behalf of the 2024 IEEE International Conference on Computer, Information and Telecommunication Systems (CITS 2024), we invite all of you to enjoy the program and your stay in the beautiful city of Girona.

Mohammad S. Obaidat, General Chair, Life Fellow of IEEE, Fellow of AAIA, Fellow of FTTRA, Fellow of AIAA, and Fellow of SCS, Past President of the Society for Modeling & Simulation International (SCS), Founding Editor in Chief, Wiley Security and Privacy Journal, Editor in Chief, International Journal of Communication Systems, Recipient of SCS Hall of Fame Award, Recipient of the Technical Achievement Award from IEEE ComSoc-Technical Committee on Communication Software

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Program At a Glance

All Times Listed here are Based on Spain Local Time

Wednesday, July 17		Thursday, July 18		Friday, July 19	
9:30-10:00	Opening Session	9:30-11:00	Networking 1	9:00-11:00	Computer Systems
10:00-11:00	Keynote Speech 1	11:00-11:05	Coffee Break	11:00-11:30	Closing Session
11:00-11:15	Coffee Break	11:05-12:35	Networking 2		
11:15-12:15	Keynote Speech 2	12:35-13:00	Lunch		
12:15-13:15	Lunch	13:00-14:30	Information Technology 1		
13:15-14:15	Keynote Speech 3	14:30-16:00	Information Technology 2		
14:15-15:15	Keynote Speech 4	16:00-16:05	Coffee Break		
15:15-15:30	Coffee Break	16:05-17:35	Security 1		
15:30-16:30	Keynote Speech 5	17:35-19:05	Security 2		
16:30-17:30	Keynote Speech 6	20:30	Dinner		
17:30-18:30	Tutorial				

Schedule

Wednesday, July 17

9:30 - 10:00

Opening Session

10:00 - 11:00

Keynote Speech 1

Nanonetworks: Case study in biomedical applications
Session Chair: Helen Karatza



Distinguished Keynote speaker: Prof. Jose L. Marzo, University of Girona

The association of nanomachines, i.e. nanonetworks, is assumed to enlarge the capacities of single nanomachines. This interexchange of information let them cooperating for a common goal. Nowadays systems normally use electromagnetic signals to encode, send and receive information, whereas molecular transceivers, channel models or protocols, use molecules as a novel communication paradigm. During the talk, the architecture of future nanomachines and current developments are presented for a better understanding of nanonetwork scenarios in biomedical

applications.

As a study case, the connectivity of a cohort of nanorobots in the circulatory system (blood) is presented. THz omnidirectional and optical directional communications are considered where ranges are around 10 mm. Connectivity results show a strong dependency of the diameter of the vessel, the larger the better.

Bio

Jose L.Marzo is Full Professor at the Computer Architecture and Technology Department at the University of Girona, Spain. He was with Telefonica at the engineering and development departments before joining academia in 1991. His research interests are in the fields of communication networks, complex networks control and management, and nanonetworks. He leads the research Lab in Broadband Communications and Distributed Systems at the University of Girona. He coordinated the participation of the research group in some national Spanish and European research projects. Jose L Marzo was adjunct Professor at the Department of Electrical and Computer Engineering, Kansas State University (2012-2019). Jose L Marzo has participated to the technical program committees and chairing sessions of several conferences, including SPECTS, IEEE Globecom, ICC and Infocom. He served as associated editor of the International Journal of Communications Systems. He has co-authored several papers published in international journals and presented in leading international conferences.

11:00 - 11:15

Coffee Break

Keynote Speech 2

Wireless rechargeable sensor networks: concept, theory, and optimizations

Session Chair: Pere Vilà



Distinguished Keynote speaker: Prof. Chi Lin, Dalian University of Technology

Wireless Rechargeable Sensor Networks (WRSNs) are networks of wireless sensors that can be recharged without physical connections. These networks consist of small, low-power devices equipped with sensors for monitoring and collecting data in various environments. The key feature of WRSNs is their ability to recharge their energy sources wirelessly, which is particularly useful for applications where frequent battery replacement or recharging is impractical or impossible. This report provides a detailed introduction to the concept, characteristics, existing issues, and commonly used solutions of WRSNs. The analysis includes aspects such as network modeling, charging modeling, charging scheduling, and charging efficiency. Special focus is placed on the latest advancements in complex environment modeling, 3D wireless charging, and Fresnel zone diffraction theory and system optimizations. Finally, future development directions are outlined.

Bio

Chi Lin received B.E. and Ph.D. degrees from Dalian University of Technology, Dalian, China, in 2008 and 2013, respectively. He served as an Assistant Professor at the School of Software, Dalian University of Technology from 2013-2017. Since 2017, he has been an Associate Professor with the School of Software, Dalian University of Technology. He has authored or co-authored more than 90 scientific papers in several journals and conferences, including MobiCom, INFOCOM, Ubicomp, ICDCS, ICNP, SECON, ICPP, IEEE/ACM ToN, IEEE TMC, and a special issue of SCIENCE. His research interests include pervasive computing and wireless sensor networks. In 2015, he was the recipient of the ACM Academic Rising Star award. In 2022, he was awarded the gold medal of the 2022 International Exhibition of Inventions Geneva.

Lunch

Keynote Speech 3**Amalgamation of Blockchain and AI for 5G and Beyond Applications: Opportunities and Challenges****Session Chair: José L. Marzo****Distinguished Keynote speaker: Prof. Sudeep Tanwar, Nirma University**

The convergence of Blockchain and Artificial Intelligence (AI) with 5G and beyond networks promises transformative advancements in telecommunications. This integration enhances security, trust, and efficiency in data management while optimizing network performance. Blockchain's decentralized ledger and AI's advanced analytics create a robust framework for managing 5G environments. This talk discusses opportunities including improved cybersecurity, efficient spectrum management, and autonomous network operations. Also, highlight challenges such as high computational demands, latency, interoperability, and standardization must be addressed. Discussed opportunities and challenges, providing insights into future research and practical implementations to achieve secure, intelligent, and efficient next-generation networks.

Bio

Sudeep Tanwar (Senior Member, IEEE) is working as a professor at the Nirma University, India. He is also a Visiting Professor with WSG University, Bydgoszcz, Poland, Jan Wyzykowski University, Poland, and the University of Pitesti, Romania. He is senior member of IEEE and also Vice Chair of IEEE Computer Society Gujarat Section. He received B.Tech in 2002 from Kurukshetra University, India, M.Tech (Honor's) in 2009 from Guru Gobind Singh Indraprastha University, Delhi, India and Ph.D. in 2016 with specialization in Wireless Sensor Network. He has authored 05 books and edited 25 books, more than 400 technical articles, including top cited journals and conferences, such as IEEE TNSE, IEEE TVT, IEEE TII, IEEE TGCN, IEEE TCSC, IEEE IoTJ, IEEE NETWORKS, IEEE WCM, ICC, IWCMC, GLOBECOM, CITS, and INFOCOM. He initiated the research field of blockchain technology adoption in various verticals in the year 2017. His H-index as per Google Scholar and Scopus is 73 and 61, respectively. His research interests include blockchain technology, D2D communication, Deep Learning/machine Learning, wireless sensor networks, fog computing, smart grid, and the IoT. He is a member of the Technical Committee on Tactile Internet of IEEE Communication Society. Recently, He has been awarded a cash prize of Rs, 50,000 for publishing papers with 5+ Impact factor and publication of books with Springer, IET & CRC under the scheme of "Faculty Awards and Incentives" of Nirma University for the year 2019-2020. He has been awarded the Best Research Paper Awards from IEEE SCIoT 2022, IEEE IWCMC-2021, IEEE ICCA-2021, IEEE GLOBECOM 2018, IEEE ICC 2019, and Springer ICRIC-2019. He has won Dr KW Wong Annual Best Paper Prize (with 750 USD) for 2021 sponsored by Elsevier (publishers of JISA). He has served many international conferences as a member of the Organizing Committee, such as the Publication Chair for FTNCT-2020, ICCIC 2020, and WiMob2019, and a General Chair for IC4S 2019, 2020, 2021, 2022, ICCSDF 2020, FTNCT 2021. He is also serving the editorial boards of COMCOM-Elsevier, IJCS-Wiley, Cyber Security and Applications- Elsevier, Frontiers of blockchain, SPY, Wiley, IJMIS journal of Inderscience, JCCE, and JSSS. He is also leading the ST Research Laboratory, where group members are working on the latest cutting-edge technologies.

Keynote Speech 4

Federated Learning: Security and Privacy attacks and possible solutions

Session Chair: Pere Vilà

**Distinguished Keynote speaker: Prof. Saru Kumari, Charan Singh University**

Federated learning (FL) is a decentralized method for training machine learning models, where local nodes retain data and only share learning parameters with other nodes, thereby enhancing privacy and data security. There are some potential attacks that compromise security and privacy concern of the data. In model poisoning attacks, some of the nodes are compromised, and the attacker may inject false information to degrade the performance of the consolidated model. Data poisoning and model poisoning, where adversaries share the incorrect local model with the central server, are potential methods for model poisoning attacks. Sybil attacks and collusion attacks are also paramount concerns for AI researchers, in which attackers create multiple malicious nodes that participate in the federated learning process, triggering their influence on the global model and attackers are able to generate the skewed model. Another attack is an inference attack, in which attackers attempt to get the sensitive information that was used in the training process. While in free-rider attacks, some nodes do not participate in the training process and keeps the advantages of globally-trained models. In model replacement attacks, attackers may share their own crafted model to update the global model as per their requirements. After several training rounds, an attacker gradually shifts the global model parameters by sharing a pre-trained malicious model. The gradient leakage attacks may deduce important insights from the gradients.

Byzantine node-based collusion attack, one of the most sensitive attacks will be discussed in detail. The possibility of collusion attacks occurring and their possible remedies will be explored in detail. Some algorithms based on robust aggregation methods, anomaly detection, reputation systems, redundancy, and cross-checking are quite popular. Particularly reputation based mechanism will be focussed on.

Bio

Dr Saru Kumari is currently an Associate Professor with the Department of Mathematics, Chaudhary Charan Singh University, Meerut, Uttar Pradesh, India. She received her PhD degree in Mathematics in 2012 from Chaudhary Charan Singh University, Meerut, UP, India. She has published more than 290 research papers in reputed international journals and conferences, including more than 260 research papers in various SCI and SCIE Indexed Journals such as IEEE TDSC, IEEE TII, IEEE JBHI, IEEE T-ITS, IEEE IoTJ, Information Fusion, ACM TOIT, etc. She received the best paper award from Journal of Network and Computer Applications, Elsevier in 2020 and from IEEE Consumer Electronics Magazine in 2022. She is on the editorial board of more than a dozen of International Journals of high repute, under IEEE, Elsevier, Springer, Wiley and others including SCI and SCIE journals such as IEEE Transactions on Intelligent Transport Systems, (SCIE); IEEE Systems Journal, AEÜ - International Journal of Electronics and Communications, Elsevier (SCI); International Journal of Communication Systems, Wiley (SCIE); Concurrency and Computation: Practice and Experience, Wiley (SCIE); Telecommunication Systems, Springer (SCI); Human-centric Computing and Information sciences, Springer (SCIE); Transactions on Emerging Telecommunications Technologies; Wiley (SCIE), etc. She has served as the Guest Editor of many special issues in SCI and SCIE Journals under IEEE, Elsevier, Springer and Wiley. She has been involved in the research community as a Technical Program Committee (TPC) member or PC chair for more than a dozen of international conferences of high repute. She is also serving as a reviewer of dozens of reputed Journals, including SCI-Indexed Journals, under IEEE, Elsevier, Springer, Wiley, Taylor & Francis, etc. Her current research interests include applied cryptography, information security, Internet of Things, Information Fusion, blockchain technology, and Security

15:15 - 15:30

Coffee Break

15:30 - 16:30

Keynote Speech 5

Formal Analysis of Adversarial Behaviour Against Systems or Protocols
Session Chair: David Martínez



Distinguished Keynote speaker: Prof. Panagiotis Katsaros, Aristotle University of Thessaloniki

With the formal analysis of adversarial behaviour we can either verify that a system (or protocol) satisfies essential qualitative (e.g. security-related) and quantitative (e.g. bounded power consumption) properties in the adversarial environment, or else detect vulnerabilities against the adversary at the system design, code or configuration levels. We focus on the recent advances of probabilistic verification techniques for specifying and verifying properties of stochastic systems. First we review some illustrative cases of formal analyses of attacks against the DNS, as well as the formal analysis of a social network in which multiple agents interact with each other via opinion influence relationships. In the latter case, we assume the existence of strategic entities who seek to maximise their influence in the convergence of the social network, whereby we are interested for a quantitative reward property that represents the final opinion of the agents. These case studies cover a wide range of probabilistic models (Discrete Time Markov Chains, Continuous Time Markov Chains, Markov Decision Processes and Stochastic Games), probabilistic reachability properties and reward properties. We study various kinds of adversarial behaviour, including those that preserve and those that don't preserve the structure of the probabilistic model. Finally, we present the utility of the most recent probabilistic verification techniques, namely parametric model checking, parameter synthesis (e.g. finding the worst-case attack), model repair (e.g. finding the countermeasure with the least cost) and robustness analysis (e.g. estimate the resilience of the system/protocol against the adversary).

Bio

Panagiotis Katsaros is an Associate Professor at Aristotle University of Thessaloniki. He holds a Bachelor degree in Mathematics (1992), a Master of Science in Software Engineering (1993) and a Ph.D. in Computer Science (2002). His research interests lie in the areas of formal verification, Internet of Things, (cyber-)security, runtime monitoring, software engineering. Prof. Katsaros has coordinated 2 R&D projects on software and system security, 2 R&D projects on IoT, 2 R&D projects on spacecraft on-board software design and he has been principal investigator in 1 European R&D project on AI safety. He has published 36 journal articles, 79 conference papers, 3 books, 5 edited books (incl. 3 LNCS conference proceedings). Prof. Katsaros has served as the General Chair of the 21st edition of the European Joint Conferences on Theory and Practice of Software (ETAPS), the General Chair of the 6th Int. Symp. on Model-Based Safety and Assessment (IMBSA), the General Chair & Program Co-chair of the 23rd International Conference on Runtime Verification (RV) and is currently reviewer in more than 13 international journals.

16:30 - 17:30

Keynote Speech 6

Network Digital Twins: what we have and what we need

Session Chair: Lluís Fàbrega



Distinguished Keynote speaker: Dr. Jordi Paillissé Vilanova, Barcelona Neural Networking Center

Digital Twins are a technology to create virtual replicas of existing physical systems. They are being used in different industries with varying degrees of sophistication, but they do not seem to take off in the field of computer networks. In this talk, we'll attempt to give a formal definition of a Digital Twin for computer networks, and describe several relevant use cases. We will also present the concept of a Digital Twin to predict the performance of computer networks, such as the delay or loss of a flow, and review the options to implement this type of a Network Digital Twin, especially regarding AI-based alternatives. Finally, we'll outline several open challenges in the area that limit widespread deployment of such Network Digital Twins.

Bio

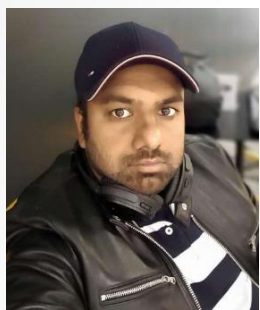
Jordi Paillissé Vilanova received a degree in Telecommunications Engineering (2013) and a PhD in Computer Architecture (2021) from the Technical University of Catalonia - BarcelonaTech. He has been a visiting student at École Polytechnique Fédérale de Lausanne (Switzerland), and a visiting researcher at Cisco Systems (USA) and Universitat de Girona (Spain). He is currently a postdoctoral researcher in the Barcelona Neural Networking Center, working at the intersection of computer networks and machine learning. His main research interests are AI-assisted network modeling, future Internet architectures, Software-Defined Networking and blockchain applications for the Internet.

17:30 - 18:30

Tutorial

Leveraging Data Engineering and Distributed Ledger Technologies for the Realization of B5G/6G Networks

Session Chair: Lluís Fàbrega



Instructors: Prof. Madhusanka Liyanage, School of Computer Science, University College Dublin, Ireland and Dr. Engin Zeydan, Centre Tecnologic de Telecomunicacions de Catalunya (CTTC), Spain



In this tutorial, we aim to provide a comprehensive and thorough overview of the recent advances in data engineering and blockchain frameworks and link the capabilities of these ecosystems to future telecommunication systems. Some special features of this tutorial are: a clear link between the data engineering (including data connection, data ingestion, data processing & analysis, data storage, data monitoring & visualization and data management & orchestration frameworks) ecosystem with telecommunication networks and role of blockchain for B5G, an overview of applications of DLT/blockchain enabled B5G system and how these can be related to data engineering frameworks, the relationship to data science frameworks, and related data engineering and blockchain use cases for telecommunications networks will be discussed. Two example demonstrations will also be demonstrated.

Bios

Madhusanka Liyanage received the Doctor of Technology degree in communication engineering from the University of Oulu, Oulu, Finland, in 2016. He is an Assistant Professor/Ad Astra Fellow and the Director of the Graduate Research, School of Computer Science, University College Dublin, Ireland. He is leading the Network Softwarization and Security Labs, UCD School of Computer Science which mainly focuses on the security and privacy of future mobile networks, including 5G and 6G. He is also acting as a Docent/Adjunct Professor with the Center for Wireless Communications, University of Oulu and a Honorary Adjunct Professor with the University of Ruhuna, Sri Lanka, and the University of Sri Jayawardhanapura, Sri Lanka. His research interests are 5G/6G, blockchain, network security, AI, explainable AI, federated learning, network slicing, Internet of Things, and multiaccess edge computing.

Engin Zeydan received the PhD degree in February 2011 from the Department of Electrical and Computer Engineering at Stevens Institute of Technology, Hoboken, NJ, USA. Since November 2018, he has been with the Communication Networks Division of the CTTC working as a Senior Researcher. He was a part-time instructor at Electrical and Electronics Engineering department of Ozyegin University Istanbul, Turkey between January 2015 and June 2018. His research areas include data engineering/science for telecommunication networks.

Thursday, July 18

9:30 - 11:00

Networking 1

Session Chair: Engin Zeydan

Enhancing QoE in HTTP/3 using EPS Framework

Abhinav Gupta and Radim Bartos (University of New Hampshire, USA)

Performance Evaluation of Deep Q Networks for Hybrid Reconfigurable Intelligent Surface in 6G Networks

Aya Khalid Ahmed (Brunel University London, United Kingdom (Great Britain)); Hamed Saffa Al-Rawashidy (University of Brunel, United Kingdom (Great Britain))

Next-Generation Orchestration: Quantum Computing for Network Services

Engin Zeydan (CTTC, Spain); Luis Blanco (Centre Tecnològic de les Telecomunicacions de Catalunya (CTTC), Spain); Josep Mangués-Bafalluy (Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain); Suayb S. Arslan (Massachusetts Institute of Technology & Quantum Corporation, USA); Yekta Turk (Aselsan, Turkey)

Hyperledger Fabric in Precision Agriculture: A Study on Data Integrity and Availability

Anum Nawaz, Laura Belli, Luca Davoli and Gianluigi Ferrari (University of Parma, Italy)

11:00 - 11:05

Coffee Break

11:05 - 12:35

Networking 2

Session Chair: Jack Brassil

Densifying NextG Cells with Wireless Backhaul

Jack Brassil (Princeton University, USA)

Enhancing Autopsy with G-code File Recovery: Ingest Module Development

Laura Garland, Pamela Kirui and Min Kyung An (Sam Houston State University, USA)

CNN-based Application Recognition to Enhance Network Governance for Financial Networks

Urmil Gadhiya, Preet Faldu and Krishna Darji (Nirma University, India); Mohammad S. Obaidat (University of Jordan, USA); Rajesh Gupta (Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India)

Fiber Optical Module Anomaly Detection Using Graph Deep Learning Model

Yun-Jie Li and Jhao-Yin Li (Chunghwa Telecom, Taiwan); Hao-Yu Kao (Telecommunication Laboratories, Chunghwa Telecom, Taiwan); Yi-lin Tsai (Chunghwa Telecom, Taiwan)

12:35 - 13:00

Lunch

13:00 - 14:30

Information Technology 1

Session Chair: Sudeep Tanwar

Cloud-Based Perspective for Intelligent Transportation and Crime Prevention: A Web Deployment Solution

Denis Nedeljkovic and Manar Jammal (York University, Canada)

Buildings' Approximate True Orthophoto Construction From Satellite Imagery Using Semantic Segmentation and the ICP Algorithm

Domen Kavran, Domen Mongus and Niko Lukač (University of Maribor, Slovenia)

Effects of Cropping vs Resizing on the Performance of Brain Tumor Segmentation Models

Ma Sheila A Magboo (University of the Philippines Manila, Philippines); Andrei Coronel (Ateneo de Manila University, Philippines)

Artificial Intelligence for Real-Time Disaster Management: A New Platform for Efficient Recovery and Volunteer Training

Murad Al-Rajab, Mahmoud Ahmed Soliman, Mohammed Nezam Alasad and Yaqoob Arshad Jamil (Abu Dhabi University, United Arab Emirates); Samia Loucif (Zayed University, United Arab Emirates); Ibrahim Al Qatawneh (University of Sunderland, United Arab Emirates)

14:30 - 16:00

Information Technology 2

Session Chair: Antonio Bueno

An Effective Learning Management System for Revealing Student Performance Attributes

Xinyu Zhang (Northwestern Polytechnical University & Monash University, China); Mohammad S. Obaidat (University of Jordan, USA); Vincent Lee (Monash University, Australia); Duo Xu (Guangyuan Foreign Language School, China); Jun Chen (Northwestern Polytechnical University, China)

Evaluating Machine Learning Models for Wheat Yield Prediction in Amritsar District

Aryan Rana and Anurag Dhiman (Central University of Himachal Pradesh, India); Pankaj Kumar and K Kumar (Central University of Himachal Pradesh, India)

Designing Blockchain-Based Decentralized Scheme for Secure File Storage System

Manav Pankaj Jariwala (Graphic Era Deemed to Be University Dehradun India, India); Mohammad Wazid (Graphic Era Deemed to be University, India); Amit Kumar Mishra (Graphic Era Hill University Dehradun Uttarakhand INDIA, India & Graphic Era Deemed to Be University Dehradun Uttarakhand, INDIA, India); Devesh Singh (Graphic Era University, India)

A novel weight-driven ATN-based SQL sentence generator to accommodate AI-based Reinforcement Learning

Christopher Troy and Qi Wang (University of the West of Scotland, United Kingdom (Great Britain)); Jose Maria Alcaraz Calero (University of the West of Scotland & School of Engineering and Computing, United Kingdom (Great Britain))

16:00 - 16:05

Coffee Break

16:05 – 17:35

Security 1

Session Chair: Gianluigi Ferrari

Smart Contract Vulnerability Detection with Self-ensemble Pre-trained Language Models
Chaofan Dai, Huahua Ding, Wubin Ma and Yahui Wu (National University of Defense Technology, China)

Bi-GRU Based Botnet Attack Detection: Performance Comparison Between Centralized and Federated Learning
I Nyoman Putra Maharddhika and Jiann-Liang Chen (National Taiwan University of Science and Technology, Taiwan)

EL-FAM: Power System Intrusion Detection with Ensemble Learning for False Alarm Mitigation
Ansh Bhavsar, Sezan Agvan and Fenil Ramoliya (Nirma University, India); Rajesh Gupta (Nirma University, India); Sudeep Tanwar (Nirma University & Institute of Technology, India); Kuei-Fang Hsiao (The University of Jordan, USA)

Allocation and Scheduling of Linear Workflows Incorporating Security Constraints across Fog and Cloud Infrastructures
Helen Karatza (Aristotle University of Thessaloniki, Greece)

17:35 - 19:05

Security 2

Session Chair: Boris Gafurov

A Robust Subtree-based Authentication Scheme for TMIS using Chaotic Hash Function
Chandrashekhar Meshram (Jayawanti Haksar Government Post Graduation College, Betul, India & NA, unknown); Mohammad S. Obaidat (University of Jordan, USA); Balqies Sadoun (Al-Balqa' Applied University, Jordan); Agbotiname Lucky Imoize (University of Lagos, Nigeria & Ruhr University, Bochum, Germany); Vishesh P. Gaikwad (Sardar Vallabhbhai National Institute of Technology Surat, India)

TGAT: Temporal Graph Attention Network for Blockchain Phishing Scams Detection
Chaofan Dai, Qideng Tang and Huahua Ding (National University of Defense Technology, China)

Enhancing Social Media Data Collection for Digital Forensic Investigations: A Web Parser Approach
Valentin Gazeau, Khushi Gupta and Min Kyung An (Sam Houston State University, USA)

A Study on “Blockchain-enabled Digital Twins: The Next Wave of Industrial Transformation with Future Research Challenges”
Sanjeev Kumar Dwivedi (VIT-AP University, India);
Mansi Mittal, Nilesh Ranjan and Honey Tyagi (KIET Group of Institutions, Delhi-NCR Ghaziabad, India); Ruhul Amin (IIIT Naya Raipur, India); Kuei-Fang Hsiao (The University of Jordan, USA)

20:30

Dinner

Friday, July 19

9:00 - 11:00

Computer Systems

Session Chair: Pere Vilà

Mobile devices' low charge, high CPU load, number of sensors, and OS features delay sensor data readings

Boris Gafurov and Angelos Stravou (Thinksense Inc., USA)

Sequence-Aware Service Recommendation Based on Graph Convolutional Networks

Gang Xiao, Cece Wang and Qibing Wang (China Jiliang University, China); Junfeng Song (Lishui University, China); Jiawei Lu (China Jiliang University, China)

Serious Games, Serious Impact: Enhancing Ethical Education Through Interactive Learning

Marco Santórum, David Morales-Martínez, Jonathan Caiza, Mayra Carrión-Toro and Julián Galindo (Escuela Politécnica Nacional, Ecuador); Patricia Acosta-Vargas (Universidad de Las Américas, Ecuador)

Multidimensional Euclidean Distance Calculation using In-Memory Computing

Mojtaba Mahdavi (Ericsson, Sweden)

Integration and Calibration of Multi-Array Sensors for Biomass Estimation in Pasture Land for Sustainable Grazing

Rashmi Priya Sharma (University of Missouri, Columbia, USA)

Advancements of Machine Learning in Malware and Intrusion Detections

Valentin Gazeau, Khushi Gupta and Min Kyung An (Sam Houston State University, USA)

11:00 - 11:30

Closing Session

