PROGRAM GUIDE

AINA-2023

The 37th International Conference on
Advanced Information Networking and Applications

Virtual Conference (Online Presentation)
March 29 - March 31, 2023

Technically Supported by:

Fukuoka Institute of Technology, Japan

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Welcome Message from AINA-2023 Organizers

Welcome to the 37th International Conference on Advanced Information Networking and Applications (AINA-2023). On behalf of AINA-2023 Organizing Committee, we would like to express to all participants our cordial welcome and high respect.

AINA is an International Forum, where scientists and researchers from academia and industry working in various scientific and technical areas of networking and distributed computing systems can demonstrate new ideas and solutions in distributed computing systems. AINA was born in Asia, but it is now an International Conference with high quality thanks to the great help and cooperation of many international friendly volunteers. AINA is a very open society and is always welcoming international volunteers from any country and any area in the world.

AINA International Conference is a forum for sharing ideas and research work in the emerging areas of information networking and their applications. The area of advanced networking has grown very rapidly and the applications have experienced an explosive growth especially in the area of pervasive and mobile applications, wireless sensor and ad-hoc networks, vehicular networks, multimedia computing, social networking, semantic collaborative systems, as well as IoT, Big Data and Cloud Computing. This advanced networking revolution is transforming the way people live, work, and interact with each other, and is impacting the way business, education, entertainment, and health care are operating. The papers included in the proceedings covers theory, design and application of computer networks, distributed computing and information systems.

Each year AINA receives a lot of paper submissions from all around the world. It has maintained high quality accepted papers and is aspiring to be one of the main international conferences on the Information Networking in the world.

We are very proud and honored to have two distinguished keynote talks by Dr. Leonardo Mostarda, Camerino University, Italy and Prof. Flávio de Oliveira Silva, Federal University of Uberlândia, Brazil, who will present their recent work and will give new insights and ideas to the conference participants.

An international conference of this size requires the support and help of many people. A lot of people have helped and worked hard to produce a successful AINA-2023 technical program and conference proceedings. First, we would like to thank all authors for submitting their papers, the session chairs and distinguished keynote speakers. We are indebted to Program Track Co-Chairs, Program Committee Members and Reviewers, who carried out the most difficult work of carefully evaluating the submitted papers.

We would like to thank AINA-2023 General Co-chairs, PC Co-chairs, Workshops Co-chairs for their great efforts to make AINA-2023 a very successful event. We have special thanks to Finance Chair and Web Administrator Co-chairs. We do hope that you will enjoy the conference proceedings and readings.

AINA-2023 Keynote Talk I

Prof. Flávio de Oliveira Silva, Federal University of Uberlândia, Brazil

Toward Sustainable, Intelligent, Secure, Fully-programmable and Multisensory (SENSUOUS) Networks

Abstract: In this talk, we will discuss and present the evolution of current networks toward sustainable, intelligent, secure, fully-programmable, and multisensory (SENSUOUS) networks. The evolution of networks happens through these critical attributes that will drive next-generation networks. Here networks consider data networks capable of transmitting audio and video in computer or telecommunication systems. While there is an established process for the evolution of telecommunication networks, regarding computer networks, this area is still open and has several challenges and opportunities. So far, networks can transmit audio and video data, which sensitize only part of our senses. Still, new senses must be considered in the evolution of networks, expanding the multisensory experience. SENSUOUS networks will shape and contribute to scaling our society's sustainable, smart, and secure digital transformation.

AINA-2023 Keynote Talk II

Prof. Leonardo Mostarda, Camerino University, Italy

Blockchain and IoT Integration: Challenges and Future Directions

Abstract: Massive overhead costs, concerns about centralised data control, and single point of vulnerabilities are significantly reduced by moving IoT from a centralised data server architecture to a trustless, distributed peer-to-peer network. Blockchain is one of the most promising and effective technologies for enabling a trusted, secure, and distributed IoT ecosystem. Blockchain technology can allow the implementation of decentralised applications that not only perform payments but also allow the execution of smart contracts. This talk will investigate the state of art and open challenges that are related to IoT and Blockchain integration. We review current approaches and future directions.

AINA-2023 Main Conference and Workshops Program

Wednesday, March 29, 2023

AINA-2023 Keynote I

08:30-09:30 (UTC-4) Amazon time
14:30-15:30 (UTC+2) CEST Time Zone (Rome, Italy)
21:30-22:30 (UTC+9) Japan Standard Time

AINA-2023 Keynote Talk I

Prof. Flávio de Oliveira Silva: Toward Sustainable, Intelligent, Secure, Fully-programmable and Multisensory (SEN-SUOUS) Networks

Parallel Sessions

10:00-11:30(UTC-4) Amazon time
16:00-17:30(UTC+2) CEST Time Zone (Rome, Italy)
23:00-00:30(UTC+9) Japan Standard Time

AINA-S1: Security and Privacy I

Session Chair: Leonardo Mostarda, University of Camerino, Italy

1. Prison Break: From Proprietary Data Sources To SSI Verifiable Credentials
   Katja Assaf, Alexander Mühle, Daniel P Koehler, Christoph Meinel

2. A Post-quantum Cryptosystem with a Hybrid Quantum Random Number Generator
   Maksim Iavich, Tamari Kuchukhidze, Razvan Bocu

3. Machine Learning Anomaly-based Network Intrusion Detection: Experimental Evaluation
   Ahmed Ramzi Bahlali, Abdelmalik Bachir

4. Zero-knowledge Multi-Transfer based on Range Proofs and Homomorphic Encryption
   Emanuele Scala, Leonardo Mostarda, Flavio Corradini, Changyu Dong

5. User-Oriented Cybersecurity Systems
   Marek R. Ogiela, Urszula Ogiela

AINA-S2: Intelligent Computing and Machine Learning I

Session Chair: Jianfei Zhang, University of Sherbrooke, Canada

1. Uncertainty Handling with Type-2 Interval-valued Fuzzy Logic in IoT Resource Classification
   Renato Dilli, Renata Reiser, Adenauer Yamim, Helida Santos, Giancarlo Lucca

2. Analysis and Comparison of Machine Learning Models for Glucose Forecasting
   Théodore Simon, Jianfei Zhang, Shengrui Wang

3. On enhancing Network Slicing Life-Cycle Through an AI-native Orchestration Architecture
   *Rodrigo Moreira, Joberto Sergio Barbosa Martins, Tereza C. M. B. Carvalho, Flavio de Oliveira Si*lva

4. Adaptive Inference on Reconfigurable SmartNICs for Traffic Classification
   *Julio Costella Vicenzi, Guilherme Korol, Michael Guilherme Jordan, Mateus Beck Ru*tzig and Antonio Carlos Schneider Beck Filho

5. A Vulnerability Risk Assessment Methodology Using Active Learning
   Francisco Rodrigo P. da Ponte, Emanuel B. Rodrigues, César Lincoln Cavalcante Mattos

AINA-S3: Multimedia Systems and Applications

Session Chair: Mario Antonio Ribeiro Dantas, Federal University of Juiz de Fora, Brazil

1. Healthcare Conversational Agents: Chatbot for Improving Patient-Reported Outcomes
   Giuseppe Fenza, Francesco Orciuoli, Angela Peduto and Alberto Postiglione

2. Realtime Visualization System of Various Road State Sensing Data in Winter Season
   Yoshitaka Shibata, Akira Sakuraba and Yasushi Bansyo

3. An Architecture Proposal to Support e-Healthcare Notifications
   *Wagno Leão Sergio, Gabriel D. Iorio, Victor Ströele and Mario A. R. Da*ntas

4. Sensor Data Integration using Ontologies for Event Detection
   Jefferson Amará, Victor Ströele, Regina Braga, Michael Bauer

5. An Architectural System for Automatic Pedagogical Interventions in Massive Online Learning Environments
   *Diego Rossi, Victor Ströele, Fernanda Campos, Jairo Francisco de Souza, Regina Braga, Nicola Capuano, Enrique d*e la Hoz and Santi Caballé

MAW-S1: Data Mining and Web Applications

Chair: Kin Fun Li, University of Victoria, Canada

1. Multi Languages Pattern Matching-based Scraping of News and Articles Websites
   Hamza Salem, Manuel Mazzara

2. Decoding COVID-19 Vaccine Hesitancy Using Multiple Regression Analysis with Socioeconomic Values
   Wei Lu, Ling Xue, Bria Shorten

3. Video Indexing for Live Nature Camera on Digital Earth
   Hiroki Mimura, Masaya Tahara, Kosuke Takano, Nobuya Watanabe, Kin Fun Li

4. Sports Data Mining for Cricket Match Prediction
   Antony Anuraj, Gurtej S. Boparai, Carson K. Leung, Evan W.R. Madill, Darshan A. Pandhi, Ayush Dilipkumar Patel, Ronak K. Vyas

CCPI-S1: Cloud Computing Project and Initiatives I

Chair: Beniamino Di Martino, University of Campania "Luigi Vanvitelli", Italy

1. Sustainment of Military Operations by 5G and Cloud/Edge Technologies
   Souradip Saha, Warren Low, Beniamino Di Martino

2. Federated Learning of Predictive Models from Real Data on Diabetic Patients
   Gennaro Junior Pezzullo, Beniamino Di Martino, Antonio Esposito

3. Design of a Process and a Container-based Cloud Architecture for the Automatic Generation of Storyline Visualizations
   Emilio Di Giacomo, Beniamino Di Martino, Walter Didimo, Antonio Esposito, Giuseppe Liotta, Fabrizio Montecchiani

4. Cycle Detection and Clustering for Cyber Physical Systems
   Gabriel Iuhasz, Alecsandru Duma, Silviu Panica

5. Cloud Computing and Critical Infrastructure Resilience
   Oronzo Mazzeo, Antonella Longo, Marco Zappatore

Parallel Sessions

12:00-13:30(UTC-4) Amazon time
18:00-19:30(UTC+2) CEST Time Zone (Rome, Italy)
01:00-02:30(UTC+9) +1 day: Japan Standard Time

AINA-S4: Security and Privacy II

Session Chair: Lidia D. Ogiela, AGH University of Science and Technology, Poland

1. Early-stage Ransomware Detection based on Pre-Attack Internal API Calls
   Filippo Coglio, Ahmed Lekssays, Barbara Carminati, Elena Ferrari

2. MTA Extension for User-friendly Enforcement of Mandatory TLS Encryption
   Max Körber, Leo Dessani, Ronald Petrlic

3. Cybersecurity of Distributed Systems and Dispersed Computing
   Urszula Ogiela, Makoto Takizawa, Lidia D. Ogiela

4. A Dynamic Machine Learning Scheme for Reliable Network-based Intrusion Detection
   Eduardo Viegas, Everton de Matos, Paulo Roberto de Oliveira, Altair O. Santin

5. A Roadmap to Blockchain Technology Adoption in Saudi Public Hospitals
   Adel Abdulrahman Khwaji, Yaser Abdulaziz Alsahafi, Farookh Khadeer Hussain

AINA-S5: Intelligent Computing and Machine Learning II

Session Chair: Arjan Durresi, IUPUI, USA

1. A Model for Artificial Conscience to Control Artificial Intelligence
   Davinder Kaur, Suleyman Uslu, Arjan Durresi

2. GDLS-FS: Scaling Feature Selection for Intrusion Detection with GRASP-FS and Distributed Local Search
   Estêvão F. C. Silva, Nicolas Naves, Silvio E. Quincozes, Vagner Quincozes, Juliano F. Kazienko, Omar Cheikhrouhou

3. Identifying Network Congestion on SDN-based Data Centers with Supervised Classification
   Filipe da Silva de Oliveira, Mauricio Pillon, Charles Christian Miers, Guilherme Koslovski

4. FSET: Fast Structure Embedding Technique for Self-Reconfigurable Modular Robotic Systems
   Aliah Majed, Hassan Harb, Abbass Nasser, Benoit Clement

5. A Blockchain based Authentication Mechanism for IoT in Agriculture 4.0
   Oumayma Jouini, Kaouthar Sethom

AINA-S6: Internet of Things and Cyber-Physical Systems I

Session Chair: Euripides G. M. Petrakis, Technical University of Crete (TUC), Greece

1. BAIN: Bluetooth Adaption for IoT device
   *Luciana Pereira Oliveira, Cinaglia Adagles da Silv*a, Djamel Hadj Sadok, Tarciana Dias Da Silva, Auristela Maria da Silva, Judith Kelner

2. Data Logging and Non-invasive IoMT approach for Rats Monitoring in Laboratory Experiments
   Bryan Barbosa, Steve A. Garan, Barbara de Melo Quintela, Mario Dantas

3. Security Challenges and Recommendations in 5G-IoT Scenarios
   Dalton C. G. Valadares, Newton Carlos Will, Álvaro Sobrinho, Anna Carolline Dantas Lima, Igor Morais, Danilo F S Santos

4. Nexus: Proxy Service for the Web of Things
   Isidoros Paterakis, Euripides G. M. Petrakis

5. ABIDI: A Reference Architecture for Reliable Industrial Internet of Things
   Gianluca Rizzo, Alberto Franzin, Miia Lillstrang, Guillermo Del campo, Moisés Silva-Muñoz, Bono Lluc, Mina Aghaei Dinani, Xiaoli Liu, Joonas Tuutijarvi, Satu Tamminen, Edgar Saavedra, Asuncion Santamaria, Xiang Su, Juha Röning

AINA-S7: Distributed and Parallel Computing I

Session Chair: Markus Aleksy, ABB Corporate Research Center Germany, Germany

1. Traffic Light Algorithms in Smart Cities: Simulation and Analysis
   Artem Yuloskov, Mohammad Reza Bahrami, Manuel Mazzara, Gerald B. Imbugwa, Ikechi Ndukwe, and Iouri Kotorov

2. Development of a Building Tool Combining Building Information Modeling and Digital Twin
   Markus Aleksy and Philipp Bauer

3. Scattering with Programmable Matter
   Alfredo Navarra, Giuseppe Prencipe, Samuele Bonini and Mirco Tracolli

4. The Burden of Time on a Large-Scale Data Management Service
   Etienne Mauffret, Flavien Vernier and Sébastien Monnet

5. A Reduced Distributed Sate Space For Modular Petri Nets
   Sawsen Khlifa, Chiheb Ameur Abid and Belhassen Zouari

CCPI-S2: Cloud Computing Project and Initiatives II

Chair: Antonio Esposito, University of Campania "Luigi Vanvitelli", Italy

1. Towards a Parallel Graph Approach to Drug Discovery
   Dario Branco, Beniamino Di Martino, Salvatore D'Angelo, Dieter Kranzlmueller, Sandro Cosconati

2. Experiences in Architectural Design and Deployment of eHealth and Environmental Applications for Cloud-Edge Continuum
   Atakan Aral, Antonio Esposito, Andrey Nagiyev, Siegfried Benkner, Beniamino Di Martino, Mario A. Bochicchio

3. Programming Paradigms for the Cloud Continuum
   Geir Horn, Beniamino Di Martino, Antonio Esposito, Salvatore D'Angelo

4. Worker-to-Task Skill Based Assignment
   Vlad Rochian, Cosmin Bonchis, Ionut Tepeneu

Parallel Sessions

14:00-15:30(UTC-4) Amazon time
19:00-20:30(UTC+2) CEST Time Zone (Rome, Italy)
03:00-04:30(UTC+9) +1 day: Japan Standard Time

AINA-S8: Software-Defined Networking and Network Architectures

Session Chair: Flavio de Oliveira Silva, Federal University of Uberlandia, Brazil

1. MPolKA-INT: Stateless Multipath Source Routing for In-band Network Telemetry
   Isis de O. Pereira, Cristina Klippel Dominicini, Rafael Silva Guimaraes, Rodolfo S. Villaca, Lucas R. de Almeida, Gilmar Vassoler

2. A Vulnerability Detection Method for SDN with Optimized Fuzzing
   Xiaofeng Chi, Bingquan Wang, Jingling Zhao, Baojiang Cui

3. Energy Efficient Virtual Network Function Placement in NFV Enabled Networks
   Sudha Dubba, Bala Prakasa Rao Killi

4. Rational Identification of Suitable Classification Models for Detecting DDoS Attacks in Software-Defined Networks
   Abhirath A Joshi, K Haribabu

5. Make Before Degrade: A Context-Aware Software-Defined WiFi Handover
   *Víctor Manuel García Martínez, Rafael Silva Guimaraes, Ricardo Mello, Alexa*ndre do Carmo, Raquel F. Vassallo, Rodolfo S. Villaca, Moises R. N. Ribeiro, Magnos Martinello

AINA-S9: Data Management and Big Data

Session Chair: Carson K. Leung, University of Manitoba, Canada

1. Unsupervised Learning via Graph Convolutional Network for Stock Trend Prediction
   Mingxuan Sun, Rongbo Chen, Jianfei Zhang and Shengrui Wang

2. A Novel Clustering Model TEC for Station Classification
   Lei Yuan, Lijuan Liu, Shunzhi Zhu and Long Chen

3. CVEjoin: An Information Security Vulnerability and Threat Intelligence Dataset
   Francisco Rodrigo P. da Ponte, Emanuel B. Rodrigues, César Lincoln Cavalcante Mattos

4. Big Data Management for Machine Learning from Big Data
   *Anifat Olawoyin, Carson K. Leung, Connor C. J. Hryhoruk and Al*fredo Cuzzocrea

5. PRIFLOW-SDN: A Framework For Bandwidth Management for Priority Data Flows Applied to a Smart City Scenario
   Nilton Jose Mocelin Ju nior and Adriano Fiorese

AINA-S10: Internet of Things and Cyber-Physical Systems II

Session Chair: Luciana Pereira Oliveira, IFPB, Brazil

1. Assessment of the Use of Renewable Sources for Self-sustainability IoT device Development
   Luciana Pereira Oliveira, Edson Almeida, Paulo José de Sousa Oliveira, Luan Gomes de Carvalho

2. Micro IDS: On-Line Recognition of Denial-of-Service Attacks on IoT Networks
   Henrique Fell Lautert, Douglas D. J. Macedo, Laercio Pioli

3. A Fault-Tolerant IoT Solution for Solid Waste Collection
   *Raimir Holanda Filho, Wellington Alves de Brito, Debora Carla Ba*rboza de Sousa1, Victor Pasknel de Alencar, Joan Lucas Marques de Sousa Chaves, and Emanuel Leao Sa

4. Integration and Evaluation of Blockchain Consensus Algorithms for IoT Environments
   Anderson Melo de Morais, Fernando Antonio Aires Lins, Nelson Souto Rosa

5. Runtime Model-Based Assurance of Open and Adaptive Cyber-Physical Systems
   *Luis Felipe Almeida Nascimento, André de Oliveira, Regina Villela, Richard Hawkin*s, Tim Kelly and Ran Wei

AINA-S11: Distributed and Parallel Computing II

Session Chair: Hovhannes A. Harutyunyan, Concordia University, Canada

1. A Control-theoretical Approach to Adapt Message Brokers
   Nelson Souto Rosa and David Cavalcanti

2. A Self-Adaptative Architecture to Support Maintenance Decisions in Industry 4.0
   Izaque Esteves, Regina Braga, José Maria David and Victor Ströele

3. DCANon: Towards Distributed Certification Authority (CA) with Non-Fungible Token (NFT)
   Rafael Descio-Trineto, Mauricio Pillon, Guilherme Koslovski and Charles Miers

4. An Efficient Approach to Resolve Social Dilemma in P2P Networks
   Avadh Kishor and Rajdeep Niyogi

5. Efficient Heuristic for Broadcasting in Chordal Networks
   Narek Hovhannisyan and Hovhannes A. Harutyunyan

Thursday, March 30, 2023

Parallel Sessions

00:00-01:30(UTC-4) Amazon time
06:00-07:30 (UTC+2) CEST Time Zone (Rome, Italy)
13:00-14:30(UTC+9) Japan Standard Time

AINA-S12: Security and Privacy III

Session Chair: Hiroaki Kikuchi, Meiji University, Japan

1. Secure and Privacy Preserving Proxy Biometric Identities
   Harkeerat Kaur, Rishabh Shukla, Isao Echizen, Pritee Khanna

2. Expectation-Maximization Estimation for Key-Value Data Randomized with Local Differential Privacy
   Hiroaki Kikuchi, Hikaru Horigome, Chia-Mu Yu

3. Supervised Machine Learning and Detection of Unknown Attacks: An Empirical Evaluation
   Miguel Rocha, Gustavo Bernardo, Luan Mundim, Bruno Zarpelão, Rodrigo Miani

4. Applied Machine Learning for Securing the Internet of Medical Things in Healthcare
   Wei Lu

5. Technology Factors Influencing Saudi Higher Education Institutions' Adoption of Blockchain Technology: A Qualitative Study
   Mohrah Alalyan, Naif Jaafari and Farookh Khadeer Hussain

AINA-S13: Intelligent Computing and Machine Learning III

Session Chair: Minoru Uehara, Toyo University, Japan

1. Performance Evaluation of FC-RDVM and LDIWM Router Placement Methods for WMNs by WMN-PSODGA Hybrid Simulation System Considering Load Balancing and Chi-Square Distribution of Mesh Clients
   Admir Barolli, Shinji Sakamoto, Elis Kulla, Leonard Barolli, Makoto Takizawa

2. An Analysis of Representative Works of Japanese Literature Based on Emotions and Topics
   Yoshihiro Adachi, Miki Amano, Kenshin Tsumuraya, Minoru Uehara

3. A Fuzzy Inference and Posture Detection Based Soldering Motion Monitoring System
   Kyohei Toyoshima, Chihiro Yukawa, Yuki Nagai, Genki Moriya, Sora Asada, Tetsuya Oda, Leonard Barolli

4. Multi-agent Deep Q-learning based Navigation
   Amar Nath, Rajdeep Niyogi, Tajinder Singh, Virendra Kumar

5. eRFID-IPS: Enhanced RFID Indoor Positioning System with Deep Learning for the Internet of Things
   Belal Alsinglawi, Khaled M. Rabie

AINA-S14: Internet of Things and Cyber-Physical Systems III

Session Chair: Takayuki Kushida, Tokyo University of Technology, Japan

1. Management of Power Supply for Wi-Fi Module based on IoT Device Connections
   Kazuhiko Sugimoto and Takayuki Kushida

2. MoON: Flow-Based Programming with OpenAPI in the Web of Things
   Vasileios Papadopoulos, Aimilios Tzavaras and Euripides G.M. Petrakis

3. Using Hidden Markov Chain for Improving the Dependability of Safety-Critical WSNs
   Issam Al-Nader, Aboubaker Lasebae, Rand Raheem

4. iBot: Secure and Trusted Access to IoT Data with Blockchain
   Anastasios Pateritsas and Euripides G.M. Petrakis

5. An Authentication Protocol for Healthcare Application: A Case Study of a Diabetic Patient
   Neila Mekki, Mohamed Hamdi, Taoufik Aguili, Tai-hoon Kim

HWISE-S1: Protocols and Algorithms for Next Generation Networks

Chair: Makoto Ikeda, Fukuoka Institute of Technology, Japan

1. DTAG: A Dynamic Threshold-based Anti-packet Generation Method for Vehicular DTN
   Shota Uchimura, Masaya Azuma, Makoto Ikeda, Leonard Barolli

2. Optimal and Suboptimal Routing Protocols for WSN
   Rahil Bensaid, Adel Ben Mnaouer, Hatem Boujemaa

3. CL-DECCM-SA: A Cluster-based Delaunay Edge and Simulated Annealing Approach for Optimization of Mesh Routers Placement in WMNs
   Aoto Hirata, Yuki Nagai, Kyohei Toyoshima, Chihiro Yukawa, Tetsuya Oda, Leonard Barolli

4. An Analytical Queuing Model based on SDN for IoT Traffic in 5G
   Aliyu Lawal Aliyu, Jim Diockou

5. An Expert Survey for the Evaluation of 5G Adoption in Bangladesh
   Md. Zahirul Islam, Abdur Rahim, Md. Salahuddin, Syed Md. Galib, Rahamatullah Khondoker

6. Optical Advanced Hybrid Phase Shift Approach for RF Beamforming and 5G Wideband Radar
   Yosra Bouchoucha, Dorsaf Omri, Taoufik Aguili

FINA-S1: Algorithms and Protocols I

Chair: Tomoya Enokido, Rissho University, Japan

1. A Decentralized Architecture for Electric Vehicle Charging Platform
   Marlon R. Martin, Fabiano Hessel

2. Services and Operations and of Electric Vehicle System by Virtual Power Plant in Rural Area
   Yoshitaka Shibata, Masahiro Ueda, Akiko Ogawa

3. A Triangulation Based Water Level Measuring System for a Water Reservoir Tank
   Yuki Nagai, Tetsuya Oda, Kyohei Toyoshima, Chihiro Yukawa, Kei Tabuchi, Tomoaki Matsui, Leonard Barolli

4. A System Architecture for Heterogeneous Time-Sensitive Networking based on SDN
   Hongrui Nie

Parallel Sessions

02:00-03:30(UTC-4) Amazon time
08:00-09:30(UTC+2) CEST Time Zone (Rome, Italy)
15:00-16:30(UTC+9) Japan Standard Time

AINA-S15: Network Protocols and Applications

Session Chair: Tomoya Enokido, Rissho University, Japan

1. Energy-Efficient Two Phase Locking (2PL) Protocol by not Performing Meaningless Methods in Virtual Machine Environments
   Tomoya Enokido, Dilawaer Duolikun, Makoto Takizawa

2. A Fuzzy-based System for Selection of Radio Access Technologies in 5G Wireless Networks: QoE Assessment and Its Performance Evaluation
   Phudit Ampririt, Makoto Ikeda, Keita Matsuo, Leonard Barolli

3. Availability Model for Byzantine Fault-Tolerant Systems
   Marco Marcozzi, Orhan Gemikonakli, Eser Gemikonakli, Enver Ever, Leonardo Mostarda

4. Time-based Ray Tracing Forwarding in Dense Nanonetworks
   Eugen Dedu and Masoud Asghari

AINA-S16: Intelligent Computing and Machine Learning IV

Session Chair: Isaac Woungang, Toronto Metropolitan University, Canada

1. An Anomaly Detection System for Intelligent Robot Vision Using LSTM
   Chihiro Yukawa, Kyohei Toyoshima, Yuki Nagai, Masahiro Niihara, Yuma Yamashita, Tetsuya Oda, Leonard Barolli

2. Detection of Malicious Sites using Graph Machine Learning
   Rhayane Monteiro, Leonardo Rocha

3. Bonet Detection Mechanism using Graph Neural Network
   *Aleksander Maksimoski, Isaac Woungang, Issa Traore, Sanjay K*umar Dhurandher

4. System Design for DDoS Traffic Mitigation by a Collaboration of Mobile and IP Networks in 5G/6G
   Kenichi Okonogi, Masaki Suzuki, Atsushi Tagami

AINA-S17: Next Generation Wireless Networks I

Session Chair: Ermioni Qafzezi, Fukuoka Institute of Technology, Japan

1. Performance analysis of Cooperative LoRa with Multihop Relaying for Rayleigh and Nakagami channels
   Takoua Mahjoub, Adel Ben Mnaouer, Hatem Boujemaa and Maymouna Ben Said

2. Rigorous Analysis of Induced Electrical Field in Human Tissues for Body Centric Wireless Communication
   Intissar Krimi, Sofiane Ben Mbarek and Fethi Choubani

3. Implementation of a Fuzzy-based Testbed for Assessment of Neighbor Vehicle Processing Capability in SDN-VANETs
   Ermioni Qafzezi, Kevin Bylykbashi, Elis Kulla, Makoto Ikeda, Keita Matsuo and Leonard Barolli

4. Investigation Model of Electromagnetic Propagation for Wireless Body Communication
   Intissar Krimi, Sofiane Ben Mbarek and Fethi Choubani

5. Frobenius Norm-based Radio Propagation Path Selection Policy and Performance Analysis
   Sainath Bitragutna

COLLABES-S1: Collaborative Systems and Applications

Chair: Keita Matsuo, Fukuoka Institute of Technology, Japan

1. Prototype for Controlled Use of Social Media to Reduce Depression
   Furqan Haider, Hamna Aslam, Rabab Marouf, Manuel Mazzara

2. Why Zero Trust Framework Adoption Has Emerged During and After Covid-19 Pandemic
   Abeer Zaher Alalmaie, Priyadarsi Nanda, Xiangjian He, Mohrah Alalyan

3. An Interoperable Microservices Architecture for Healthcare Data Exchange
   Allender V de Alencar, Marcus Marinho Bezerra, Dalton C. G. Valadares, Danilo F S Santos, Angelo Perkusich

4. D-insta: A Decentralized Image Sharing Platform
   *Yadagiri Shiva Sai Sashank, Ankit Agrawal, Ritika Bhati*a, Ashutosh Bhatia, Kamlesh Tiwari*

5. Ramification of Sentiments on Robot-based Smart Agriculture: An Analysis Using Real-time Tweets
   Tajinder Singh, Amar Nath, Rajdeep Niyogi

FINA-S2: Algorithms and Protocols II

Chair: Silvia Stranieri, University of Naples Federico II, Italy

1. An Overview and Current Status of Blockchains Performance
   Hamza Salem, Manuel Mazzara, Siham Hattab

2. AgriBIoT: A Blockchain-based IoT Architecture for Crop Insurance
   Oumayma Jouini, Kaouthar Sethom

3. Distribution of the Training Data Over the Shortest Path Between the Servers
   Ibrahim Dahaoui, Mohamed Mosbah, Zemmari Akka

4. A Parking Systems Based on Priority Scheme
   Walter Balzano, Antonio Lanuto, Erasmo Prosciutto, Biagio Scotto di Covella, Silvia Stranieri

AINA-2023 Keynote II

04:00-05:00(UTC-4) Amazon time
10:00-11:00(UTC+2) CEST Time Zone (Rome, Italy)
17:00-18:00(UTC+9) Japan Standard Time

AINA-2023 Keynote Talk II

Prof. Leonardo Mostarda: Blockchain and IoT Integration: Challenges and Future Directions

Parallel Sessions

05:30-07:00 (UTC-4) Amazon time
11:30-13:00(UTC+2) CEST Time Zone (Rome, Italy)
18:30-20:00 (UTC+9) Japan Standard Time

AINA-S18: Cloud and Service Computing

Session Chair: Ashutosh Bhatia, BITS Pilani, India

1. SANKMO: An Approach for Ingestion, Processing, Store and Sharing IoT Data in Real Time
   Agmar Avila Torres, Flavio de Oliveira Silva

2. Orchestrating Fog Computing Resources based on the Multi-dimensional Multiple Knapsacks Problem
Daniel Macedo, Danilo F. S. Santos, Angelo Perkusich, Marcus Marinho Bezerra

3. Profit Maximization for Resource Providers using Dynamic Programming in Edge Computing
Rajendra Prajapat, Ram Narayan Yadav

4. Stability and Availability Optimization of Distributed ERP Systems During Cloud Migration
Gerard Christopher, Ashutosh Bhatia, Kamlesh Tiwari

5. OASL: SPARQL Query Language for OpenAPI Ontologies
Nikolaos Lagogiannis, Nikolaos Mainas, Chrisa Tsinaraki, Euripides G. M. Petrakis

AINA-S19: Next Generation Wireless Networks II

Session Chair: Shinji Sakamoto, Kanazawa Institute of Technology, Japan

1. Distributed Algorithm for Localization of Localizable Wireless Sensor Networks
Saroja Kanchi

2. Lotka-Volterra Applied to Misinformation Extinction in Opportunistic Networks
Victor Messner, Anderson Zudio, Diego Leonel Cadette Dutra, Claudio L. Amorim

3. A Comparison Study of FC-RDVM and RIWM Router Placement Methods for WMNs: Performance Evaluation Results by WMN-PSOHC Simulation System Considering Chi-Square Distribution and Different Instances
Shinji Sakamoto, Admir Barolli, Yi Liu, Elis Kulla, Leonard Barolli and Makoto Takizawa

4. 5G Virtual Function Infrastructure Management in Adverse Scenarios using LPWA
Rafael Soares Amaral, Priscila Solis and Marcos Fagundes Caetano

5. BANY: An Anycast MAC Protocol based on B-MAC+ for IoT Systems
Tales Heimfarth, João Giacomin and Gabriel Augusto Lemos Silva

INTRICATE-SEC-S1: Secure Systems and Tools

Chair: Anne Kayem, Hasso-Plattner-Institute, Germany

1. Quo Vadis, Web Authentication? - An Empirical Analysis of Login Methods on the Internet
Andreas Grüner, Alexander Mühle, Nils Ruemmler, Adnan Kadric, Christoph Meinel

2. Device Tracking Threats in 5G Network
Maksim Iavich, Giorgi Akhalaia, Razvan Bocu

3. Trusted and Only Trusted. That is the Access! Improving Access Control Allowing Only Trusted Execution Environment Applications
Dalton C. G. Valadares, Álvaro Sobrinho, Newton Carlos Will, Kyller Costa Gorgônio, Angelo Perkusich

4. A Survey of Intrusion Detection-based Trust Management Approaches in IoT Networks
Meriem Soula, Bacem Mbarek, Aref Meddeb, Tomá Pitner

5. Context-Aware Security in the Internet of Things: A Review
Everton de Matos, Eduardo Viegas, Ramão Tiburski, Fabiano Hessel

6. Cybersecurity Attacks & Vulnerabilities During COVID-19
*Sharmin Akter Mim, Roksana Rahman, Md Rashid Al Asif, Fida Hasa*n, Rahamatullah Khondoker

E3WSN-S1: Wireless Networks and Energy Efficient Systems

Chair: Leonardo Mostarda, Camerino University, Italy

1. Comparison of ML Solutions for HRIR Individualization Design in Binaural Audio
Simone Angelucci, Claudia Rinaldi, Fabio Franchi, Fabio Graziosi

2. Performance Analysis of a BESU Permissioned Blockchain
*Leonardo Mostarda, Andrea Pinna, Davide Sestili, Roberto Tonel*li

3. AI-Powered Drone to Address Smart City Security Issues
   Ramiz Salama, Fadi Al-Turjman, Rosario Culmone

4. Range Proofs with Constant Size and Trustless Setup
   Emanuele Scala, Leonardo Mostarda

5. Sensorless Predictive Maintenance: An Example on a Not 4.0' Coffee Machine Production Process
   Marco Piangerelli

6. Attendance System via Internet of Things, Blockchain and Artificial Intelligence Technology: Literature Review
   Sarumi Usman Abidemi, Auwalu Saleh Mubarak, Olukayode Akanni, Zubaida Said Ameen, Diletta Cacciagrano, Fadi Al-Turjman

Parallel Sessions

07:30-09:00(UTC-4) Amazon time
13:30-15:00(UTC+2) CEST Time Zone (Rome, Italy)
20:30-22:00(UTC+9) Japan Standard Time

AINA-S20: Fog and Edge Computing

Session Chair: Shigenari Nakamura, Tokyo Metropolitan Industrial Technology Research Institute, Japan

1. Object Placement Algorithm with Information Flow Control in Fog Computing Model
   Shigenari Nakamura, Tomoya Enokido, Makoto Takizawa

2. DASA: An Efficient Data Aggregation Algorithm for LoRa enabled Fog Layer in Smart Agriculture
   Mayank Vyas, Garv Anand, Ram Narayan Yadav, Sanjeet Kumar Nayak

3. Energy-aware Algorithms for Changing Tree Structure and Process Migration in he Flexible Tree-based Fog Computing Model
   Dilawaer Duolikun, Tomoya Enokido, Makoto Takizawa

4. A Polystore Proposed Environment Supported by an Edge-Fog Infrastructure
   Ludmila R. B. Yung, Victor Ströele, Mario A. R. Dantas

IOEMLA-S1: Intelligent and Secure Systems

Chair: Omid Ameri Sianaki, Victoria University, Australia

1. Identifying Fake News in the Russian-Ukrainian Conflict Using Machine Learning
   *Omar Darwish, Yahya Tashtoush, Majdi Maabreh, Rana Al-essa, Ruba Alnuman, Ammar Alqubl*an, Munther Abualkibash, Mahmoud Elkhodr

2. Challenges of Managing an IoT-based Biophilic Services in Green Cities
   Farhad Daneshgar, Rahim Foroughi, Nava Tavakoli-Mehr, Atefa Youhangi

3. Control and Diagnosis of Brain Tumors Using Deep Neural Networks
   *Alireza Izadi, Farshid Hajati, Babak Farjad, Narges Janpors, Roohollah B*arzamini, Sahar Barzamini

4. Co-evolution Genetic Algorithm Approximation Technique for ROM-Less Digital Synthesizers
   Soheila Gheisari, Alireza Rezaee, Farshid Hajati

BICom-S1: Intelligent and Bio-Computing Systems

Session Chair: Leonard Barolli, Fukuoka Institute of Technology, Japan

1. Next Generation Mobile Sensors: Review Regarding the Significance of Deep Learning and Privacy Techniques for Data-Driven Soft Sensors
   Razvan Bocu, Dorin Bocu

2. Simulation Modeling of Human Aortic Valve Blood Flow
   Ilya Kudrenok, Maxim Davidov, Manuel Mazzara

3. An Integrated System for Vibration Suppression Using Fuzzy Control and 2D-LiDAR
   Masahiro Niihara, Yuma Yamashita, Chihiro Yukawa, Kyouhei Toyosima, YukiNagai, Tetsuya Oda, Leonard Barolli

4. Prediction in Smart Environments and Administration: Systematic Literature Review
   Mohamed Krichene, Nesrine Khabou, Ismael Bouassida Rodriguez

5. Protect Trajectory Privacy in Food Delivery with Differential Privacy and Multi-agent Reinforcement Learning
   Suleiman Abahussein, Tianqing Zhu, Dayong Ye, Zishuo Cheng, Wanlei Zhou

6. Enhanced Machine Learning-based SDN Controller Framework For Securing IoT Networks
   Neder Karmous, Mohamed Ould-Elhassen Aoueileyine, Manel Abdelkader, Neji Youssef

M2EC-S1: Cloud and Edge Computing

Chair: Thomas Dreibholz, Simula Metropolitan Centre for Digital Engineering, Norway

1. Application of Generalized Deduplication Techniques in Edge Computing Environments
   Ryu Watanabe, Ayumu Kubota, Jun Kurihara

2. On the Realization of Cloud-RAN on Mobile Edge Computing
   Andres Ocampo, Haakon Bryhni

3. TEATOM: A True Zero Touch Intent Based Multi-cloud Framework
   Ramesh Ramanathan, Preethika P

4. Utility Function Creator for Cloud Application Optimization
   Marta Rozanska, Kyriakos Kritikos, Jan Marchel, Damian Folga, Geir Horn

5. A Review of Monitoring Probes for Cloud Computing Continuum
   Yiannis Verginadis

DUDW-S1: Digital Humanities and Digital World

Chair: Alba Amato, University of Campania Luigi Vanvitelli, Italy

1. The Digital Humanities Trend in Chinese Film History: A Case Study of Filmmaker Lvban
   Zitong Zhu

2. A Tool for Creation of Virtual Exhibits Presented as IIIF Collections by Intelligent Agents
   Dario Branco, Rocco Aversa, Salvatore Venticinque

3. Recommender Systems in the Museum Sector: An Overview
   Alba Amato

4. Towards the Enrichment of IIIF Framework with Semantically Annotated and Geo-located Images
   Alba Amato, Giuseppe Cirillo

Friday, March 31, 2023

AINA-2023 Steering Committee Meeting and Discussion

Online Meeting Schedule for AINA-2023
29 Marchl to 31 March, 2023

1st day: Wednesday, 29 March, 2023	Room #1 Meeting ID: 825 4790 2373		Room #2 Meeting ID: 896 3168 3610		Room #3 Meeting ID: 822 2160 4885		Room #4 Meeting ID: 823 6392 6320		Room #5 Meeting ID: 884 2195 1742	
	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair
Slot 1 08:30-09:30 (UTC-4) Amazon time; 14:30-15:30 (UTC+2) CEST Time Zone (Rome, Italy); 21:30-22:30 (UTC+9) Japan Standard Time	AINA-2023 Keynote #1: Prof. Flávio de Oliveira Silva — Meeting ID: 825 4790 2373									
Slot 2 10:00-11:30(UTC-4) Amazon time; 16:00-17:30(UTC+2) CEST Time Zone (Rome, Italy); 23:00-00:30(UTC+9) Japan Standard Time	AINA-S1	Leonardo Mostarda, Italy	AINA-S2	Jianfei Zhang, Canada	AINA-S3	Mario Antonio Ribeiro Dantas, Brazil	MAW-S1	Kin Fun Li, Canada	CCPI-S1	Beniamino Di Martino, Italy
Slot 3 12:00-13:30(UTC-4) Amazon time; 18:00-19:30(UTC+2) CEST Time Zone (Rome, Italy); 01:00-02:30(UTC+9) +1 day: Japan Standard Time	AINA-S4	Lidia Ogiela, Poland	AINA-S5	Arjan Durresi, USA	AINA-S6	Euripides G. M. Petrakis, Greece	AINA-S7	Markus Aleksy, Germany	CCPI-S2	Antonio Esposito, Italy
Slot 4 14:00-15:30(UTC-4) Amazon time; 20:00-21:30(UTC+2) CEST Time Zone (Rome, Italy); 03:00-04:30(UTC+9) +1 day: Japan Standard Time	AINA-S8	Flavio de Oliveira Silva, Brazil	AINA-S9	Carson K. Leung, Canada	AINA-S10	Luciana Pereira Oliveira, Brazil	AINA-S11	Hovhannes A. Harutyunyan, Canada		

2nd day: Thursday, 30 March, 2023	Room #1 Meeting ID: 825 4790 2373		Room #2 Meeting ID: 896 3168 3610		Room #3 Meeting ID: 822 2160 4885		Room #4 Meeting ID: 823 6392 6320		Room #5 Meeting ID: 884 2195 1742	
	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair
Slot 1 00:00-01:30(UTC-4) Amazon time; 06:00-07:30 (UTC+2) CEST Time Zone (Rome, Italy); 13:00-14:30(UTC+9) Japan Standard Time	AINA-S12	Hiroaki Kikuchi, Japan	AINA-S13	Minoru Uehara, Japan	AINA-S14	Takayuki Kushida, Japan	HWISE-S1	Makoto Ikeda, Japan	FINA-S1	Tomoya Enokido, Japan
Slot 2 02:00-03:30(UTC-4) Amazon time; 08:00-09:30(UTC+2) CEST Time Zone (Rome, Italy); 15:00-16:30(UTC+9) Japan Standard Time	AINA-S15	Tomoya Enokido, Japan	AINA-S16	Isaac Woungang, Canada	AINA-S17	Ermioni Qafzezi, Japan	COLLABES-S1	Keita Matsuo, Japan	FINA-S2	Silvia Stranieri, Italy
Slot 3 04:00-05:00(UTC-4) Amazon time; 10:00-11:00(UTC+2) CEST Time Zone (Rome, Italy); 17:00-18:00(UTC+9) Japan Standard Time	AINA-2023 Keynote #2: Prof. Leonardo Mostarda — Meeting ID: 825 4790 2373									
Slot 4 05:30-07:00 (UTC-4) Amazon time; 11:30-13:00(UTC+2) CEST Time Zone (Rome, Italy); 18:30-20:00 (UTC+9) Japan Standard Time	AINA-S18	Ashutosh Bhatia, India			AINA-S19	Shinji Sakamoto, Japan	INTRICATE-SEC-S1	Anne Kayem, Germany	E3WSN-S1	Leonardo Mostarda, Italy
Slot 5 07:30-09:00(UTC-4) Amazon time; 13:30-15:00(UTC+2) CEST Time Zone (Rome, Italy); 20:30-22:00(UTC+9) Japan Standard Time	AINA-S20	Shigenari Nakamura, Japan	IOEMLA-S1	Omid Ameri Sianaki, Australia	BICom-S1	Leonard Barolli, Japan	M2EC-S1	Thomas Dreibholz, Norway	DUDW-S1	Alba Amato, Italy

3rd day: Friday, 31 March, 2023	Room #1		Room #2		Room #3		Room #4		Room #5	
	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair	Session title	Session Chair
	AINA-2023 Steering Committee Meeting and Discussion									