2024 IFIP Networking Conference (IFIP Networking 2024)

Thessaloniki, Greece 3-6 June 2024



IEEE Catalog Number: CFP24IFI-POD ISBN:

979-8-3503-9060-5

Copyright © 2024, International Federation for Information Processing (IFIP) All Rights Reserved

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number: CFP24IFI-POD ISBN (Print-On-Demand): 979-8-3503-9060-5 ISBN (Online): 978-3-903176-63-8

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax:

(845) 758-2633 l: curran@proceedings.com E-mail: Web: www.proceedings.com



Program

2024 IFIP Networking Conference (IFIP Networking)

Keynotes

	Are Today's 5G Networks Ready to Support 5G "Killer Apps"?	
	Dimitrios Koutsonikolas (Northeastern University, USA)	1
	AoI-Aware Query Services in Digital-Twin Empowered Edge Computing	
	Weifa Liang (City University of Hong Kong, Hong Kong)	2
	Unlocking IoT Potential: Empowering LoraWAN for Secure, Distributed Smart Water Management	
	Francesca Cuomo (University of Rome Sapienza, Italy)	3
	The Next Wave of IoT Extreme IoT	
	R. R. Venkatesha Prasad (Delft University of Technology, The Netherlands)	4
Netv	vork automation and management	
	Intelligent Routing as a Service (iRaaS) A Flexible Routing Framework for Knowledge-Defined Networks	
	Saptarshi Ghosh (Digital Catapult, United Kingdom (Great Britain)), Konstantinos Antonakoglou (Digital Catapult, United Kingdom (Great Britain)), Ioannis Mavromatis (Digital Catapult, United Kingdom (Great Britain)), Konstantinos Katsaros (Digital Catapult, United Kingdom (Great Britain))	5
	Baiji: Domain Planning for CDNs under the 95th Percentile Billing Model	
	Juan Vanerio (University of Vienna & AIT Austrian Institute of Technology, Austria), Huiran Liu (TU Berlin, Germany), Qi Zhang (TU Berlin, Germany), Stefan Schmid (TU Berlin, Germany)	14
	Increasing Network Resilience Through Dynamic Routing with Disjoint Paths	
	Konrad Altenhofen (Technical University of Darmstadt, Germany), Julian Zobel (Technical University of Darmstadt, Germany), Björn Scheuermann (TU Darmstadt, Germany)	23
	Industry Use Case Viability Study with Performance Models for Satellite Computing Networks	
	Fabian Poignée (University of Würzburg, Germany), Frank Loh (University of Wuerzburg, Germany), Florian Zeiger (Siemens AG, Germany), Markus Sauer (Siemens AG, Germany), Tobias Hoßfeld (University of Würzburg, Germany)	32
	Gaming on the Edge: Performance Issues of Distributed Online Gaming	
	Diletta Olliaro (Ca' Foscari University of Venice, Italy), Paolo Castagno (University of Turin, Italy), Vincenzo Mancuso (University of Palermo, Italy & IMDEA Networks Institute, Spain), Marco G Ajmone Marsan (IMDEA Networks Institute, Spain), Matteo Sereno (University of Torino, Italy)	41
Netv	vork Traffic Analysis	
	In-Network Management of Parallel Data Streams over Programmable Data Planes	
	Bochra Boughzala (University of Groningen, The Netherlands), Boris Koldehofe (TU Ilmenau, Germany)	50
	Characterizing Power Usage in Zero Reserved Power Data Centers to Enable Planned Maintenance	
	Hassan A Khan (North Carolina State University, USA), Muhammad Shahzad (North Carolina State University, USA)	59
	Glancing at Extended Reality: an empirical model of 3D Animated XR Data Traffic	
	Tiziana Cattai (Sapienza University of Rome, Italy), Luca Mastrandrea (Sapienza University of Rome, Italy), Alessandro Priviero (Sapienza University of Rome,	
	Italy), Gaetano Scarano (Università La Sapienza di Roma, Italy), Stefania Colonnese (Sapienza University of Rome, Italy)	68
	dAQM: Derivative-based Active Queue Management	
	Saad Saleh (University of Groningen, The Netherlands), Sunny Shu (University of Groningen, The Netherlands), Boris Koldehofe (TU Ilmenau, Germany)	77
	PB-FS: Postcard-Based Fast Start	
	Dan Aaronson (Israel Institute of Technology, Israel), Reuven Cohen (Technion, Israel)	86

Anomaly and Malware Detection

	Autonomous Systems Risk Level in the Route Server infrastructure of an Internet Exchange Point	
	Stefano Servillo (University of Rome Sapienza, Italy), Pietro Spadaccino (La Sapienza Università di Roma, Italy), Francesca Cuomo (University of Rome Sapienza,	
	Italy), Flavio Luciani (Namex, Italy)	95
	AB-TCAD: An Access Behavior-Based Two-stage Compromised Account Detection Framework Kunling He (Tsinghua University, China), Fenghua Li (Tsinghua University, China), Jessie Hui Wang (Tsinghua University, China), Han Zhang (Tsinghua University, China), Vive Two The Albert Control of Co	104
	China), Yiren Zhao (University of Toronto, Canada)	104
	MalFusion: Simple string manipulations confuse malware detection	
	Sri Shaila G (Palo Alto Networks, USA), Michalis Faloutsos (University of California, Riverside, USA)	113
	Anomaly Detection in In-Network Fast ReRoute Systems	
	Divya Pathak (Indian Institute of Technology Hyderabad, India), Sree Prathyush Chinta (Indian Institute of Technology Hyderabad, India), Dilip Kumar Reddy "(Indian Institute of Technology Hyderabad, India), Praveen Tammana (IIT Hyderabad, India), Harish SA (Indian Institute of Technology Hyderabad, India)	122
	Chain-Sawing: A Longitudinal Analysis of Certificate Chains	122
	Marcus Döberl (Linköping University, Sweden), York Freiherr von Wangenheim (Linköping University, Sweden), Carl Magnus Bruhner (Linköping University,	
	Sweden), David Hasselquist (Linköping University & Sectra Communications, Sweden), Martin Arlitt (University of Calgary, Canada), Niklas Carlsson (Linköping	
	University, Sweden)	131
F.C. /C.C	and David	
5G/6G	and Beyond	
	Enhancing Real-Time Streaming Quality through a Multipath Redundant Communication Framework	
	Koki Ito (The University of Tokyo, Japan), Jin Nakazato (The University of Tokyo, Japan), Romain Fontugne (Internet Initiative Japan Inc., Japan), Manabu	
	Tsukada (the University of Tokyo, Japan), Hiroshi Esaki (The University of Tokyo, Japan)	140
	X-OAR: Orchestration of Access Resources for extended reality educational applications	
	Alessandro Priviero (Sapienza University of Rome, Italy), Luca Mastrandrea (Sapienza University of Rome, Italy), Ioannis Chatzigiannakis (Sapienza University of Rome, Italy), Stefania Colonnese (Sapienza University of Rome, Italy)	150
	Enhanced Mobility Management with SD-RAN in 5G Networks	
	Anna Prado (Technical University of Munich, Germany), Merve Ciki (Technical University of Munich, Germany), Fidan Mehmeti (Technical University of Munich,	
	Germany), Wolfgang Kellerer (Technische Universität München, Germany)	159
	Is Multi-Link Operation of 802.11be TCP friendly? Analysis and Solution	
	Jagrati Kulshrestha (IIIT Delhi, India), Srimant Mohanty (IIIT Delhi, India), Pasquale Imputato (University of Naples Federico II, Italy), Stefano Avallone (University of Naples, Italy), Mukulika Maity (IIIT Delhi, India)	168
	Packet Ordering Functions in Low-power Wireless Deterministic Networks	
	Juan Cruz Piñero (Argentina), Alberto P Blanc (IMT Atlantique, France), Jose Ignacio Alvarez-Hamelin (Universidad de Buenos Aires, Argentina), Georgios Z. Papadopoulos (IMT Atlantique, France)	177
Blockch	nain and Quantum Techniques	1,,
	FlexBoT: A Scalable Architecture for Multi-Application Supporting BoT Environments with Application Shifting at Runtime	
	Akin Eker (University of Bristol, United Kingdom (Great Britain)), Theo Tryfonas (University of Bristol, United Kingdom (Great Britain)), George Oikonomou (University of Bristol, United Kingdom (Great Britain))	186
	A Quantum of QUIC: Dissecting Cryptography with Post-Quantum Insights	
	Marcel Kempf (Technical University of Munich, Germany), Nikolas Gauder (Technical University of Munich, Germany), Benedikt Jaeger (Technical University of	
	Munich, Germany), Johannes Zirngibl (Technical University of Munich, Germany), Georg Carle (Technische Universität München, Germany)	195
	Secure Target-Tracking by UAVs in O-RAN Environment	
	Seyed Ahmad Soleymani (University of Surrey, United Kingdom (Great Britain)), Mohammad Shojafar (University of Surrey, United Kingdom (Great Britain)),	
	Shidrokh Goudarzi (University of West London, United Kingdom (Great Britain)), Chuan Foh (University of Surrey, United Kingdom (Great Britain)), Wenwu	204
	Wang (University of Surrey, United Kingdom (Great Britain))	204
	Optimizing Information Freshness in IoT Systems with Update Rate Constraints: A Token-Based Approach	24.5
	Erfan Delfani (Linköping University, Sweden), Nikolaos Pappas (Linköping University, Sweden)	213
	I Know Who You Scanned Last Summer: Mapping the Landscape of Internet-Wide Scanners	
	Julian Mayer (Esslingen University, Germany), Markus Schramm (Esslingen University, Germany), Lukas Bechtel (Esslingen University & Belden, Inc., Germany), Nils Lohmiller (Esslingen University & STAR Engineering, Germany), Sabrina Kaniewski (Esslingen University, Germany), Michael Menth (University of Tuebingen,	222
	Germany), Tobias Heer (Esslingen University, Germany)	222

Data Center Networking

	Opportunistic Packet Forwarding for Proactive Transport in Datacenters	
	Amir Shani (University of Calgary, Canada), Sogand Sadrhaghighi (Huawei Technologies Co., Ltd, Canada), Mahdi Dolati (Institute for Research in Fundamental	
	Sciences (IPM), Iran), Majid Ghaderi (University of Calgary, Canada)	231
	HyperSFC: State-Intensive Service Function Chaining on Hyper-Converged Edge Infrastructure	
	Yan Zou (Beijing University of Posts and Telecommunications, China), Tian Pan (Beijing University of Posts and Telecommunications, China), Lu Lu (China Mahila Becareth Institute China), Van Mu (China Mahila Becareth Institute China Mahila	
	Mobile Research Institute, China), Zhiqiang Li (China Mobile Research Institute, China), Kehan Yao (Chinamobile, China), Yan Mu (China Mobile Communication Co., Ltd., China), Ying Wan (China Mobile (Suzhou) Software Technology, China), Tao Huang (Beijing University of Posts and Telecommunications, China), Yunjie	
	Liu (Beijing University of Posts and Telecommunications, China)	240
	Utility-driven Optimization of TTL Cache Hierarchies under Network Delays	
	Karim S. Elsayed (University of Duisburg-Essen, Germany), Fabien Geyer (Airbus, Germany), Amr Rizk (University of Duisburg-Essen, Germany)	249
	AdaFlow: Efficient In-Network Traffic Classification using Programmable Switches	
	Sankalp Mittal (Indian Institute of Technology, Hyderabad, India), Kotha Harshith (Indian Institute of Technology, Hyderabad, India), M. Anand Krishna (Indian	
	Institute of Technology, Hyderabad, India), Praveen Tammana (IIT Hyderabad, India)	258
	Improving Performance Bounds for Network min-Systems with Link Correlations	
	Jianwei An (University of Victoria, Canada), Kui Wu (University of Victoria, Canada), Cuiying Feng (University of Electronic Science and Technology of China,	267
	China)	267
Dorfor	mance Measurements	
renoi	ilialice ivicasulcilicitis	
	How Mature is 5G Deployment? A Cross-Sectional, Year-Long Study of 5G Uplink Performance	
	Imran Khan (Northeastern University, USA), Moinak Ghoshal (Northeastern University, Boston, MA, USA), Joana Angjo (TU Berlin, Germany), Sigrid Dimce (TU	
	Berlin, Germany), Mushahid Hussain (University of Porto, Portugal), Paniz Parastar (University of Oslo, Norway), Yenchia Yu (Politecnico di Torino, Italy), Claudio	
	Fiandrino (IMDEA Networks Institute, Spain), Charalampos Orfanidis (Technical University of Denmark, Denmark), Shivang Aggarwal (Hewlett Packard Labs, USA), Ana C Aquiar (University of Porto, Instituto de Telecomunicações, Portugal), Ozqu Alay (University of Oslo & Karlstad University, Norway), Carla Fabiana	
	Chiasserini (Politecnico di Torino & CNIT, IEIIT-CNR, Italy), Falko Dressler (TU Berlin, Germany), Y. Charlie Hu (Purdue University, USA), Steven Y. Ko (Simon	
	Fraser University, Canada), Dimitrios Koutsonikolas (Northeastern University, USA), Joerg Widmer (IMDEA Networks Institute, Spain)	276
	Indoor Localization in Current 5G Networks: The Way to Go	
	Antonin Le Floch (IRIT, France), Rahim Kacimi (IRIT - Université de Toulouse, France), Pierre Druart (Alsatis, France), Yoann Lefebvre (Alsatis, France), André-Luc	
	Beylot (University of Toulouse, France)	285
	Experimenting with Ledbat++: Fairness, Flow Scalability and LBE Compliance	
	Ioanna Angeliki Kapetanidou (Democritus University of Thrace & ATHENA Research and Innovation Center, Greece), Vassilis Tsaoussidis (Democritus University	204
	of Thrace, Greece), IOANNIS ZACHARIS (MetenSolution, Greece), Marios Kostopoulos (Greece)	294
	Preprocess your Paths – Speeding up Linear Programming-based Optimization for Segment Routing Traffic Engineering Alexander Brundiers (Osnabrück University, Germany), Timmy Schüller (Deutsche Telekom Technik GmbH & Osnabrück University, Germany), Nils Aschenbruck	
	(Osnabrück University, Germany)	303
	Optimizing Virtual Payment Channel Establishment in the Face of On-Path Adversaries	303
	Lukas Aumayr (TU Wien, Austria), Esra Ceylan (University of Vienna, Austria), Yannik Kopyciok (TU Berlin, Germany), Matteo Maffei (TU Wien, Austria), Pedro	
	Moreno-Sanchez (IMDEA Software Institute, Spain), Iosif Salem (TU Berlin, Germany), Stefan Schmid (TU Berlin, Germany)	313
	I I I I I I I I I I I I I I I I I I I	
Machi	ne Learning and Networking	
	5	
	CARTA: Coordinated Arrangement of Receivers for Target Acquisition	
	Alireza Famili (Virginia Tech, USA), Angelos Stavrou (Virginia Tech & Kryptowire, USA)	323
	xeoverse: A Real-time Simulation Platform for Large LEO Satellite Mega-Constellations	323
	Mohamed M Kassem (University of Surrey, United Kingdom (Great Britain)), Nishanth Sastry (University of Surrey, United Kingdom (Great Britain))	332
	Quantority: Parameter Prioritization for Incremental Updates of Convolutional Neural Networks in Small Satellite Missions	
	Olga Kondrateva (TU Darmstadt, Germany), Stefan Dietzel (Merantix Momentum GmbH, Germany), Björn Scheuermann (TU Darmstadt, Germany)	341
	A Site-Specific LoRaWAN Parameters Selection Approach with Multi-loss Propagation Model	J 14
	Shubham Pandey (IIT (BHU) Varanasi, India), Preti Kumari (IIT (BHU), India), Hari Prabhat Gupta (Indian Institute of Technology (BHU) Varanasi, India), Devashish	
	Rai (IIT BHU Varanasi, India), S. V. Rao (Indian Institute of Technology, Guwahati, India)	350
	Mapping Wireless Networks into Digital Reality through Joint Vertical and Horizontal Learning	
	Zifan Zhang (North Carolina State University, USA), Mingzhe Chen (University of Miami, USA), Zhaohui Yang (Zhejiang University, China), Yuchen Liu (North	
	Carolina State University, USA)	359

Resilient Networks

	oFIQUIC: Leveraging QUIC in OSPF for seamless network topology changes	
	Nicolas Rybowski (UCLouvain, Belgium), Cristel Pelsser (UCLouvain, Belgium), Olivier Bonaventure (Université catholique de Louvain, Belgium)	368
	Practical Heavy-Hitter Detection Algorithms for Programmable Switches	
	Rani Abboud (Technion, Israel), Roy Friedman (Technion, Israel)	377
	Dynamic, Reconfigurable and Green Network Slice Admission Control and Resource Allocation in the O-RAN Using Model Predictive Control	
	Nikolaos Fryganiotis (National Technical University of Athens, Greece), Eleni G Stai (NTUA, Greece), Ioannis Dimolitsas (National Technical University of Athens, Greece), Aparticipal Visionis and Company of Co	
	Greece), Anastasios Zafeiropoulos (Institute of Communication and Computer Systems/National Technical University of Athens, Greece), Symeon Papavassiliou (National Technical University of Athens, Greece)	386
	Enabling User Intent-based Network Path Adaptation for Live Volumetric streaming	300
	Peng Qian (University of Surrey, United Kingdom (Great Britain)), Ning Wang (University of Surrey, United Kingdom (Great Britain)), Chuan Foh (University of	
	Surrey, United Kingdom (Great Britain)), Carl Udora (University of Surrey, United Kingdom (Great Britain)), Rahim Tafazolli (University of Surrey, United Kingdom	
	(Great Britain))	395
Netwo	rk Attack Detection and Mitigation	
140000	ik / tetack Detection and winigation	
	SSCL-IDS: Enhancing Generalization of Intrusion Detection with Self-Supervised Contrastive Learning	
	Pegah Golchin (Technische Universität Darmstadt, Germany), Nima Rafiee (Zalando, Germany), Mehrdad Hajizadeh (Technical University of Chemnitz,	
	Germany), Ahmad Khalil (Technical University of Darmstadt, Germany), Ralf Kundel (Technical University of Darmstadt, Germany), Ralf Steinmetz (Technische	
	Universität Darmstadt, Germany)	404
	Supervising Smart Home Device Interactions: A Profile-Based Firewall Approach	
	François De Keersmaeker (UCLouvain, Belgium), Ramin Sadre (Université Catholique de Louvain, Belgium), Cristel Pelsser (UCLouvain, Belgium)	413
	Poisoning Attacks on Federated Learning-based Wireless Traffic Prediction	
	Zifan Zhang (North Carolina State University, USA), Minghong Fang (Duke University, USA), Jiayuan Huang (North Carolina State University, USA), Yuchen Liu	
	(North Carolina State University, USA)	423
	Inter-slice Defender: An Anomaly Detection Solution for Distributed Slice Mobility Attacks Ricardo Misael Ayala Molina (Concordia University, Canada), Nathalie Wehbe (Concordia University, Canada), Hyame Alameddine (Ericsson Research, Canada),	
	Makan Pourzandi (Ericsson, Canada), Chadi Assi (Concordia University, Canada)	432
Resent	Research Results	
	Cost-Aware Digital Twin Migration in Mobile Edge Computing via Deep Reinforcement Learning	
	Yuncan Zhang (City University of Hong Kong, China), Weifa Liang (City University of Hong Kong, Hong Kong)	441
	Deduplicator: When Computation Reuse Meets Load Balancing at the Network Edge	440
	Md Washik Al Azad (University of Notre Dame, USA), Spyridon Mastorakis (University of Notre Dame, USA)	448
	Pub/Sub meets MLS: End-to-End Encrypted Group Data Sharing over Publish-Subscribe Kazuaki Ueda (KDDI Research, Japan), Chikara Sasaki (KDDI Research, Inc., Japan), Atsushi Tagami (KDDI Research, Inc., Japan)	155
	Workload Prediction for Efficient Node Management in Mobile Edge Computing	433
	Efthymios Oikonomou (University of Piraeus, Greece), Stefanos Plastras (University of the Aegean & Cloud Signals, Greece), Dimitrios Tsoumatidis (University of	
	the Aegean, Greece), Dimitrios N Skoutas (University of the Aegean, Greece), Angelos Rouskas (University of Piraeus, Greece)	461
	CoDel-ACT: Realizing CoDel AQM for Programmable Switch ASIC	
	Vedant Bothra (Indraprastha Institute of Information Technology Delhi, India), Aditya Peer (Indraprastha Institute of Information Technology Delhi, India), Vijay	
	Kumar Singh (IIIT Delhi, India), Mukulika Maity (IIIT Delhi, India), Rinku Shah (Indraprastha Institute of Information Technology Delhi, India)	468
	Feasibility of Application Layer Header Parsing in eBPF and P4	
	Ashwin Kumar (Indian Institute of Technology, Bombay, India), Abhik Bose (Indian Institute of Technology Bombay, India), Khushboo Tiwari (Indian Institute of Technology Bombay, India), Abuniain Kindian Institute of Technology, Bombay, India), Abuniain Khan (Indian Institute of Technology, Bombay, India), Khushboo Tiwari (Indian Institute of Technology, Bombay, Indian Institute of Technology, Bombay, Indi	
	Institute of Technology, Bombay, India), Mythili Vutukuru (Indian Institute of Technology, Bombay, India)	475
	Do Cloud Games Adapt to Client Settings and Network Conditions?	
	Minzhao Lyu (University of New South Wales, Australia), Yifan Wang (University of New South Wales, Australia), Vijay Sivaraman (University of New South	
	Wales, Australia)	482
	A First Look at 160 MHz WiFi 6/6E in Action: Performance and Interference Characterization	
	Moinak Ghoshal (Northeastern University, Boston, MA, USA), Shravan Bhoopasamudram Krishna (Northeastern University, USA), Francesco Gringoli (CNIT/	400
	University of Brescia, Italy), Joerg Widmer (IMDEA Networks Institute, Spain), Dimitrios Koutsonikolas (Northeastern University, USA) Online Learning of Weakly Counted MDR Policies for Load Relapcing and Auto Scaling	489
	Online Learning of Weakly Coupled MDP Policies for Load Balancing and Auto Scaling Eshwar S R (IISC, India), Lucas Lopes Felipe (Federal University of Rio de Janeiro, Brazil), Alexandre Reiffers-Masson (IMT Atlantique, France), Daniel Menasché	
	(Federal University of Rio de Janeiro, Brazil), Gugan Thoppe (IISC, India)	496
	Optimal Control for Distributed Wireless SDN	
	Quang M Nguyen (Massachusetts Institute of Technology, USA), Eytan Modiano (MIT, USA)	502

(Technical University of Munich, Germany), Vaibhav Bajpai (Hasso Plattner Institute & University of Potsdam, Germany)	509
A Generic Blue Agent Training Framework for Autonomous Cyber Operations	
Muhammad Omer Farooq (Carleton University, Canada), Thomas Kunz (Carleton University, Canada) Secrets are forever: Characterizing sensitive file leaks on IPFS The sensitive (Characterizing Sensitive File Leaks on IPFS)	515
Zhengyu Wu (Stony Brook University, USA), Brian Kondracki (Stony Brook University, USA), Nick Nikiforakis (Stony Brook University, USA), Aruna Balasubramanian (Stony Brook University, USA)	522
Charting Censorship Resilience and Global Internet Reachability: A Quantitative Approach Marina Ivanović (ETH Zurich, Switzerland), François Wirz (ETH Zurich, Switzerland), Jordi Subirà Nieto (ETH Zürich, Switzerland), Adrian Perrig (ETH Zurich, Switzerland)	529
Toward Global Latency Transparency Cyrill Krähenbühl (ETH Zürich, Switzerland), Seyedali Tabaeiaghdaei (ETH Zurich, Switzerland), Simon Scherrer (ETH Zurich, Switzerland), Matthias Frei (SCION)	
Association, Switzerland), Adrian Perrig (ETH Zurich Switzerland & Carnegie Mellon University, USA) RM-Gen: Conditional Diffusion Model-Based Radio Map Generation for Wireless Networks	536
Xuanhao Luo (North Carolina State University, USA), Zhizhen Li (North Carolina State University, USA), Zhiyuan Peng (North Carolina State University, USA),	
Dongkuan Xu (North Carolina State University, USA), Yuchen Liu (North Carolina State University, USA)	543
Distributed Predictive QoS in Automotive Environments under Concept Drift Consider Predictive And Construction and Construct	
Georgios Drainakis (Institute of Communication and Computer Systems, Greece), Panagiotis Pantazopoulos (Institute of Communication and Computer Systems (ICCS), Greece), Konstantinos V. Katsaros (Institute of Communication and Computer Systems (ICCS), Greece), Vasilis Sourlas (ICCS-NTUA, Greece),	
Angelos Amditis (Institute of Communication and Computer Systems, Greece), Dimitra I Kaklamani (National Technical University of Athens, Greece)	549
Collaborative Optimization of the Age of Information under Partial Observability	
Anam Tahir (University of Duisburg-Essen, Germany), Kai Cui (Technische Universität Darmstadt, Germany), Bastian Alt (Germany), Amr Rizk (University of Duisburg-Essen, Germany), Heinz Koeppl (Technische Universität Darmstadt, Germany)	555
Programmable Real-time Scheduling of Disaggregated Network Functions)))
Tamás Lévai (Budapest University of Technology and Economics, Hungary), Balázs Vass (Budapest University of Technology and Economics, Hungary), Gábor Rétvári (Budapest University of Technology and Economics, Hungary)	562
Exploring The Benefits of In-Band Service Routing Emilia Weyulu (Huawei Technologies Düsseldorf GmbH & Max Planck Institute for Informatics, Germany), Dirk Trossen (Huawei Technologies Düsseldorf GmbH, Germany)	560
Tutorials From Information Freshness to Semantics of Information and Goal-oriented Communications Nikolaos Pappas (Linköping University, Sweden)	
Enabling Online Reinforcement Learning Training for Open RAN	576
	576
Andrea Lacava (Northeastern University, unknown & Sapienza University of Rome, Italy), Tommaso Pietrosanti (Sapienza University of Rome, Italy), Michele Polese (Northeastern University, USA), Francesca Cuomo (University of Rome Sapienza, Italy), Tommaso Melodia (Northeastern University, USA)	
Polese (Northeastern University, USA), Francesca Cuomo (University of Rome Sapienza, Italy), Tommaso Melodia (Northeastern University, USA) **Demos & Posters** **SWI-FEED: Smart Water IoT Framework for Evaluation of Energy and Data in Massive Scenarios** Antonino Pagano (University of Palermo, Italy), Domenico Garlisi (University of Palermo & CNIT Italian National Consortium for Telecommunications, Italy), Fabrizio Giuliano (University of Palermo, Italy), Tiziana Cattai (Sapienza University of Rome, Italy), Francesca Cuomo (University of Rome Sapienza, Italy) **Weather-Based Link Prediction for LEO-Satellite Networks using the WetLinks Dataset** Eric Lanfer (Osnabrück University, Germany), Dominic Laniewski (Osnabrück University, Germany), Daniel Otten (Osnabrück University, Germany), Nils Aschenbruck (Osnabrück University, Germany)	577 583
Polese (Northeastern University, USA), Francesca Cuomo (University of Rome Sapienza, Italy), Tommaso Melodia (Northeastern University, USA) **Demos & Posters** **SWI-FEED: Smart Water IoT Framework for Evaluation of Energy and Data in Massive Scenarios** Antonino Pagano (University of Palermo, Italy), Domenico Garlisi (University of Palermo & CNIT Italian National Consortium for Telecommunications, Italy), Fabrizio Giuliano (University of Palermo, Italy), Tiziana Cattai (Sapienza University of Rome, Italy), Francesca Cuomo (University of Rome Sapienza, Italy) **Weather-Based Link Prediction for LEO-Satellite Networks using the WetLinks Dataset** Eric Lanfer (Osnabrück University, Germany), Dominic Laniewski (Osnabrück University, Germany), Daniel Otten (Osnabrück University, Germany), Nils	577 583
Demos & Posters SWI-FEED: Smart Water IoT Framework for Evaluation of Energy and Data in Massive Scenarios Antonino Pagano (University of Palermo, Italy), Tiziana Cattai (Sapienza University of Rome, Italy), Francesca Cuomo (University of Rome, Italy), Francesca Cuomo (University of Rome, Italy), Tiziana Cattai (Sapienza University of Rome, Italy), Francesca Cuomo (University of Rome Sapienza, Italy) Weather-Based Link Prediction for LEO-Satellite Networks using the WetLinks Dataset Eric Lanfer (Osnabrück University, Germany), Dominic Laniewski (Osnabrück University, Germany), Daniel Otten (Osnabrück University, Germany), Nils Aschenbruck (Osnabrück University, Germany) Dynamic Connectivity Solutions: UAV Integration with 5G Networks Jesús Pérez (University of Cantabria, Spain), Luis Diez (University of Cantabria, Spain), Johnny Choque (University of Cantabria, Spain), Luis Muñoz (University of	577 583
Demos & Posters SWI-FEED: Smart Water IoT Framework for Evaluation of Energy and Data in Massive Scenarios Antonino Pagano (University of Palermo, Italy), Domenico Garlisi (University of Palermo & CNIT Italian National Consortium for Telecommunications, Italy), Fabrizio Giuliano (University of Palermo, Italy), Tiziana Cattai (Sapienza University of Rome, Italy), Francesca Cuomo (University of Rome Sapienza, Italy) Weather-Based Link Prediction for LEO-Satellite Networks using the WetLinks Dataset Eric Lanfer (Osnabrück University, Germany), Dominic Laniewski (Osnabrück University, Germany), Daniel Otten (Osnabrück University, Germany) Dynamic Connectivity Solutions: UAV Integration with 5G Networks Jesús Pèrez (University of Cantabria, Spain), Luis Diez (University of Cantabria, Spain), Johnny Choque (University of Cantabria, Spain), Luis Muñoz (University of Cantabria, Spain), Pedro Velasco (Grupo Amper, Spain)	583 586
Polese (Northeastern University, USA), Francesca Cuomo (University of Rome Sapienza, Italy), Tommaso Melodia (Northeastern University, USA) SWI-FEED: Smart Water IoT Framework for Evaluation of Energy and Data in Massive Scenarios Antonino Pagano (University of Palermo, Italy), Domenico Garlisi (University of Palermo & CNIT Italian National Consortium for Telecommunications, Italy), Fabrizio Giuliano (University of Palermo, Italy), Tiziana Cattai (Sapienza University of Rome, Italy), Francesca Cuomo (University of Rome Sapienza, Italy) Weather-Based Link Prediction for LEO-Satellite Networks using the WetLinks Dataset Eric Lanfer (Osnabrück University, Germany), Dominic Laniewski (Osnabrück University, Germany), Daniel Otten (Osnabrück University, Germany), Nils Aschenbruck (Osnabrück University, Germany) Dynamic Connectivity Solutions: UAV Integration with 5G Networks Jesús Pérez (University of Cantabria, Spain), Luis Diez (University of Cantabria, Spain), Johnny Choque (University of Cantabria, Spain), Luis Muñoz (University of Cantabria, Spain), Pedro Velasco (Grupo Amper, Spain), José R Soldado (Grupo Amper, Spain) A Data-Driven Solution for Improving Transferability of Traffic Flow Feature Selection Pegah Golchin (Technische Universität Darmstadt, Germany), Nima Rafiee (Zalando, Germany), Ralf Kundel (Technical University of Darmstadt, Germany)	583 586 589

2nd International Workshop on Impact of IT/OT Convergence on the Resilience of Critical Infrastructures (IOCRCI) 2024

Private Edge Computing Resource Allocation and Communication Optimization Based on Federated Learning	
Ke Xiao (North China University of Technology, China), Jiaxin Wang (North China University of Technology, China), Zhenwei Yu (North China University of	
Technology, China), Chaofei Li (University of Chinese Academy of Sciences, China), Feifei Gao (Tsinghua University, China)	601
Hierarchical Deep Reinforcement Learning-based Load Balancing Algorithm for Multi-domain Software-Defined Networks	
Robert Kołakowski (Warsaw University of Technology & Orange Polska, Poland), Slawomir Kuklinski (Warsaw University of Technology, Poland), Lechosław	
Tomaszewski (Orange Polska, Poland)	607
Studying Slot Assignment for Multi-Gateway Time Scheduled Channel Access in LoRaWAN	
Noah Mehling (University of Würzburg, Germany), Frank Loh (University of Wuerzburg, Germany), Simon Raffeck (University of Wuerzburg, Germany), Tobias	
Hoßfeld (University of Würzburg, Germany)	613
Distributed Consensus through Network Support	
David Guzman (Technical University of Munich, Germany), Dirk Trossen (Huawei Technologies Düsseldorf GmbH, Germany), Jörg Ott (Technische Universität	
München, Germany)	620
Evaluating Localization Algorithms in IoT Networks Under Jamming Attacks	
Michael Savva (University of Cyprus, Cyprus), Iacovos Ioannou (University of Cyprus, Cyprus), Vasos Vassiliou (University of Cyprus & CYENS Center of	
Excellence, Cyprus)	627
Resilience Assessment of Multi-Layered Cyber-Physical Systems	
Romain Dagnas (IRT SystemX, France), Michel Barbeau (Carleton University, Canada), Joaquin Garcia-Alfaro (Institut Mines-Telecom, France), Reda Yaich (IRT-	
SYstemX, French Polynesia)	634

Thought experiments, data and reproducibility for networking and FutureG research (SLICES) 2024

Core QUIC: Enabling Dynamic, Implementation-Agnostic Protocol Extensions	
Quentin De Coninck (University of Mons, Belgium)	640
An optimized Handover management scheme tailored for Heavy Hitters in a disaggregated 5G O-RAN architecture	
Franci Gjeçi (Politecnico di Milano, Italy), Ilario Filippini (Politecnico di Milano, Italy), Antonio Capone (Politecnico di Milano, Italy)	647
RO-Crate for Testbeds: Automated Packaging of Experimental Results	
Eric Hauser (Technical University of Munich, Germany), Sebastian Gallenmüller (Technical University of Munich, Germany), Georg Carle (Technical University of Munich, Germany)	654
slAIces: an LLM Chatbot for Simplifying Experiments with the SLICES-RI	
Dimitris Kefalas (Sorbonne University & University of Thessaly, Greece), Sokratis Christakis (University of Thessaly, Greece), Serge Fdida (Sorbonne University, France), Nikos Makris (University of Thessaly & CERTH, Greece), Ilias Syrigos (University of Thessaly, Greece), Virgilios Passas (University of Thessaly & CERTH, Greece), Thessaly & CE	660
Greece), Thanasis Korakis (University of Thessaly, Greece)	660
Wireless Signal Source Localization by Unmanned Aerial Vehicle using AERPAW Digital Twin and Testbed	
Baisakhi Chatterjee (North Carolina State University, USA), Sonali Chaudhari (North Carolina State University, USA), Zhizhen Li (North Carolina State University, USA), Yuchen Liu (North Carolina State University, USA), Rudra Dutta (North Carolina State University, USA)	666
Towards Trustworthy Experimental Replication in SLICES-RI	000
Panayiotis Andreou (University of Central Lancashire, Cyprus), Artem Osmolovskiy (University of Central Lancashire Cyprus), Panayiotis Hadjidemetriou (University of Central Lancashire Cyprus, Cyprus), Serge Fdida (Sorbonne University, France)	672
OpenAirLink: Reproducible Wireless Channel Emulation using Software Defined Radios	
Yash Deshpande (Technical University of Munich, Germany), Wolfgang Kellerer (Technische Universität München, Germany), Xianglong Wang (Technical University of Munich, Germany)	678
Design and Development of an IoT Smart Home and Smart Grid Testbed in a Residential Living Lab	
Donatos Stavropoulos (University of Thessaly, Greece), Panagiotis Tzimotoudis (University of Thessaly, Greece), Thanasis Korakis (University of Thessaly,	
Greece)	684

1st International Workshop on Smart Water Management (SmartWater) 2024

Water Leak Detection and Classification using Multiple Sensors

Comparative Analysis of Energy Consumption in Simulated LoRa Water Meter Reconfiguration vs. Real-world Readings	
Michal Gorawski (Institute of Theoretical and Applied Informatics of PAS, Baltycka 5, Gliwice, Poland), Rafał Marjasz (PAS, Poland), Krzysztof Grochla (Institute	
of Theoretical and Applied Informatics of PAS, Poland), Artur Frankiewicz (AlUT Sp. z O. O., Poland) UNet-WD: Deep Learning for Multi-Appliance Water Disaggregation	696
Redemptor Laceda Taloma, Jr. (Sapienza University of Rome, Italy), Danilo Comminiello (Sapienza University of Rome, Italy), Patrizio Pisani (Unidata SpA, Italy),	
Francesca Cuomo (University of Rome Sapienza, Italy)	702
A Tool to Facilitate the Design of Smart Contracts in Smart Water Distribution Networks	
Dimitrios Amaxilatis (Spark Works Ltd., Ireland), Tiziana Cattai (Sapienza University of Rome, Italy), Domenico Garlisi (University of Palermo & CNIT Italian	
National Consortium for Telecommunications, Italy), Antonino Pagano (University of Palermo, Italy), Themistoklis Sarantakos (Spark Works Ltd., Ireland), Redemptor Laceda Taloma, Jr. (Sapienza University of Rome, Italy), Varvara Vythoulka (University of Patras, Greece), Ioannis Chatzigiannakis (Sapienza	
University of Rome, Italy), Christos Zaroliagis (University of Patras, Greece)	708
ernational Workshop on Time-Sensitive and Determinirking (TENSOR) 2024 Al-based Dynamic Schedule Calculation in Time Sensitive Networks using GCN-TD3	stic
Syed Tasnimul Islam (Chemnitz University of Technology, Germany), Anas Bin Muslim (University of Applied Sciences Osnabrück, Germany)	714
Towards Domain-Specific Time-Sensitive Information-Centric Networking Architecture	
Marcin Bosk (Technical University of Munich, Germany), Jörg Ott (Technische Universität München, Germany)	720
Provisioning of Time-Sensitive and non-Time-Sensitive Flows: from Control to Data Plane	
Luis Velasco (Universitat Politècnica de Catalunya (UPC), Spain), Gianluca Graziadei (Universitat Politècnica de Catalunya, Spain), Youssef El Kaisi Rahmoun	
(Universitat Politecnica de Catalunya, Spain), Javier Villares (Universitat Politècnica de Catalunya, Spain), Olga Muñoz-Medina (Technical University of Catalonia, Spain), Josep Vidal (Universitat Politècnica de Catalunya, Spain), Marc Ruiz (Universitat Politècnica de Catalunya, Spain)	726
An east-westbound control architecture for multi-segment deterministic networking	720
Jakob Miserez (Ghent University, Belgium), Didier Colle (IMEC - Ghent University, Belgium), Mario Pickavet (Ghent University - imec, Belgium), Wouter Tavernier	
(Ghent University - imec, Belgium)	732
Architecture and Methodology for Green MEC Services Using Programmable Data Planes in 5G and Beyond Networks	
Jorge A Brito (Universidad Politecnica de Madrid, Spain), Jose Ignacio Moreno (Universidad Politécnica de Madrid, Spain), Luis M. Contreras (Telefonica, Spain),	
Marta Blanco Caamaño (Telefónica Innovación Digital, Spain)	738
Determinism in Industrial Converged Networks: Evaluating Approaches to Jitter Mitigation in 5G and TSN Integration	
José E Fontalvo-Hernández (Siemens AG & Chemnitz University of Technology, Germany), Andreas Zirkler (Siemens AG, Germany), Thomas Bauschert (Chemnitz University of Technology, Germany)	7//
ernational Workshop on Trustworthy and Explainable al Intelligence for Networks (TX4Nets) 2024 Traffic Prediction- and Explainable Artificial Intelligence-based Dynamic Routing in Software-Defined Elastic Optical Networks	
Róża Goścień (Wrocław University of Science and Technology, Poland)	750
XAI for Interpretable Multimodal Architectures with Contextual Input in Mobile Network Traffic Classification	
Francesco Cerasuolo (University of Napoli Federico II, Italy), Idio Guarino (University of Verona, Italy), Vincenzo Spadari (University of Napoli Federico II, Italy),	
Giuseppe Aceto (University of Napoli Federico II, Italy), Antonio Pescapé (University of Napoli Federico II, Italy)	757
Navigating Explainable Privacy in Federated Learning	
Chamara Sandeepa (University College Dublin, Ireland), Thulitha Senevirathna (University College Dublin, Ireland), Bartlomiej Siniarski (University College Dublin, Ireland), Shen Wang (University College Dublin, Ireland), Madhusanka Liyanage (University College Dublin, Ireland)	763
XAI-Guided Optimization of a Multilayer Network Regression Model	703
Katarzyna Duszyńska (Wrocław University of Science and Technology, Poland), Paweł Polski (Wrocław University of Science and Technology, Poland), Michał	
Włosek (Wroclaw University of Science and Technology, Poland), Aleksandra Knapińska (Wroclaw University of Science and Technology, Poland), Piotr	
Lechowicz (Chalmers University of Technology, Sweden), Krzysztof Walkowiak (Wrocław University of Science and Technology, Poland)	769
Reputation-based Trustworthiness Degree in Interference-variable Vehicular Networks	
Claudia Leoni (Roma Tre University, Italy), Anna Maria Vegni (Roma TRE University, Italy), Valeria Loscrí (Inria Lille-Nord Europe, France), Abderrahim	775
Benslimane (University of Avignon & LIA/CERI, France) Federated Learning for Network Traffic Prediction	//3
Sadananda Behera (National Institute of Technology Rourkela, India), Saroj Kumar Panda (LTIMindtree, India), Tania Panayiotou (University of Cyprus & KIOS	
Research Center, Cyprus), Georgios Ellinas (University of Cyprus & KIOS Research and Innovation Center of Excellence, Cyprus)	781

Extended Reality (XR) and 6G Networks are Coming Closer: From Technical and Societal Challenges to Novel Solutions and Applications (XR&6GNet)

Quality of Service-Driven Overlapping Cooperative NOMA Scheme	
Asmaa Amer (Université Paris-Saclay & CentraleSupélec, L2S, France), Sahar Hoteit (University Paris-SACLAY & CentraleSupélec, France), Jalel Ben Othman (CentraleSupélec & University of Sorbonne Paris Nord & Université Sorbonne Paris Nord, France)	786
Edge Service Caching with Delayed Hits and Request Forwarding to Reduce Latency	
Sikha Deka (Indian Institute of Information Technology Guwahati, India), Radhika Sukapuram (Indian Institute of Information Technology Guwahati, India)	792
sochrons in Photonic Oscillators: A Paradigm Shift in Positioning	
Alireza Famili (Virginia Tech, USA), Georgia Himona (National Technical University of Athens, Greece), Yannis Kominis (National Technical University of Athens,	
Greece), Angelos Stavrou (Virginia Tech & Kryptowire, USA), Vassilios Kovanis (Virginia Tech, USA)	798