

Sm@rtNets 2026



Conference Program

SmartNets 2026 | July 7 – 9, 2026, Rome – Italy

IEEE Catalog Number: CFP26P14-ART
ISBN: 979-8-3315-6420-9

Date	Time	Event	
Day 1 – Tuesday, July 07, 2026	8:00 – 9:00	Registration	
	9:00 – 9:30	Welcome & Opening Ceremony (Aula Magna) Prof. Roberto Russo, General Director of Link Campus University Prof. Michele Luglio & Prof. Francesco Zampognaro, General Chairs Prof. Tarek Bejaoui, Program Chair	
	9:30 – 10:30	Keynote Speaker 1: Prof. Osama W. Ata (Palestine Polytechnic University – Palestine)	
	10:30 – 11:00	Coffee Break	
	11:00 – 12:30 (On-site/Virtual)	A1- Advanced Networks and Communications I	
		A2- Smart Health & Accessibility	
		A3v- Intelligent Systems for Infrastructure Monitoring	
		A4v- Emerging Threats and AI-Driven Defenses	
	12:30 -14:00	A5v- AI for Secure and Intelligent Perception	
		Lunch	
		Keynote Speaker 2: Dr. Giancarlo Varacalli (Italian Space Agency (ASI), Italy)	
	14:00 – 15:00	Coffee Break	
	15:30 – 17:00 (On-site/Virtual)	A6- Next-Gen Smart Infrastructure	
A7- AI-Powered Cybersecurity			
A8v- Next-Gen Wireless Systems I			
A9v- AI-Driven Healthcare			
A10v- AI-Driven Solutions for Smart Living			
Day 2 – Wednesday, July 08, 2026	8:00 – 9:00	Registration	
	9:00 – 10:00	Keynote Speaker 3: Prof.Stefano Secci (CNAM Paris, France)	V2X/NTN Workshop
	10:00 – 10:30	Coffee Break	
	10:30 – 12:00 (On-site/Virtual)	B1- Advanced Networks and Comm. II	Chair Prof. Francesco Zampognaro
		B2- AI and Data-Driven Innovations	
		B3v- Trust, Security and Privacy	
		B4v- Next-Gen Wireless Systems II	
	12:00 -13:30	Lunch	
	13:30 --14:00	Awards Ceremony	
	14:00 – 15:00	Keynote Speaker 4: Prof. Antonios Atlasis (European Space Research and Technology Centre (ESTEC) – The Netherlands)	
	15:00 – 15:15	Coffee Break	
	15:15 – 16:30 (On-site/Virtual)	B5- Advancing Network Intelligence	6 th PNDC Workshop on Communications and Cybersecurity for Critical Infrastructures (Online from Glasgow – UK) Chair: Dr. Kinan Ghanem
		B6v- AI for Human-Centric Systems	
		B7v- AI, IoT & Smart Apps	
B8v- Cryptography & Data Privacy			
B9v- Advances in Autonomous Systems			
17:45	Social event		
From 20:00	Banquet		
Day 3	Free Day in Rome		

Full SmartNets 2026 Conference Program

The live sessions of the conference will be held at Link University - Rome, Italy - Time Zone (GMT +2 / UTC + 2)

Day 1 – Tuesday, July 07, 2026

09:00 – 09:30

Welcome & Opening Ceremony

Room: "Aula magna"

Prof. Roberto Russo, General Director of Link Campus University

Prof. Michele Luglio & Prof. Francesco Zampognaro (General Chairs)

Prof. Tarek Bejaoui (Technical Program Chair)

09:30 - 10:30

Keynote Speaker 1: Prof. Osama W. Ata (Palestine Polytechnic University – Palestine)

Title: *Artificial Intelligence (AI) in Electromagnetics and Antenna Design: From Simulation to Real-World Deployment*

Session Chair: Prof. Hamid Mcheick (University of Quebec at Chicoutimi, Canada)

11:00 - 12:30

Session A1: Advanced Networks and Communications I

Session Chair: **Dr. Mattia Quadrini** (RomARS, Italy)

Room: Aula 16

1571239101 AI-Driven Multi-Hop Relay Selection for Smart Urban NR-V2X Networks via Learning-to-Optimize Graph Neural Networks

Giambattista Amati, Federica Mangiatordi, Emiliano Pallotti, Simone Angelini and Pierpaolo Salvo (Fondazione Ugo Bordon, Italy)

1571245490 Analysis and Development of Inter-Segment Handover Mechanisms for 5G Private Networks

Mattia Quadrini (RomARS, Italy); Ahmet Faruk Baldiz (Romars, Italy)

1571263376 Enabling Multicast Services in Distributed 5G Networks

Domenico Verde (RomARS, Italy); Cesare Roseti (University of Rome Tor Vergata, Italy); Francesco Zampognaro (University of Rome "Link Campus", Italy); Michele Luglio (University of Rome Tor Vergata, Italy)

1571272171 Link-Adaptive Semi-Persistent Scheduling for PDV-Reduced TSN Uplink over 5G NR

Syed Tasnimul Islam (Chemnitz University of Technology, Germany); José E Fontalvo-Hernández (Siemens AG, USA)

1571278623 A SHAP-Based Explainable Machine Learning Framework for Uplink Energy Sustainability in Mobile Wireless Networks

Diogo Pereira (Instituto Superior Técnico, Lisbon, Portugal); Luís Miguel Mata (Instituto Superior Técnico & Instituto Superior de Engenharia de Lisboa, Portugal); Marco Sousa (Celfinet and Instituto Superior de Engenharia de Lisboa (ISEL), Portugal & Instituto de Telecomunicações, Portugal); Pedro Vieira (Instituto de Telecomunicações / ISEL, Portugal); Maria Paula Queluz (Instituto Superior Técnico, Portugal); António J. Rodrigues (IT / Instituto Superior Técnico, Portugal)

1571284736 RoutePPO: eBPF-Based Proximal Policy Optimization for Adaptive Routing in UAV Swarm Networks

Nazım Cürmen (Hacettepe University, Turkey); Feyza Yildirim Okay (Gazi University, Turkey); Suat Ozdemir (Hacettepe University, Turkey)

Session A2: Smart Health & Accessibility

Session Chair: **Prof. Hamid Mcheick** (*University of Quebec at Chicoutimi, Canada*)

Room: Aula 17

1571246389 Size-Aware Learning and Contrast Enhancement for Multiple Sclerosis Lesion Segmentation in Brain MRI

Yazan Aref, Omar Awadallah, Nadine Charaf and Fadi AlMahamid (University of Western Ontario, Canada); Ayan Sadhu (Western University, Canada); Katarina Grolinger (The University of Western Ontario, Canada)

1571255315 A Low-Frequency, Autoresonant Wireless Power Transfer Link for Bidirectional Bionic Interfaces

Giulio M Bianco, Alberto Dellacasa Bellingegni and Federico Mereu (INAIL, Italy); Daniel Gelmini, Michele Canepa and Matteo Laffranchi (Istituto Italiano di Tecnologia, Italy); Emanuele Gruppioni (INAIL Centro Protesi, Italy)

1571244596 Hybrid Interpretability and Performance Healthcare Model

Hamid Mcheick and Mouhamadou Faye (University of Quebec at Chicoutimi, Canada); Batoul Msheik (Artificiel Intelligence, Canada)

1571205921 Wi-Fi-Enabled CSI Sensing for Fine-Grained Filipino Sign Language Recognitio

Zein Ady Kristianna P Advincula, Zsean Yeshua G Camba, Kennethyn Cuello, Reiner Victor B Mamawag, Arianne Dhainielle M Silva and Josyl Mariela R Reyes (University of Santo Tomas, Philippines)

1571256963 A Neuro-Evolutionary Approach for Emotion Recognition in Textual Data

May Itani and Layal I. Abu Daher (Beirut Arab University, Lebanon)

Session A3v: Intelligent Systems for Infrastructure Monitoring

Session Chair: **Prof. Rui Silva Moreira** (Univ. Fernando Pessoa (UFP) & LIACC & INESC TEC, Portugal)

Room: Aula 18

1571311902 Robust Multi-Sensor Fusion Architecture Tested on CARLA Sim

Rihem Sebai (University of Carthage, Tunisia); Abdelaziz Sahbani (University of Tunis El Manar, Tunisia & University of Carthage, Tunisia); Tarek Bejaoui (University of Carthage, Tunisia)

1571257465 Smart Adaptive RISC-V-Based Multi-Core Architecture: Dynamic Opcode-Guided Core Selection for Energy-Efficient Embedded Systems

Mohamed A. Elshiemy (Nile University, Egypt & Nanoelectronics Integrated Systems (NISC) Center, Egypt); Ahmed Soltan (Nile University, Egypt)

1571269426 Offline Multimodal Learning Systems for Inclusive Child-Computer Interaction: Design and Expert-Based Evaluation in Primary Education

Kingsley Amponsah (Kennesaw State University, USA); Kingsley Adjei (Union Commonwealth University, USA); Emmanuel Effah (University of Mines and Technology, Ghana)

1571270097 A Multi-Agent Learning Platform with Configurable Pedagogy, Automated Assessment, Dual-Modality Programming, and Multimodal Emotion-Aware Tutoring

Asiri Jayawardena, Kavithanjali Balakrishnan, Savindu Shehan and Imethma Kariyawasam (Sri Lanka Institute of Information Technology (SLIT), Sri Lanka); Kalpani Manathunga and Jeewaka Perera (Sri Lanka Institute of Information Technology, Sri Lanka)

1571246721 SAFENET: Image-Based Infrastructure Classification of Bridges and Viaducts for Seismic Risk Assessment

Rui Silva Moreira (University Fernando Pessoa (UFP), Portugal & LIACC & INESC TEC, Portugal); Feliz Gouveia (University Fernando Pessoa, Portugal); Catarina Costa (Universidade Porto, Portugal); Vitor Silva (University Aveiro, Portugal); Tomás Lopes Oliveira (University Fernando Pessoa, Portugal)

1571257036 State of the Art of the Implementation of Artificial Intelligence in Manufacturing Sector

Ndala Mulongo (University of Johannesburg, South Africa)

Session A4v: Emerging Threats and AI-Driven Defenses

Session Chair: **Prof. Rim Moussa** (University of Carthage, Tunisia)

Room: Aula L

1571257280 ShadowTrace: Inferring Device Actions and User Behaviors from Encrypted IoT Traffic

Thilina Deshan Dissanayake (University of Ruhuna, Sri Lanka); Harsha S Gardiyawasam Pussewalage (University of Agder, Norway); Dinithi Sachinthana Fernando, Duwarahavidyan Jeganathan and Tharuka Harshajith Bandara (University of Ruhuna, Sri Lanka); Kushan Sudheera Kalupahana Liyanage (University of Ruhuna & Nanyang Technological University, Singapore)

1571252689 LLM-Based Log Processing to Reduce Alert Fatigue in Security Operation Center: A Proposed Approach

Mohamed Kamel Nouh (Italy); Giovanni Battista Gaggero (Università Degli Studi di Genova, Italy); Fabio Patrone and Mario Marchese (University of Genoa, Italy)

1571247997 Entropy-Guided Lottery Sparse Attention for SYN Flood Attack Detection in Smart Networks

Akshat Gaurav (Asia University, Taiwan); Varsha Arya (Hong Kong Metropolitan University (HKMU), Hong Kong); Valerie Tang (Hang Seng University of Hong Kong, Hong Kong); Shavi Bansal (Insights2Techinfo, India); Kwok Tai Chui (Hong Kong Metropolitan University, Hong Kong); Brij B. Gupta (Asia University, Taiwan)

1571260900 Adaptive Quantum-Classical Cryptographic Selection: An RL-Based Architecture for DN25

Darlan Noetzold (University of Salamanca, Spain); Jorge Luis Victória Barbosa (University of Vale Do Rio Dos Sinos & EMBRAPA Competence Center for Digital Agriculture, Brazil); Juan Francisco De Paz (University of Salamanca, Spain); Valderi Reis Quietinho Leithardt (ISCTE - Instituto Universitário de Lisboa, Portugal & ISTAR - Centro de Investigação, Portugal)

1571263258 Privacy Assurance Levels for EUDI Wallets

Francesco Buccafurri (University Mediterranea of Reggio Calabria, Italy); Carmen Licciardi (University of Reggio Calabria, Italy)

1571272386 LLM-Based Explainable Intrusion Detection System for IoT Networks

Furkan Ciyilan and Sevil Sen (Hacettepe University, Turkey); Ozlem Ceviz (WISE Lab. Department of Computer Engineering, Hacettepe University & R&D Assistant Specialist, Turk Telekom, Ankara, Turkey)

Session A5v: AI for Secure and Intelligent Perception

Session Chair: *Dr. Ismail Butun (Sakarya University, Turkey)*

Room: *Aula M*

1571244754 Single-GPU Evaluation of Graph-Based Models for Skeleton-Based Human Action Recognition

Khuloud Halimeh (OSTIM Technical University, Turkey); Ismail Butun (Sakarya University)

1571272110 Optimising Bell Measurement Settings in Entanglement-Based Quantum Key Distribution Under Finite Key Conditions

Cao Xizhen and Kaylen Liew Tong En (Hwa Chong Institution, Singapore); Kenneth Y T Lim (National Institute of Education, Singapore)

1571264039 Enhancing Human Recognition Systems for Low-Illumination Scenarios

Tuqa Hani Abdulameer (University of Baghdad & College of Engineering, Iraq); Mohammed Sadoon Hathal (University of Baghdad, Iraq & Lulea University of Technology, Sweden)

1571246646 Stabilizing Threshold-Based Video Anomaly Detection via Reinforcement Learning

Jayapriya D, Siya Moghe, Dennis Philip, Alisha Prakash and Aditya Hubli (PES University, India)

1571263649 Defending Bengali Hate Speech Detection Against Adversarial Text Distortion Using Character-Level CTC Reconstruction

Prithviraj Chowdhury, Jablay Noor Rahman and Aryan Ahmmad Siddique (Bangladesh University of Professionals, Bangladesh); Abu Sayed Md. Mostafizur Rahaman (Jahangirnagar University, Bangladesh)

1571239277 Multi Model Emotion Detection

Gudipati Thrishal, Joshitha Kopparapu, Vasnitha Dintakurthi, Dhanush Gaja and Mahitha G (PES University, India)

14:00 - 15:00

Keynote Speaker 2: Dr. Giancarlo Varacalli (Italian Space Agency (ASI), Italy)

Title: *Recent trends in space communications towards global connectivity*

Session Chair: *Dr. David Fernández Piñas (European Space Agency - ESA/ESTEC)*

Room: *"Aula magna"*

15:30 - 17:00

Session A6: Next-Gen Smart Infrastructure

Session Chair: **Dr. Nikolay Belov** (Hochschule Zittau/Görlitz – University of Applied Sciences, Zittau, Germany)

Room: *Aula 16*

1571245558 Energy-Resilient Communication Systems for Smart Cities and Industrial Ecosystems: A Visionary Perspective

Nikolay Belov (Hochschule Zittau/Görlitz - University of Applied Sciences, Zittau, Germany); Thomas Stoppe, Julian Haase, Peter Brandl and Frank Ellinger (Dresden University of Technology, Dresden, Germany); Sophia Keil (Hochschule Zittau/Görlitz - University of Applied Sciences, Zittau, Germany)

1571271184 Hardware Implementation of Hybrid Mesh Network Prototype for Smart Metering

Dhruvilsinh N Thakor (Barclays Technology Centre India, India); Abhishek Jindal and Manish Kumar (Dhirubhai Ambani University (Formerly DAICT), India)

1571271670 Network Assisted Intelligent Emergency Vehicles Repositioning for Smart Health-Care Systems

Shivani Shivakumar, Smruthi Sajan Varier, Srujana Srinivasa and Tanya Naveen (Pes University, India); Vamsi Krishna Tumuluru (PES University, India)

1571271971 Trustworthy Natural-Language Analytics over Private Smart Home IoT Data via Time-Aware RAG

Qixun Dan, Francesco Bellù, Sanders Batista Felix, Jr., Mattia Cerutti and Mattia Brambilla (Politecnico di Milano, Italy)

Session A7: AI-Powered Cybersecurity

Session Chair: **Prof. Alma Oracevic** (University of Bristol, United Kingdom)

Room: *Aula 17*

1571254038 Context-Aware Intrusion Detection for Smart Homes Under Alert-Budgeted Risk Prioritisation

Asma Ibrahim Alotaibi and Alma Oracevic (University of Bristol, United Kingdom (Great Britain))

1571264016 Integrity-Gated File Monitoring for Ransomware Resilience and Real-Time Recovery
Edward L Amoruso, Paul Amoruso and Cliff Zou (University of Central Florida, USA)

1571261561 Stochastic Diffusion Networks for Zero-Day Metamorphic Malware Detection: A PDE-Driven Contrastive Learning Framework

Victor M Gonzalez-Gorrin and Josep Prieto-Blazquez (Universitat Oberta de Catalunya, Spain)

1571263894 Hybrid Explainable Fake News Detection Using CNNs and Frequent Pattern Mining
Mahmoud Ahmad Skafi, Mskafi and Julie Bu Daher (Beirut Arab University, Lebanon)

Session A8v: Next-Gen Wireless Systems I

Session Chair: **Dr. Lilatul Ferdouse** (*Wilfrid Laurier University, Canada*)

Room: Aula 18

1571312032 Dual Denoising Diffusion for Reliable and Adversarially Robust 6G MIMO Channel Estimation

Amna Eleyan, Tarek Ali, Mohammed Al-Khalidi and Ali Kashif Bashir (Manchester Metropolitan University, United Kingdom (Great Britain)); Rabab Al-Zaidi (University of Salford, United Kingdom (Great Britain)); Ann Rangarajan (Illinois Institute of Technology, USA); Tarek Bejaoui (University of Carthage, Tunisia)

1571246677 Wireless Communications Feasibility for Automated Vehicle Marshalling Systems

Krishna Bandi (Michigan Technological University, USA); Vyas Darshan Darshan Shenoy (University of Michigan, USA)

1571245903 Enhancing mmWave Beam Prediction via GPS-Derived Auxiliary Features and Vector-Leaf Multi-Output Regression

Mehmet Galip Tezcan (Türk Telekom, Turkey); Ibrahim Yazici (Türk Telekom, Turkey & Istanbul Technical University, Turkey)

1571268307 Agent Slicer: A LangGraph-Orchestrated Agentic System for Network Slicing

Anshul Anilkumar Mundakatil, Akshil Anilkumar Mundakatil, Sai Srinivas Muriki and Anjan Phani Raj Narla (San Jose State University, USA); Ahmed Hambaba (San José State University, USA)

1571260097 Matching Theory-Based Resource Allocation and Spectrum Sharing for UAV-RIS Assisted Cellular-IoT Systems

Lilatul Ferdouse and Mashiwat Tabassum Waishy (Wilfrid Laurier University, Canada)

1571268516 StormWave: An Open-Source Portable SDR Platform for over-the-Air Resilience Evaluation of Terrestrial and Aerial Communications

Yuqing Cui (University of Minnesota- Twin Cities, USA); Zhaoxi Zhang and Sidharth Santhi Nivas (University of Minnesota, USA); Prem Sagar Pattanshetty Vasanth Kumar and Maxwell E McManus (University at Buffalo, USA); Chenzhi Zhao (University of Minnesota, USA); Guanying Sun and Nicholas Mastronarde (University at Buffalo, USA); George Sklivanitis and Dimitris A. Pados (Florida Atlantic University, USA); Elizabeth Serena Bentley (AFRL, USA); Zhangyu Guan (University of Minnesota - Twin Cities, USA)

1571312030 CE-MOI: Diffusion-Manifold Robustness for 6G MU-MIMO Channel Estimation

Amna Eleyan, Tarek Ali, Mohammed Al-Khalidi and Ali Kashif Bashir (Manchester Metropolitan University, United Kingdom (Great Britain)); Tarek Bejaoui (University of Carthage, Tunisia); Rabab Al-Zaidi (University of Salford, United Kingdom (Great Britain))

Session A9v: AI-Driven Healthcare

Session Chair: **Prof. Tarek Bejaoui** (University of Carthage, Tunisia)

Room: Aula L

1571253978 Governing Clinical AI in Obstetrics: A Review of Safety Gaps and a Lifecycle Framework

Bala Vikram Tadikonda (DePaul, USA); Mahendra Rajwade (SNS Info, USA); Vineet KR Mishra (HCL Tech, USA & HCL America, USA); Vijaykumar Viradia (Innovaccer INC, USA)

1571270694 ECG-Sense: Demonstration of a Wearable ECG Patch with an on-Device TinyML Engine for Real-Time Arrhythmia Detection

Nagarajan S (International Institute of Information Technology Bangalore, India); Chandra Shekhar Jha and Satya Prakash Chandra (International Institute of Information Technology, India); Kurian Polachan (International Institute of Information Technology, Bangalore, India)

1571243845 Trustworthy Mental Health Assessment via Confidence-Guided LLMs

Jashraj Jani (Towson University, USA); Sara Akif (Marriotts Ridge High School, USA); Wassila Lalouani (Towson University, USA)

1571246776 The Brain That Won't Rest: A Passive Sensing Analysis of App-Induced Cognitive Workload and Sleep Latency

Pouria Rad (Augusta University, USA); Mohsen Jozani (San Diego State University, USA); Gianluca Zanella (Augusta University, USA); Morteza Safaei Pour (San Diego State University, USA); Reza Vaezi (Kennesaw State University, USA)

1571272135 CareNav: A Multimodal Framework for Linguistic and Spatial Healthcare Access

Tejas Naik J, Ashutosh Rajesh, Desai Vaishnavi Reddy, Sirigireddy Amitha Reddy and Shylaja S S (PES University, India)

1571312027 Ensemble Learning for Coronary Heart Disease Detection: A Machine Learning Approach

Sania Batool (Indus Hospital and Health Network, Pakistan); Muhammad Hassan Jamal (Brunel University, United Kingdom (Great Britain)); Amna Eleyan (Manchester Metropolitan University, United Kingdom (Great Britain)); Warisha Siddiqui (Quaid-i-Azam University, Pakistan); Tarek Bejaoui (University of Carthage, Tunisia)

1571246738 From Innovation to Investigation: A Forensic-Centric Approach to AI Adoption in Healthcare

Omer Aftab Qureshi (Abu Dhabi University, United Arab Emirates); Loubna Saad Saoud (British University in Dubai, United Arab Emirates)

Session A10v: AI-Driven Solutions for Smart Living

Session Chair: **Prof. Rim Moussa** (*University of Carthage, Tunisia*)

Room: *Aula M*

1571257516 ESP32-Based Edge Mesh: A Resilient Framework for Smart-City IoT

Jimin Qian (New York Tech, Canada); Po-Ling Huang, Hsin-Tzu Lai and Sara Khanchi (New York Tech - Vancouver, Canada); Dixon Dick (Archethought Inc., USA)

1571239956 A Lightweight Solution: A Two-Stage Pipeline for Automated Summarization of Multilingual Cooking Videos

Divyashree N, Gupta Ashish, Ashok Ayush, Anand Aryan and Khakhkhar Samarth (PES University, India)

1571264103 Towards Practical UAV Intelligence: Data-Efficient Fine-Tuning of Small Vision Language Models for Emergency Response

Gavin Ma (Purdue University, USA); Shaheer Khan and Shafkat Islam (Purdue University Northwest, USA); Md Tamjid Hossain (Texas A&M University-San Antonio, USA)

1571256251 An IoT-Enabled Shopping Cart with Integration of AI

Aljawharah Alnasser (King Saud University, Saudi Arabia); Hayaa Alhomaidhi (Senior Analyst, Fraud Investigation, SAMA, Saudi Arabia); Aljawhara Albahlal (System Developer, NCGR, Saudi Arabia); Sara Abanmi (Senior Quality, Saudi Arabia); Reema AlZaid (Software Engineering, Saudi Arabia)

1571257507 Scalable IoT Sound Collection for Smart Cities Awareness Using ESP32 and CLAP

Hamza Zaher and Sara Khanchi (New York Tech - Vancouver, Canada); Dixon Dick (Archethought Inc., USA)

1571257418 Physics-Based Synthetic Data and on-Device SLM Reasoning for Automated IoT Sensor Fault Detection in Offline Edge Environments

Shreya Marri and Amit Sangwan (SUNY Polytechnic Institute, USA)

1571257031 Implication of Industry 5.0 in the Heavy Equipment Manufacturing Firms

Ndala Mulongo (University of Johannesburg, South Africa)

Day 2 – Wednesday, July 08, 2026

09:00 - 10:00

Keynote Speaker 3: Prof. Stefano Secci (CNAM - Paris, France)

Title: ***Challenges in Network Functions Disaggregation for Integrated Non-Terrestrial Stacks***

Session Chair: *Prof. Michele Luglio (University of Rome Tor Vergata, Italy)*

Room: *"Aula magna"*

V2W/NTN Workshop Program

Workshop Chair: **Prof. Francesco Zampognaro (Link University, Italy)**

09:00 - 13:30 - Room: Aula 17

h9.00 Opening and welcome talk to participants

h9.10 Keynote speaker #1 – F. Rupi (Univ. of Bologna) *“From aggregate macroscopic to disaggregated microscopic transport demand models”*

h9.45 Keynote speaker #2 – D. Brevi (LINKS Foundation) *“From Short-Range V2X to 5G and Beyond: Torino as a CCAM Living Lab”*

h10.20 Keynote speaker #3 – Sahana Raghunandan (Fraunhofer IIS) & Polyzois Kokkonis (OHb) *“6G V2X Beyond Connectivity: Unified TN/NTN Networks and Intelligent Satellite Platforms”*

h11.25 Keynote speaker #4 – María Pimentel Niño (ESA/Starion) *“The convergence of Automotive connectivity and Non-terrestrial Networks – The European landscape”*

h12.00 Paper Technical Session

1571256318 Hybrid 5G Terrestrial and Non-Terrestrial Network System for Vehicle-to-Everything Applications

Robert Caesar (OHb System AG, Germany); Ignacio Cacaes (OHb-System AG, Germany); Stefan Koehler (IIS Fraunhofer Institute, Germany); Raghavendra Dinavahi (Fraunhofer IIS, Germany); Patrick Forke and Andreas Nil (Mediamobil, Germany); Michaela Kanta and Jozef Mindok (Deutsche Telekom, Germany); Daniela Sanchez and Pacome Lecointe (Jember, Germany)

1571264000 Intent-Based Networking for Vehicular Service Deployment

Andrea Speranza and Pietro Giardina (Nextworks, Italy); Maziar Nekovee (University of Sussex, United Kingdom (Great Britain) & Samsung, United Kingdom (Great Britain)); Giacomo Bernini (Nextworks, Italy)

1571268773 Experimental Insights into UDP-Based Video and Control Traffic over IEEE 802.11p ITS-G5

Antonio Solida (University of Modena e Reggio Emilia, Italy); Gaetano Orazio Cauchi, Salvatore Iandolo, Marco Savarese, Martin Klapez, Maurizio Casoni and Carlo Augusto Grazia (University of Modena and Reggio Emilia, Italy)

1571271871 UAV-Assisted Multi-Victim Localization for V2X-Enabled Disaster Response via Information-Guided Sampling

Huseyin Kemerci, Mohammad Shojafar and Zhili Sun (University of Surrey, United Kingdom (Great Britain))

1571279552 V2LeoSim: A Turnkey Simulator for 5G V2X NTN Scenarios Evaluation

Francesco Zampognaro (University of Rome "Link Campus", Italy); Francesco Giacinto Lavacca (Link Campus University, Italy); Vincenzo Eramo (University of Rome "La Sapienza", Italy); Tiziana Fiori (Sapienza University of Rome, Italy); Daniele Pugliese (Politecnico di Bari, Italy); Giancarlo Sciddurlo (Politecnico di Bari, Italy & CNIT, Italy); Domenico Striccoli (Politecnico di Bari, Italy); Giovanni Bembo (Link Campus University of Malta, Italy)

End of the Workshop Program

10:30 - 12:00

Session B1: Advanced Networks and Communications II

Session Chair: **Prof. Satoshi Takahashi** (*Hiroshima City University, Japan*)

Room: Aula 16

1571257522 Consistency Analysis of Broadcast Clock and Orbit Corrections for Precise Point Positioning Across GNSS Augmentation Services

Satoshi Takahashi (*Hiroshima City University, Japan*)

1571264018 Edge Computing Control and Task Assignment in Integrated Terrestrial and Non-Terrestrial Networks

Insaf Rzig (*Sup'Com Tunis, Tunisia*); Wael Jaafar (*École de Technologie Supérieure, Canada*); Safwan Alfattani (*King Abdulaziz University, Saudi Arabia*)

1571272325 QoS-Aware Pricing Framework for Heterogeneous Users in Integrated Terrestrial and Non-Terrestrial Networks

Simbarashe Tanyanyiwa and Olabisi Emmanuel Falowo (*University of Cape Town, South Africa*)

1571262742 Edge Intelligence Using Physics-Based ML Models with LLM Reasoning for Spectrum Sensing

Andrew Reed and Amit Sangwan (*SUNY Polytechnic Institute, USA*)

1571264032 Long-Range (LoRa) Radio Ad-Hoc Networks: Hardware Implementation and Results

Richa Devaliya and Riya Devaliya (*Adani University, India*); Abhishek Jindal (*Dhirubhai Ambani University (Formerly DAIICT), India*)

Session B2: AI and Data-Driven Innovations

Session Chair: **Prof. Toshiro Nunome** (*Nagoya Institute of Technology, Japan*)

Room: Aula 18

1571269209 Predicting Early Sales of PC Games Using Steam Wishlists and User Ratings

Volodymyr Bondarenko (*Dresden Technical University, Germany*); Juan A. Cabrera (*Technische Universität Dresden, Germany*); Frank H.P. Fitzek (*Technische Universität Dresden & ComNets - Communication Networks Group, Germany*)

1571257290 A Cross-Platform Architecture for Distributed Pair Programming: Design, Implementation, and Educational Evaluation

Nader Nicola Abu Saad (*Bethlehem University, Palestine*)

1571252455 The Effect of Probability Distribution of Random Cache Replacement on Video and Audio Transmission QoE in CCN

Yuta Sakai and Toshiro Nunome (*Nagoya Institute of Technology, Japan*)

1571270714 A Lightweight Ensemble for Sensor Fault Injection, Detection and Fusion in Earables

Damian Gonzalez Gonzalez, Egemen Işgüder and Ozlem Durmaz Incel (*University of Twente, The Netherlands*)

Session B3v: Trust, Security and Privacy

Session Chair: **Dr. Craig Wright** (*University of Exeter, United Kingdom*)

Room: *Aula L*

1571272388 Neural-Symbolic Verification of Blockchain-Enabled IoT Systems via Refinement Mapping in TLA+

Tianxiang Dr. Lu (*IU International University of Applied Sciences, Germany*)

1571269089 The Decentralisation Threshold: When More Validators Reduce Net Security

Craig Wright (*University of Exeter, United Kingdom (Great Britain)*)

1571252869 The Metamorphosis of Access: Strategic Imperatives for Identity 3.0 and Zero Trust Integration in Critical Infrastructure

Sunil Gentyala (*HCLTECH, USA*); Floriano Caprio (*HCLTECH, Italy*)

1571269152 Safety and Liveness Failure Under Budget-Constrained Mining: Composing Backbone Proofs with Endogenous Honest Majority

Craig Wright (*University of Exeter, United Kingdom (Great Britain)*)

1571246050 Towards Privacy-Preserving and Continual Intrusion Detection Systems in Internet of Medical Things

Gabriele Mangiacapre (*Università di Napoli Federico II, Italy*); Francesco Cerasuolo, Alfredo Nascita, Antonio Montieri and Antonio Pescapé (*University of Napoli Federico II, Italy*)

1571286697 Explainable Ad Fraud Detection in Programmatic Advertising: A Study on Real-World SSP Traffic

Özlem Turgut (*Pamukkale University, Turkey*); Muhsin Kompas (*Reklam Store, Turkey*); İbrahim Kök (*Ankara University, Turkey*)

Session B4v: Next-Gen Wireless Systems II

Session Chair: **Prof. Olabisi Emmanuel Falowo** (*University of Cape Town, South Africa*)

Room: *Aula M*

1571270084 Spectral Monitoring of Dynamic IoT Communication Graphs

Malika Kharouf (*Université de Technologie de Troyes, France*)

1571271411 Bridging Digital Divide for Videoconferencing Participants with Unequal Mobile Connectivity: A Simulcast-MEC Approach

Bernard Armel Sanou (*Université Nazi BONI, Burkina Faso*); Pasteur Poda (*Université Nazi Boni, Burkina Faso*); Pasteur Poda (*Université Nazi BONI, Burkina Faso*)

1571245754 5G-Enabled V2V Communication for Real-Time ADAS with High-Precision UWB-GPS Localization

Radhika M Hirannaiah, Prasad Honnavalli B, Aritra Ghosh Dastidar, Dishan D and Vajra Dindakurthi (*PES University, India*)

1571263898 QoS-Aware Load Balancing Scheme for Integrated Terrestrial-Non-Terrestrial Networks

Shaban Omary Kasinge and Olabisi Emmanuel Falowo (*University of Cape Town, South Africa*)

1571272389 LoRa-PDMM: Partially Distributed Mobility Management for Low-Latency Active Handover in LoRaWAN Networks

Djièta Ouindé Abdoul Fatas Bamogo Fatas (Université Nazi BONI, Burkina Faso & Ecole Doctorale Sciences et Techniques, Burkina Faso); Bernard Armel Sanou (Université Nazi BONI, Burkina Faso); Pasteur Poda (Université Nazi Boni, Burkina Faso); Pasteur Poda (Université Nazi BONI, Burkina Faso)

1571292391 PoLa: Verifiable Proof of Latency for O-RAN Network Slicing

Youssef Ali and Ahmed Badawy (Qatar University, Qatar)

1571312033 WGAN Manifold Purification and Robust Distillation for Secure 6G MIMO-OFDM Channel Estimation

Amna Eleyan, Tarek Ali, Mohammed Al-Khalidi and Ali Kashif Bashir (Manchester Metropolitan University, United Kingdom (Great Britain)); Tarek Bejaoui (University of Carthage, Tunisia); Rabab Al-Zaidi (University of Salford, United Kingdom (Great Britain))

6th PNDC Workshop Program

Workshop Chair: **Dr. Kinan Ghanem** (PNDC, University of Strathclyde, UK)

15:00 – 15:05

Opening and Welcome Address

Speaker: **Prof Will Drury**, CEO, PNDC

15:05 – 15:10

IEEE SmartNets at a Glance

Speaker: **Prof. Tarek Bejaoui**, IEEE SmartNet Chair

15:10 – 15:30

PNDC Digital Substation Overview

Speaker: **Dr Ibrahim Abdulhadi**, PNDC

15:30 – 16:00

BPL in Low Voltage Networks: Enhancing PRIME for Real-Time Grid Digitalisation

Speaker: **José Antonio Martín Valdés**, Teldat

16:00 – 16:30

Hybrid Satellite–5G Architecture for Resilient Wide-Area Protection and Grid Restoration

Speaker: **Thierry Bérísot**, Novamint

16:30 – 17:00

From Substation Data to Grid Operations: Secure, Contextual and Actionable OT Integration

Speaker: **Aaron Cowdry**, COPA-DATA

17:00 – 17:30

Agentic AI: Opportunities & Risks

Speaker: **Dr Sotirios Terzis**, University of Strathclyde

End of the PNDC Workshop Program

14:00 - 15:00

Keynote Speaker 4: Dr. Antonios Atlasis (European Space Research and Technology Centre (ESTEC) – The Netherlands)

Title: *Security for Space Systems: Opportunities, Technologies, Challenges*

Session Chair: *Prof. Cesare Roseti (University of Rome Tor Vergata, Italy)*

Room: "Aula magna"

15:15 - 16:30

Session B5: Advancing Network Intelligence

Session Chair: **Prof. Besmir Tola** (Norwegian University of Science and Technology, Norway)

Room: Aula 16

1571264061 Self-Healing for Resilient NFV Orchestration: A Predict-Policy-Act Approach
Besmir Tola (Norwegian University of Science and Technology, Norway)

1571246096 From Simulated Networks to Trained Models: Declarative AutoML for Network Research

Marcel Antzek and Christian Dietz (Bundeswehr University Munich, Germany); Gabi Dreo Rodosek (Universität der Bundeswehr München, Germany)

1571272379 Algorithms for Partitioning the Input Set of NP-Complete Problems into Subsets

Anel Auyezova, Bakhtgery Sinchev and Tolkynai Sadykova (International Information Technology University, Kazakhstan); Mukhanova Aksulu (Q University, Kazakhstan)

1571267771 Gradient-Optimized QAOA for Scalable Vehicle Scheduling Problems

Jakub Kołota (Poznań University of Technology, Poland)

1571270471 "eBay-Jammer" Impact on Cellular Service: Results from the 2025 Jammertest

Jan Marius Evang, Haakon Bryhni (Simula Metropolitan Center for Digital Engineering, Norway & Oslo Metropolitan University, Norway)

1571272082 Identity-Preserving Image Editing Using Retrieval-Based Visual Generation in Media Archives

Deepak P and Sindhu R Pai (Pes University, India)

1571270320 Task Offloading for Deadline-Aware IoV Services in a Real-Data-Driven Environment

Kaouther Gasmi (University of Pisa, Italy)

Session B6v: AI for Human-Centric Systems

Session Chair: **Dr. Shehenaz Shaik** (*East Tennessee State University, USA*)

Room: *Aula 17*

1571272392 A Phoneme-Level Stress-Annotated Dataset Construction Pipeline for Prosody-Aware Caption Generation

Manoj Adhikari, Monika Prajapati, Preet Adhikari and Shehenaz Shaik (East Tennessee State University, USA)

1571266973 TextQ-Melody: Semantically-Conditioned Quantum Variational Circuits for Text-to-Melody Generation

Washington Velasquez (Escuela Superior Politecnica del Litoral, Ecuador); Manuel Alvarez-Alvarado (Escuela Superior Politécnica del Litoral, Ecuador)

1571256840 BARPETH: A Computer Vision Pipeline for Robust Kinematic Analysis and Technique Critique in Weightlifting

Ethan Christian (University of Maryland, College Park, USA); Nishanth Sasikumar, Jayanth Bhansali and Nestor Tiglao (University of Maryland, USA)

1571254044 Agentic AI for FINRA-Regulated Wealth Management and Compliance: ACRO Algorithm and MLS-XAI Framework

Anshuman Khandelwal, Brij Mohan and Uday Kiran Chilakalapalli (LPL Financial, USA)

1571245411 Integrated Sensing and Communication for Human Activity Recognition Using an Explainable Split Federated Learning

Ebuka Nkoro, Weixian Liao, Yifan Guo and Wei Yu (Towson University, USA)

1571264069 Post-Vote Tampering in Nigerian Elections and the Role of Blockchain-Enabled Electoral Systems

Ransome Enechukwu, Shehenaz Shaik, Ahmad Al Doulat and Biju Bajracharya (East Tennessee State University, USA); Chelsie Marie Dubay (East Tennessee State University & University of Alabama - Birmingham, USA)

Session B7v: AI, IoT & Smart Apps

Session Chair: **Prof. Rim Moussa** (*University of Carthage, Tunisia*)

Room: *Aula 18*

1571274341 Graph Neural Networks for Real-Time Transaction Fraud Detection in Payment Networks

Uday Kiran Chilakalapalli (LPL Financial, USA); Pranav Sachdev (Equifax, USA); Brij Mohan (LPL Financial, USA)

1571281728 Benford's Law as a Forensic Tool for Identifying Anomalous Chat Behavior in Instant Messaging Data

Vaishnavi Mahindra (Purdue University, USA); Umit Karabiyik (George Mason University, USA)

1571271363 Can LLM Agents Replace Reinforcement Learning Agents in Cyber Defence Automation: A Case Study Using the DARPA CAGE-2 Challenge

Arijit Diganto, Saeedeh Lohrasbi and Euclides Carlos Pinto Neto (National Research Council Canada, Canada); Shahrear Iqbal (National Research Council, Canada)

1571264055 FL4MDS: A Federated Learning Framework for Misbehavior Detection in Connected Vehicles Under Intermittent Client Participation

Sourou Tossou and Thabet Kacem (University of the District of Columbia, USA)

1571273035 Bridging the Smart City Cybersecurity Data Gap Through AI-Driven Synthetic Dataset Generation

Stephanie Polczynski, John D. Hastings, Varghese Vaidyan and Kyle Korman (Dakota State University, USA)

1571264107 Veritas: Dynamic Evaluation Framework for RAG Systems' Defense Against Prompt Injection Attacks

Ankita John and Geethapriya Thamilarasu (University of Washington Bothell, USA)

1571292403 Generating Realistic and Structured IoT Network Traffic Data with AMC-GAN

Ekram Omar, Sara Metwaly and Ahmed Badawy (Qatar University, Qatar)

Session B8v: Cryptography & Data Privacy

Session Chair: **Dr. Ismail Butun** (*Sakarya University, Turkey*)

Room: Aula L

1571246410 Protection of Personal Data in Virtual Educational Platforms: A Scientific Approach from Cryptography and Statistics

Pamela Gómez Martínez (Universidad de las Fuerzas Armadas ESPE, Ecuador); Anabel Davila (Escuela Politécnica del Ejercito, Ecuador); Paúl Alexander Freire Jaramillo (Universidad de las Fuerzas Armadas ESPE, Ecuador)

1571262747 IDE-Sanitizer: A Prompt-Injection Cryptographic Context Guard for IDE Copilots

Ebuka Nkoro and Weixian Liao (Towson University, USA); Cheng Qian (Hood College, USA); Wei Yu (Towson University, USA)

1571263938 A Privacy-Respecting, Modular, Vendor-Neutral Natural-Language Interface for Operating Systems

David Lawrence and Xiaoli Huan (Troy University, USA)

1571264096 VertiSplitRAG: Privacy-Preserving Retrieval-Augmented Generation Through Vertical Attribute Partitioning

Vaishak Balachandra and Shafkat Islam (Purdue University Northwest, USA); Md Tamjid Hossain (Texas A&M University-San Antonio, USA)

1571271821 FIRCE: A Framework for Intrusion Response and Conformal Evaluation

Seth Barrett, Gokila Dorai and Lin Li (Augusta University, USA); Swarnamugi Rajaganapathy (DFAIR Lab, USA)

1571247221 SpectraGuard: Real-Time Reactive Jamming Detection and Mitigation in LoRaWAN Using Edge-Native Deep Learning

Dylan Dhawan, Charlie Holden, Sholom Kott, Jayanth Bhansali and Nestor Tiglaio (University of Maryland, USA)

Session B9v: Advances in Autonomous Systems

Session Chair: **Dr. Yan Lu** (*Christopher Newport University, USA*)

Room: Aula M

1571269762 Edge-Deployable Drone Detection: A Systematic Benchmark of Modern YOLO Variants

Yihe Wang (University of British Columbia, Canada); Rakiba Rayhana (The University of British Columbia, Canada); Sergii Baidachnyi, Hao Liu, Yu Hu, Christian Baker Davidson and Daniel Kovalevskiy (University of British Columbia, Canada); Zheng Liu (University of British Columbia Okanagan, Canada)

1571272946 DiffAugment-xView2: Leveraging Stable Diffusion with LoRA and ControlNet for Synthetic Data Augmentation in Earthquake Building Damage Assessment

Yan Lu, Brennan Miller and Caiden Pleis (Christopher Newport University, USA); Erika Ardiles-Cruz (Air Force Research Lab, USA)

1571256843 Retrofit ADAS Using Computer Vision with Fuzzy Logic and Time-to-Collision Estimation

Jack Kounkar, Nour Hammad, Sebastian Yanez, Jayanth Bhansali and Nestor Tiglao (University of Maryland, USA)

1571274340 Contactless Human-Robot Interaction for Adaptive Intelligent Control

Deaira Carrington and Wassila Lalouani (Towson University, USA)

1571264099 NeuroMask: Masked Defense Against Side-Channel Attacks on Wearable Devices

Ankita John and Geethapriya Thamilarasu (University of Washington Bothell, USA)

1571257034 Challenges to the Implementation of Agriculture 5.0: Using a Dematel Model

Ndala Mulongo (University of Johannesburg, South Africa)

THANK YOU, OUR GENEROUS PARTNERS & SPONSORS

Official Host and Partner:



Technical Co-Sponsors:



Patronage :

