

2026 22nd Annual IEEE International Conference on Sensing, Communication, and Networking (SECON 2026)

**Pisa, Italy
3-5 June 2026**

IEEE Catalog Number: CFP26SCN-POD
ISBN: 979-8-3315-4740-0



Copyright © 2026, IEEE

All Rights Reserved

Copyright and Reprint Permissions:

Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. 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:	CFP26SCN-POD
ISBN (Print-On-Demand):	979-8-3315-4740-0
ISBN (Online):	979-8-3315-4739-4
ISSN:	2155-5486

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
E-mail:	curran@proceedings.com
Web:	www.proceedings.com

TABLE OF CONTENTS

RFpH: A Robust Water pH Assessment System Based on RFID Technology	1
<i>Shiwei He, Yanwen Wang, Junhua Situ, Zheng Wang, Di Wu, Yuanqing Zheng</i>	
Agentic AI with Emulation-assisted Prevalidation for Edge-Cloud Service Orchestration	10
<i>Berend J.D. Gort, Godfrey M. Kibalya, Anna Umbert, Angelos Antonopoulos</i>	
Poster: Overcoming Probabilistic Quantum Repeaters with TESQR	16
<i>Francesco Fiorini, Rosario G. Garroppo, Michele Pagano, Silvia Zorzetti</i>	
RF-THERMO: Empowering Robust Wireless Temperature Sensing Under Motion Scenarios	18
<i>Zhongkang Qiao, Chuyu Wang, Yanling Bu, Lei Xie, Sanglu Lu</i>	
CODA: A Continuous Online Evolve Framework for Deploying HAR Sensing Systems	27
<i>Minghui Qiu, Jun Chen, Lin Chen, Shuxin Zhong, Yandao Huang, Lu Wang, Kaishun Wu</i>	
BFI-Fall: Learning Beamforming Feedback Information in Wi-Fi Sensing for Fall Detection	36
<i>Guorong Feng, Demin Gao, ZhengLi Zhu, Jing Wu, Yuxuan Liu</i>	
Ballet in Sky: Online Satellite Downlink with Joint ISL Balancing and GS Selection under Uncertainty	45
<i>Jianping Huang, Xiang Liu, Feng Shan</i>	
ORBIT: Meta-Learned Online Convex Optimization for Low-Latency In-Orbit Computing	54
<i>Charles Cao</i>	
TorBinPack: Topology-Aware Online Scheduler for Minimizing Congestion in AI Superclusters	63
<i>Rémi Lei Chen, Yang Zhao, Tin Ping Chan, YINUO Li, Wen Peng, Xiaofeng Gao, Guihai Chen</i>	
DualEngine: A Thermal-Aware Vision Inference Framework via Mobile and Cloud Co-Execution	72
<i>Pyeongjun Choi, Jeongsoo Kim, Seyeon Kim, Jeongho Kwak</i>	
SmartCCL: Learn to Schedule Near-Optimal Collective Communication for GPU Clusters	81
<i>Runze Zheng, Long Luo, Jingzhao Xie, Haoxiang Luo, Hongfang Yu</i>	
LightRider: Reliable UAV Ground Communication with a Single Laser Tethering Link	90
<i>Junjie Wang, Kenuo Xu, Zhe Ou, Zhaofeng Luo, Bo Liang, Muhan Li, Xiaoming Liu, Lingyang Song</i> <i>Guobin Shen, Xinwei Yao, Chenren Xu</i>	
RIScatter: Enhancing Backscatter Communication via Reconfigurable Intelligent Surfaces	99
<i>Liuqun Zhai, Longzhi Yuan, Hongyao Liu, Junyi Wang</i>	
Enabling Seamless LoRa-to-Mobile Bridging via Wi-Fi Spectrum Scanning	108
<i>Jiaqi Zhou, Fengxu Yang, Yihui Yan, Zhice Yang</i>	
An Air-Sea Collaborative Computing Method for Open-Sea USVs based on UAV-Assisted Communications and USV Clusters	117
<i>Yue Dong, Guiyuan Yuan, Ran Yi, Yueqian Song, Hua Duan, Qingtian Zeng</i>	
Channel-Adaptive Physical Layer Neural-enhanced Encoding for Concurrent LPWANs	126
<i>Boxin Hou, Jiliang Wang</i>	
Augmented Communication Reliability for UHF RFID Systems via Polar-Coded EPCs	135
<i>Donghui Dai, Jingyu Tong, Zheng Gong, Xiaopeng Zhao, Lei Yang</i>	

Design and Analysis of Chirp-Layered Superposition Coding for LoRa	144
<i>Jingxiang Huang, Samer Lahoud</i>	
FastSET: Fast Sequential Retraining to Accelerate Real-Time Online Adaptation for Neural Receivers	152
<i>Facheng Hu, Yunzhe Li, Hongzi Zhu, Xudong Wang</i>	
Adaptive Detrending-Based Channel Decoupling for Robust RF Fingerprint Identification Using CSI	161
<i>Haichuan Peng, Linning Peng, Hua Fu, Honghui Dai, Lingnan Xie, Junxian Shi, Wentao Jing</i>	
InterAngle: Turning Radar Interference into Beyond-Resolution Angle Estimates	170
<i>Bei Ouyang, Marco Canil, Yongjian Fu, Joerg Widmer</i>	
RangeTag: Adaptive Ultra-Wideband Ranging for Energy Cost-Accuracy Trade-Off in Wearable Systems	180
<i>Antoine Nzeyimana, Jean Bosco Nkurunziza, Jeremy Gummeson</i>	
WiSLAT: A Simultaneous Device Localization and Target Tracking Method for Wi-Fi Systems	189
<i>Chunxi Chen, Jingwen Zhang, Chao Yu, Fan Liu, Rui Wang</i>	
Poster: Q-RISE: Entanglement Routing Optimization in LEO Satellite Networks	198
<i>Yifan Gao, Alvin Valera, Winston K.G. Seah</i>	
Poster: Beyond RTT: Enhancing Routing Path Inference for Overlay Networks with Clock Offset	200
<i>Haoran Pang, Hao Yu, Lin He, Zerui Yang, Yanwei Xu, Jounghoon Kim, Xiao Luo, Linqiang Song</i>	
<i>Yudai Matsuda, Gong Zhang, Bo Bai</i>	
Poster: Recogneech: A Phoneme Level CSI Sensing Framework for Silent Speech Recognition	202
<i>Haoyue Tan, Fei Shang</i>	
Poster: TTC-Mamba: Continuous-Time Link Prediction in Opportunistic Networks via Spatio-Temporal Synergistic State Space Models	204
<i>Shuqi Han, Winston K.G. Seah, Gang Xu, Fengqi Wei, Feng Zhang</i>	
Poster: Automated Extraction of Protocol State Machines from 3GPP Specifications with Domain-Informed Prompts and LLM Ensembles	206
<i>Miao Zhang, Runhan Feng, Hongbo Tang, Yu Zhao, Jie Yang, Hang Qiu, Qi Liu</i>	
POSTER: A Dataset Construction Framework for Detecting MitM Attacks on the 5G N3 Interface	208
<i>Rosario G. Garroppo, Pietro Giardina, Giada Landi, Andrea Mugnai</i>	
Poster: Probe to Stay Fresh: Enhancing Age of Information in Energy-Harvesting Random Access Networks	210
<i>Ziyi Li, Fangming Zhao, Howard H. Yang</i>	
Poster: Dynamic Scheduling of Dependency-Aware DAG Tasks in Cooperative Multi-Edge Computing	212
<i>Yuzhu Liang, Kaiyuan Zheng, Yaxin Mei, Changfu Xu, Haiyang Huang, Xinggang Fan</i>	
Poster: A Software-Defined Cost-Aware Load-Balancing Wi-Fi Mesh Network with Multiple Cellular-Enabled Gateways	214
<i>Jingwei Li, Wenhan Xu, Danny H.K. Tsang, Tengfei Chang</i>	
Poster: MTNTD-SLM: A Small Language Model for Malicious Traffic Detection Based on Multi-Teacher Debate-Distillation	216
<i>Shaolei Liu, Shanshan Wang, Zhenxiang Chen, Wenhui Zhang, Runing Li, Jian Chen</i>	

Poster: DiSC2: Bandwidth-Efficient Distributed Semantic Communication for Cross-Modal Redundancy Suppression in the Internet of Bodies	218
<i>Jiaxuan Li, Dahua Gao, Minxi Yang, Guangming Shi</i>	
Poster: An Intrinsic Flow Generation-Guided Pre-trained Model for Network Traffic Classification	220
<i>Yongna Dai, Xuelian Jin, Xiaolin Xu, Yipeng Wang</i>	
Poster: Hybrid Frequency Crossover for Multi-Scale Field Reconstruction in Wireless Sensor Networks	222
<i>Guoqing Lu, Yixuan Sun, Yiwen Jiang, Dongxu Xia</i>	
OFLight: Lightweight Gradient Compression for Over-the-Air Federated Learning	224
<i>Jiaqi Zhu, Howard H. Yang, Nikolaos Pappas, H. Vincent Poor</i>	
LLM-Enhanced Deep Reinforcement Learning for Task Offloading in Collaborative Edge Computing	233
<i>Hao Guo, Kaixiang Xv, Ziwu Ge, Lei Yang</i>	
Lightweight Dynamic Global Filter Network for Efficient Image Analysis on Edge Devices	242
<i>Shaowei He, Ziyang Zhang, Shusheng Li, Jie Liu</i>	
HiLo-MAE: Efficient Pre-trained Traffic Representation for Encrypted Network Sensing	251
<i>Xubo Jiang, Zhiqiang Zheng, Lei Zhang, Haowen Liu, Xuren Wang</i>	
UniChirp: Unwrapping In-Chirp Phase Misalignment for Weak LoRa Signal Demodulation	260
<i>Hang Li, Shuai Tong, Jiarui Zhang, Shen Gao, Jiliang Wang, Jie Wu</i>	
Enabling Reliable and Real-Time Packet Reception in User-Defined Overlapping LoRa Channels	269
<i>Fu Yu, Xudong Zhu, Cun Chen Hu, Yiduo Wang, Dan Xia, Xiaolong Zheng, Jie Wu</i>	
Reliability-Aware Analysis of MIMO Cellular Networks via SIR Meta Distribution	278
<i>Zhilong Yue, Tony Q. S. Quek, Howard H. Yang</i>	
Repairing LoRa Packets with Demodulated Symbols from Multiple Gateways by Exploiting the Block Structure of Codeword and Symbols	287
<i>Yilin Wang, Marco Heflin, Zhenghao Zhang</i>	
E2E-WAVE: End-to-End Learned Waveform Generation for Underwater Video Multicasting	296
<i>Khizar Anjum, Tingcong Jiang, Dario Pompili</i>	
Octopus: An ABR-RAN Closed-Loop Approach Towards High QoE Multi-User 5G VR Gaming	305
<i>Chengke Wang, Yuhang Zhou, Junchen Guo, Zidong Yang, Yinian Zhou, Tao Sun, Kai Lei, Yunhui Liu, Chenren Xu</i>	
FlexiView: Flexible Video Quality and Playout Optimization for Mobile Video Streaming	314
<i>DongYun Shin, TaeHyeong Lee, Yongmoon Park, Yeongjin Kim</i>	
FlexAttNC: A Flexible Attention-Driven Network Coding for Dynamic Wireless Networks	323
<i>Jinmou Li, Qi Wang, Yongjun Xu</i>	
CADRE: Card-Agnostic Domain-Aligned RF Embeddings for Virtual PIN Pads on Passive NFC Cards	332
<i>Dickson Akuoko Sarpong, Hongzhi Guo</i>	
FPFA: Flexible Polarization Fingerprint Authentication Framework for Large-Scale Devices	341
<i>Xian Li, Jinlong, Dong Wei, Weiqing Huang</i>	
Packet-Level DDoS Data Augmentation Using Dual-Stream Temporal-Field Diffusion	351
<i>Gongli Xi, Ye Tian, Yannan Hu, Yuchao Zhang, Yapeng Niu, Xiangyang Gong</i>	

FBRoT: Transforming Flash Memory into Root of Trust for IoT Terminals	360
<i>Haotian Shi, Siyuan Ma, Yuewu Wang, Lingguang Lei, Shijie Jia, Jiwu Jing</i>	
Improving LPWAN Concurrency with Collision-Resilient Zadoff-Chu Random Access	370
<i>Enqi Zhang, Yi Chen, Lizhao You, Pingping Chen</i>	
CD-NOMA: Correlation Domain Non-Orthogonal Multiple Access for Underwater Acoustic Network	379
<i>Zhile Li, Zhuoran Qi, Dario Pompili</i>	
Blind LoRa Signal Separation in Multi-Source Collisions Using Deep Neural Networks	388
<i>Haonan Li, Demin Gao, Yuxuan Liu, Guorong Feng, Jing Wu</i>	
PDE-TSN: Enable TSN Autonomous Self-healing under Link Faults	397
<i>Qian Yang, Wenwen Fu, Xuyan Jiang, Xinyi Liu, Wei Quan, Hui Yang, Tao Li, Zhigang Sun</i>	
LUCID: Lightweight Unsupervised In-Network Drift Detection and Selective Update Framework	406
<i>Sanghoon Lee, Heewon Kim, Chanbin Bae, Sangheon Park</i>	
Structure-Aware Reinforcement Learning for Energy-Constrained Background Update Scheduling	415
<i>Ruoyu Zhu, Zhao Yu, Victor C. M. Leung, Joohyun Lee</i>	
MUND: Role-Aware Multi-Agent Learning for Dynamic UAV Network Deployment	424
<i>Jie Zhao, Shucheng Li, Huali Lu, Jieyu Zhou, Fan Wu, Feng Lyu</i>	
Minimizing Sensor-Cloud Resource Makespan via Low-Coupling Request Scheduling for Embedded Edge Systems	433
<i>Yuzhu Liang, Haodong Zou, Yaxin Mei, Haiyang Huang, Xinggang Fan</i>	
WiWildLoc: WiFi-based Outdoor Human Location via Beamforming Feedback	442
<i>Yuxuan Liu, Demin Gao, Guorong Feng, Jing Wu</i>	
Fine-Grained Indoor Occupancy Estimation with Sparse Passive WiFi Sensing Data	451
<i>Wenbo Chang, Baoqi Huang, Lifei Hao, Bing Jia</i>	
WirelessSenseLLM: Zero-Shot Human Activity Understanding by Bridging Wireless Signals and Human Language	460
<i>Mahmuda Keya, Sneha Pillai, Jiawei Yuan, Kai Zeng, Long Jiao</i>	
Energy-Efficient and Queue-Stable UAV Trajectory Control via Lyapunov-Guided MAPPO with Dynamics-Aware Modeling	469
<i>Liuye Lu, Gaocai Wang, Dongnan Yang, Meilin Ruan</i>	
CoMeT-Net: Consensus Memory Template Network for Real-time Traffic Anomaly Detection	478
<i>Tingcong Jiang, Adhwa Alchaab, Ayman Younis, Dario Pompili</i>	
AdaptTree: A Practical and Adaptive Packet Classification Scheme on FPGA	487
<i>Jincheng Zhong, Gaofeng Lv, Tao Li, Shuang Zhao, Yanbiao Li, Xiaojuan Wang, Shuhui Chen</i>	
6Hunter: An Efficient Framework for Discovering Router Interfaces in IPv6 Network	497
<i>Haojie Zhu, Liancheng Zhang, Junhu Zhu, Jichang Wang, Lanxin Cheng, Wenhao Xia, Yi Guo Yangxiang Zhou</i>	
DRShield: Coordinating Line-Rate Enforcement and Global Adaptation for Dynamic DDoS Defense	506
<i>Junjie Hu, Qihang Zhou, Zibo Gao, Yixin Zhang, Haiyang Li, Xiaoqi Jia, Zhiqiang Lv</i>	

Emotion-Aware Personalization: Resonating Short-Video Recommendations via Multi-Modal Affective Computing	515
<i>Fengrui Zhang, Donghui Dai, Zhicheng Wang, Shen Wang, Lei Yang</i>	
AdSeeker: An Agent-Driven Framework for Automated Malicious Ad Detection in Mobile Apps	524
<i>Yi Zhang, Shanshan Wang, Zhenxiang Chen, Bo Yang, Zhen Shan, Zhen Wang</i>	
Look Once, Beam Twice: Camera-Primed Real-Time Double-Directional mmWave Beam Management for Vehicular Connectivity	533
<i>Avhishek Biswas, Apala Pramanik, Eylem Ekici, Mehmet C. Vuran</i>	
Robust Ensemble-based Log Anomaly Detection for Securing Mobile Systems	543
<i>Qinxuan Shi, Zhanglong Yang, Sicong Shao</i>	