2020 IEEE 45th Conference on Local Computer Networks

LCN 2020

Table of Contents

Message from the General Chair	viii
Message from the Program Chairs	ix
Message from the Demonstrations Chair	X
Organizing Committee	xi
Steering Committee	xii
Technical Program Committee	xiii
List of Accepted Demonstrations	xvi
Sponsors and Supporters	xvii
Best Paper Awards for Prior IEEE Local Computer Networks (LCN) Conferences	xviii
Keynote 1: Dr. Henning Schulzrinne – "Do We Still Need Wi-Fi in the Era of 5G?"	XX
Keynote 2: Dr. Magnus Frodigh – "Towards 6G"	xxi
Keynote 3: Dr. Arkady Zaslavsky – "Real-Time Distributed Contextual Intelligence in the Era of Ubiquitous Connectivity"	xxii
Technical Program	xxiii

Best paper candidates

Blockage Robustness in Access Point Association for mmWave Wireless LANs with Mobility	1
Celosia: An Immune-Inspired Anomaly Detection Framework for IoT Devices	13
Improved Phishing Detection Algorithms Using Adversarial Autoencoder Synthesized Data	24

Full papers

Pinning Control of Dynamical Networks with Optimal Cost

33

Service Provisioning for IoT Applications with Multiple Sources in Mobile Edge Computing	42
PLEDGE: An IoT-Oriented Proof-Of-Honesty Based Blockchain Consensus Protocol	54
Understanding Traffic Fingerprinting CNNs	65
StopEG: Detecting When to Stop Exponential Growth in TCP Slow-Start	77
Achieving IoT Devices Secure Sharing in Multi-User Smart Space	88
Start of Frame Delimiters (SFDs) for Simultaneous Intra-Group One-To-All Dissemination	100
Managing Container QoS with Network and Storage Workloads over a Hyperconverged Platform	112
SCAN: Smart Collaborative Attack in Named Data Networking	124
Improvement and Implementation of a Multi-Path Management Algorithm Based on MPTCP	134
A Network Time Security Based Automatic Key Management for PTPv2.1	144
Privacy-Preserving Public Key Infrastructure for Vehicular Networks	154
On Predicting Service-Oriented Network Slices Performances in 5G: A Federated Learning Approach	164
Provotum: A Blockchain-Based and End-To-End Verifiable Remote Electronic Voting System	172
Determining a Tight Worst-Case Delay of Switched Ethernet Network in IEC 61850 Architectures	184
User Performance in a 5G Multi-Connectivity Ultra-Dense Network City Scenario	195
IntentKeeper: Intent-Oriented Data Usage Control for Federated Data Analytics	204
L3SFA: Load Shifting Strategy for Spreading Factor Allocation in LoRaWAN Systems	216
Traffic Characterization of Instant Messaging Apps: A Campus-Level View	225
Traffic Shifting Based Resource Optimization in Aggregated IoT Communication	233
Guarantees for Mix-Flows in Inter-Datacenter WANs in Single and Federated Clouds	244

Inference in Social Networks from Ultra-Sparse Distance Measurements via Pretrained Hadamard Autoencoders	256
On Automated Trust Computation in IoT with Multiple Attributes and Subjective Logic	267
Cloud-Based Deception Against Network Reconnaissance Attacks Using SDN and NFV	279
Deep Learning Based User Slice Allocation in 5G Radio Access Networks	286
Root Redundancy in Meshed Tree Bridged Networks	297
Leveraging MEC in a 5G System for Enhanced Back Situation Awareness	309

Short papers

Online Detection of Wi-Fi Fingerprint Alteration Strength via Deep Learning	321
Transmission Scheduling and End-to-End Throughput of Multi-Hop Paths in Full-Duplex Embedded Wireless Networks	325
IQoR: An Intelligent QoS-Aware Routing Mechanism with Deep Reinforcement Learning	329
Congestion Control Using Diffusion Method in Named Data Networking	333
CAUDHT: Decentralized Contact Tracing Using a DHT and Blind Signatures	337
Black-Box System Identification of CPS Protected by a Watermark-Based Detector	341
Blockchain on MSP430 with IEEE 802.15.4	345
An Efficient Autonomous Vehicle Navigation Scheme Based on LiDAR Sensor in Vehicular Network	349
Extending MUD to Smartphones	353
Net Auto-Solver: A Formal Approach for Automatic Resolution of OpenFlow Anomalies	357
Impact of Mobility Models on Energy Consumption in Unmanned Aerial Ad-Hoc Network	361
Secure and Reliable Data Transmission in SDN-Based Backend Networks of Industrial IoT	365

Tree-Chain: A Fast Lightweight Consensus Algorithm for IoT Applications	369
Dytokinesis: A Cytokinesis-Inspired Anomaly Detection Technique for IoT Devices	373
Triplet Mining-Based Phishing Webpage Detection	377
Security Apps Under the Looking Glass: An Empirical Analysis of Android Security Apps	381
ACOMTA: An Ant Colony Optimisation Based Multi-Task Assignment Algorithm for Reverse Auction Based Mobile Crowdsensing	385
SETA: Scalable Encrypted Traffic Analytics in Multi-Gbps Networks	389
Statistical Learning-Based Dynamic Retransmission Mechanism for Mission Critical Communication: An Edge-Computing Approach	393
An Adaptive TXOP Sharing Algorithm for Multimedia Traffic in IEEE802.11ac Networks	397
A Multi-Domain Framework to Enable Privacy for Aggregated IoT Streams	401
On the Lack of Anonymity of Anonymized Smart Meter Data: An Empiric Study	405
Don't Stop at the Top: Using Certificate Transparency Logs to Extend Domain Lists for Web Security Studies	409
An Efficient Reputation Management Model Based on Game Theory for Vehicular Networks	413
LFQ: Online Learning of per-Flow Queuing Policies Using Deep Reinforcement Learning	417
Network Traffic Prediction Using Quantile Regression with Linear, Tree, and Deep Learning Models	421
Beyond the VPN: Practical Client Identity in an Internet with Widespread IP Address Sharing	425
Federated Vehicular Networks: Design, Applications, Routing, and Evaluation	429
Time-Dependent Stable Task Assignment in Participatory Mobile Crowdsensing	433
Leveraging a Music Streaming Platform in Establishing a Novel Storage Covert Channel	437

Intelligent Task off-Loading and Resource Allocation for 6G Smart City Environment	441
Detecting Bottleneck Use of PIE or FQ-CoDel Active Queue Management During DASH-Like Content Streaming	445
Towards a Distributed Defence Mechanism Against IoT-Based Bots	449
A Collision-Protected Multihop Frame Transmission Method with Wireless LAN Communication Supported by Longer-Distance Wireless Communication	453
LoRaDRL: Deep Reinforcement Learning Based Adaptive PHY Layer Transmission Parameters Selection for LoRaWAN	457
Concurrent Transmission Based Data Sharing with Run-Time Variation of TDMA Schedule	461
ARdeep: Adaptive and Reliable Routing Protocol for Mobile Robotic Networks with Deep Reinforcement Learning	465
Rate Adaptation Techniques Using Contextual Bandit Approach for Mobile Wireless LAN Users	469
Doctoral-track papers	
Flow Control in the Context of the Multiplexed Transport Protocol QUIC	473
Transmission Timing Control to Avoid Collisions Among Both Aperiodic and Periodic Packets in Wireless Sensor Networks	479
KYoT: Self-Sovereign IoT Identification with A Physically Unclonable Function	485
ReAL: A New ResNet-ALSTM Based Intrusion Detection System for the Internet of Energy	491
Mitigating the Impact of Cross-Tier Interference on Quality in Heterogeneous Cellular Networks	497
Bounding Path Exposure in Energy Harvesting Wireless Sensor Networks Using Pathsets and Cutsets	503
Increasing Throughput of Intrusion Detection Systems by Hash-Based Short String Pre-Filter	509
Author Index	515