



IEEE International Conference on High Performance Switching and Routing
Artificial Intelligent Next Generation (NextG) Integrated Communications and Computing Systems
 5–7 June 2023 // Albuquerque, NM, USA



CALL FOR PAPERS

Next Generation (NextG) Integrated Communications and Computing Systems are envisioned to be characterized by resiliency, security, robustness, adaptability, and autonomy, while being supported by modern communication devices, computing solutions, networks, and systems. New networking technologies and intelligent techniques are needed to efficiently and effectively cope with the intricacy in traffic demands, as well as the heterogeneity of the services and applications requested by the end-users. In parallel, the advent of the Digital Continuum, i.e., device-to-edge-to-fog-to-Cloud continuum, promises to offer low-latency and ubiquitous computation to heterogeneous mobile and Internet of Things devices. A rich array of network services is expected to emerge seeking to realize greater synergy across the various component subsystems of the NextG Integrated Communications and Computing Systems.

The main focus of the HPSR 2023 – the 24th edition of HPSR conference – will be to assess how breakthrough changes occurring to NextG Integrated Communications and Computing Systems are affecting areas related to switching and routing, and NextG networks and systems in general. We are soliciting original and thought-provoking works on big data, data analytics, cloud and edge services, and artificial intelligent techniques applied to networking and switching and routing. Works on autonomous networks, 5G/6G, Industry 4.0, social networks, network, cybersecurity, virtualization, and other advanced topics are also welcome. Papers describing original, previously unpublished research, experimental efforts, practical experiences, as well as visionary roadmaps, in all aspects of switching and routing, and NextG networks and systems are solicited. Research works on the following topics, but not limited to, are welcome for submission through the following symposia:

Track A: NextG Integrated Communications and Computing Systems Symposium

- Application of data analytics to switching and routing
- Artificial intelligent routing and resource-allocation algorithms
- Behavior-aware human-centric NextG networks and systems
- Deep-learning technologies for NextG networks
- Digital Continuum — device-to-edge-to-fog-to-Cloud continuum
- Dynamic bandwidth access and management for smart-factory/Industry 4.0 applications
- Experimental measurements and testbed implementations
- Game theory enabling resource allocation and routing
- High performance, programmable networks for the Internet of Things
- Integrated access and backhaul technologies
- Integrated caching, computation, and communications
- Positioning, Navigation, and Timing techniques
- Quality of Experience resulting from intelligent routing
- Quality of Service Optimization and resource allocation
- Reconfigurable Intelligent Surfaces-enabled switching and routing
- Switching architectures for NextG applications
- Traffic monitoring and modeling applied to switching and routing
- Traffic predictions in routing and resource assignment

Track B: High-Performance High Functionality Architectures Symposium

- Address lookup algorithms, packet classification, scheduling, and dropping
- Applications of data science and analysis on high-performance networks
- Applications of GPU on network functions
- Efficient data structures for networking applications
- Future technologies for IoT
- High-speed packet processors
- ICT enabling technologies for e-health systems
- Multiprocessor networks
- Nano-communication networks
- Network management
- Network traffic characterization and measurements
- Optical switching and routing
- Power-aware switching, bridging, and routing protocols
- Routing and resource allocation for Tactile Internet
- Switching, bridging, and routing protocols whether wide-area or data centers
- Switching support to Extended reality (including virtual, augmented, and mixed reality)
- Traffic characterization and engineering
- Standardization activities of emerging high performance switching and routing

Track C: Autonomous Networks Symposium

- Architectures of high-performance switches and routers, with a focus towards reconfigurable pipelines (P4, OpenFlow, etc.)
- Blockchain technologies
- Computation offloading
- Decentralized applications (DApps)
- Decentralized autonomous organizations (DAOs)
- Economics and pricing
- Energy harvesting, storage, recycling, wireless power transfer
- Green network monitoring and routing
- Intelligent and connected vehicular networks
- Medium access control, routing, and path selection
- Middleware services for wireless, mobile and multimedia networks
- Mobile social networks and routing
- Multi-access edge computing (MEC)
- Network and switch slicing
- Network performance for Human-Agent-Robot Teamwork (HART)
- Physical-layer aspects of switching and routing
- Software-defined networking
- Space-air-ground integrated networks (wwSAGIN)

Track D: Network Security Symposium

- Adversarial machine learning
- Applied cryptography for cyber, information, and network security
- Attack prediction, detection, response, and prevention
- Authentication protocols and key management
- Blockchain security
- Cloud, data center, and distributed systems security
- Future Internet Architecture (FIA) security and privacy
- Intrusion detection with artificial intelligent techniques
- Malware detection and damage recovery
- Network security and privacy protection
- NextG networks and Internet security
- Security in SDN and networking slicing
- Security aspects of social networks
- Security in smart grid communications
- Security in virtualized network functions built or managed using software-defined networks
- Security and privacy in the Age of Information
- Trust management in networks through emerging technologies
- Virtual Private WANs
- Zero Trust Architecture

IMPORTANT DATES

Paper Submission Due: **January 23, 2023**
 Acceptance Notifications: **April 3, 2023**

Author Registration Deadline: **April 24, 2023**
 Final Version Submission Due: **May 1, 2023**

For more information about this conference, please visit <https://hpsr2023.ieee-hpsr.org/>