

# Call for Papers

## Track 11 – NETWORK SOFTWAREIZATION AND VIRTUALIZATION

### Track Chairs:

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### Scope and Motivation:

Softwareizing networking functions and components rather than using closed box hardware appliances enables new opportunities to develop and support new services for the technologies that are driving the future of smart networks. Key technologies such as Software-defined networking (SDN) and Network Function Virtualization (NFV) allow to leverage the flexibility of software in order to dynamically program, control, and manage networks. Indeed, SDN and NFV are key enablers for new architectures and solutions such as multi-access edge computing (MEC), cloud and fog computing, and, in the mobile domain, 5G and 6G. Especially with the recent emerge of programmable data planes along with compiler and language support (P4), hardware acceleration can boost the performance of virtual network functions and lead to significantly lower latency and capacity than pure software based NFV solutions. At the same time, SDN and NFV is getting integrated with machine learning approaches in order to make softwareized networks more intelligent, autonomous and self-managed.

SDN and NFV are therefore an attractive, relevant and challenging research topic for academic institutions and companies alike. They serve as an important building block for next generation networks including industrial and tactical internet to support emerging applications and technologies. In this context, this track invites original contributions in the area of Software-Defined Networking and Network Function Virtualization.

### Main Topics of Interest:

Emerging Topics in Software Defined Networking/Network Function Virtualization Track seeks original contributions in all areas related to SDN and NFV, including (but not limited to) the following:

- Software Defined Everything (SDE)
- Software for Network Function Virtualization (NFV)
- Network Softwareization
- Programmable data planes and whitebox switches
- Ternary Content-Addressable Memory (TCAM) Optimization Techniques in SDN Data Plane
- Data plane aspects for deterministic networks, Industrial and Tactile internet.
- Offloading transport- and application-layer protocols and NVF functionality to programmable data plane devices using P4.
- Future architectures based on hardware disaggregation and software defined components
- In-Network Compute Acceleration using programmable data planes and P4
- OpenFlow Optimization
- Software defined distributed systems and applications, including smart grid, IoT, autonomous vehicles
- Multimedia over SDN
- Content-Aware SDN
- AI-enabled Controllers
- Learning-Capable SDN Platforms
- Deep Learning in SDN Management
- Smart Data Plane Management
- Software defined communications in autonomous vehicles
- Software Defined Aerial Networks
- NFV based Drone Network Management
- Robustness and security in Software Defined Networks
- Formal Specification and Analysis of Protocols for SDN
- Trusted Computing with NFV and SDN.
- Admission Control in SDN
- Industrial experience in deploying SDN/NFV services
- Resource management and optimization for NFV (e.g. cloud-native design)
- Softwareization in the context of multi-access edge computing (MEC)

- SDN/NFV within next-generation mobile networks
- SDN/NFV and data plane programming for network slicing and virtualization
- Intelligent network monitoring,
- AI enabled resource management,
- Machine Learning based network planning
- Performance, high-availability, interoperability and scalability issues.