

Rapid growth in information and communications technology (ICT) leads the end users to use different applications efficiently such as e-healthcare, smart transportation, autonomous vehicles, smart metering, traffic management, and waste management. One of the key objectives of the modern smart society is to provide Quality of Service (QoS) and Quality of Experience (QoE) to all the residents. So, the unmanned aerial vehicles (UAVs) can play a vital role in the modern society by providing various cost-effective services such as surveillance, smart transportation, crowdsensing, healthcare, and path navigation to the users in transportation systems. Initially, UAVs were designed for military surveillance purposes, but now a days these have been used in wider range of aforementioned applications. UAVs are easy to deploy and provide flexible environment for smooth execution of end users applications by providing data to the aforementioned applications.

In a closed network, i.e., WiFi-connected UAVs, the network control functions (NCF) such as firewall, routing decisions, IP allocation, switching, load balancers, and bandwidth allocation are tightly coupled with the network devices used, i.e., each hardware device has a brain to take dynamic decisions. It does not allow the dynamic change in storage as well as computing environments. So, any kind of modification in NCF is a nightmare for the system developers as they have to shut down the entire system during maintenance activity, which affects the system reliability. The challenges faced by system developers in controlling the UAVs are due to; high mobility of UAVs, dynamic change in network topology, inclusion of heterogeneous Internet of things sensors, and high capital expenditure (CAPEX) and operational expenditure (OPEX) associated with the software integrated devices. Network softwarization (NS) can overcome the aforementioned challenges associated with UAVs network management. It provides the softwarization of NCFs associated with the hardware devices. 3GPP fifth-generation (5G) technologies such as SDN and NFV are the enablers for softwarization. SDN aims to decouple the network control plane from the forwarding function (data plane) by using open interfaces like, OpenFlow and OpenDaylight (ODL). In contrast, NFV aims to virtualize the NCFs performed by the specialized hardware under the command of the hypervisor to improve the network services without adding any additional hardware. It is well suited for UAV communication where the connectivity is sporadic and UAV nodes are temporary.

As a result, we solicit papers that present novel frameworks, introduce new methodologies, propose new research directions, and discuss strategies for resolving open research challenges associated with softwarized UAV networks and its management for the next generation Internet-based communities.

Potential Topics of Interest include, but are not limited to:

- Communication and networking in softwarized UAV networks
- New architectures, designs, frameworks, and applications for smart communication in softwarized UAV networks
- SDN- based architectures for softwarized UAV networks
- Softwarized UAV-based systems for smart networking and communications
- Trends and challenges of integrating emerging networking paradigms to softwarized UAV networks
- Advanced data analytics for cloud-integrated softwarized UAV networks
- Machine learning, data mining, and big data analytics for softwarized UAV networks
- AI-based security frameworks and solutions for softwarized UAV networks
- Edge/fog computing based applications and services
- Energy-efficient networks and services for security of softwarized UAV networks
- Adaptable and automated small softwarized UAV network deployments via Virtualization
- Virtualized environment for softwarized multi-UAV network emulation
- Intrusion detection/prevention solutions based on deep and reinforcement learning
- Secure, dependable, and trustable solutions for 5G-enabled softwarized UAV networks
- Blockchain-based network services and applications for softwarized UAV networks
- QoS provisioning and resource management schemes for softwarized UAV networks
- Simulation, testing, and formal verification for softwarized UAV networks

SUBMISSION GUIDELINES

We welcome the novel, unpublished and state-of-the-art research manuscript submissions which do not remain under consideration in any other journal. Submission to this special issue should be made only on the IJCS journal's online manuscript submission portal [<http://mc.manuscriptcentral.com/ijcs>] and in the submission process authors are instructed to select the manuscript type as "**Softwarized UAV Network Management for the Next Generation Internet-based Communities**". Paper submissions must confirm to the layout and format guidelines in the International Journal of Communication Systems. Instructions for Contributors are in: [<https://onlinelibrary.wiley.com/page/journal/10991131/homepage/forauthors.html>].

PROPOSED SCHEDULE

- Submission deadline: 30 December 2020
- Author notification: 30 February 2021
- Revised papers: 30 March 2021
- Final notification: 15 June 2021
- Publication: As per the policy of journal

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