IEEE Internet of Things Journal Call for Papers

UAV Networks for Internet of Things

Internet of things (IoT) systems are expected to be deployed to rural or disaster areas so as to enable applications including smart agriculture, intelligent transportation, remote sensing, smart cities, etc. However, current wireless networks lack coverage in rural or disaster areas because of absent or damaged infrastructures. Unmanned aerial vehicle (UAV) with wide coverage and high mobility provides new opportunities for supporting IoT data collection and transmissions, which has the advantages of high agility, high flexibility, and low cost. In addition, many applications of IoT generally require large computation capacity to process the collected data with certain delay requirements. By deploying computing servers on UAVs, the UAVs-enabled Mobile edge computing (MEC), can help process data quickly. Moreover, UAVs equipped with computation capability can be quickly deployed as aerial computation servers to meet the temporary and/or unexpected demands. The integration of UAVs into IoT networks represents a cutting-edge technological development with the great potential to revolutionize various industries.

Despite many advantages for various applications, the UAV-assisted IoT also brings some challenges. For instance, the high mobility of UAVs leads to frequent handover operations, which cause severe transmission disruption, signaling overhead, and increased delay. Moreover, the wireless links to/from the UAV vary significantly over time, which hence requires elaborate design of the task transmission. Meanwhile, the limited battery of each UAV restricts its cruising distance. Besides, the limited computing capability and transmission power of each UAV should also be considered.

This special issue will bring leading researchers and developers from both industry and academia together to present their research on UAV-enabled IoT. Authors are invited to submit manuscripts on topics including, but not limited to, the following:

- New opportunities/challenges/use cases for UAV-enabled IoT
- UAV swarming and coordination for IoT deployments
- UAV-assisted data collection and analytics for IoT applications
- Protocols and architectures for UAV-enabled MEC
- Computation offloading for UAV-enabled MEC
- UAV's trajectory design for UAV-enabled IoT
- Spectrum management and multiple access schemes for UAV-enabled IoT
- Green energy powered UAV-enabled IoT networks
- MIMO/massive MIMO/millimeter wave technologies for UAV-enabled IoT
- Quality of Service provisioning for UAV-enabled IoT
- Network security and information assurance for UAV-enabled IoT

- Machine learning and artificial intelligence for UAV-enabled MEC

Proposed Schedule:

- Submission Deadline: September 30, 2024
- First Reviews Complete: November 15, 2024
- Revision Due: December 15, 2024
- Final Review Decision: February 1, 2025
- Final Manuscript Due: February 15, 2025
- Publication Date: March 2025

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