Special Issue on
Recent Advances in Machine Learning for Unmanned Vehicle Networks

CALL FOR PAPERS

Unmanned Vehicle Networks (UVNs) are autonomous networks formed by self-organizing aerial, ground, or underwater vehicles. Research in these networks has steadily increased over recent years, especially in relation to next-generation civil applications like consumer product delivery, autonomous, and mobile environmental monitoring, search, and rescue and disaster management. However, the challenges that accompany many emerging applications for UVNs cannot alone be solved by static optimization models, especially if they are applied in complex and adverse environments.

Machine learning (ML) techniques possess the capability to learn and implement optimal strategies depending on the specific environment, thereby paving the way for new research in this field by not only providing smarter algorithms and approaches but also enabling the deployment of services and applications that could revolutionize the way UVN systems operate. Although extensive research has focused on ML techniques applied to single vehicle systems and applications, the impacts of applying such techniques to a swarm of autonomous vehicles remain to be explored. The challenge lies in exploiting the information exchange and cooperation that is enabled by robust, reliable, and powerful networking.

This special issue invites original research articles and review articles that focus on robotic and ML-based networking problems in relation to UVNs. Interdisciplinary ideas which address major challenges in ML-based platforms for UVNs are particularly encouraged.

Potential topics include but are not limited to the following:

▶ Modeling and analysis of cooperative systems in UVNs

▶ Nature-inspired mobility management algorithms for UVNs

▶ Deep, unsupervised, and reinforcement learning for UVN mobility management

▶ ML-inspired network architecture, MAC and routing protocols for UVNs

▶ Innovative analysis of data from UVN-aided Internet of Things (IoT) systems

▶ UVN-aided crowdsensing systems

▶ Continual learning and adaptation for UVNs

▶ Edge computing for the real-time execution of ML and data analytics in UVNs

▶ Energy efficient UVNs

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jcnc/iuvs/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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