

**ARCAI 2024 Special Session “Advances in Unmanned Vehicles — Perspectives on Navigation, Planning, and Control”**

**Organized by Amirmehdi Yazdani, Somaiyeh MahmoudZadeh**

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**Call for Papers:**

Unmanned Vehicles (UVs) have become pivotal in sectors that include surveillance, search and rescue, and infrastructure inspection, demonstrating the versatility of their applications. Central to their advancement is the improvement of UV navigation systems, effective planning algorithms, and precision in control—key areas that define an UV's capability to operate autonomously. While progress in these domains has been notable, the journey towards fully autonomous operations presents ongoing challenges. Issues such as real-time decision-making, adaptability to dynamic environments, and maintaining reliable control in adversarial conditions are at the forefront of current research.

This Special Session aims to spotlight cutting-edge research and developments in the navigation, planning, and control of Unmanned Aerial Vehicles (UAVs), Unmanned Ground Vehicles (UGVs), and Unmanned Marine Vehicles (UMVs). It will address the latest solutions to enhance the operational persistence, efficiency, and safety of these systems, ensuring their readiness for the demands of future missions.

Topics of the Session include

- Perception, mapping, and navigation
- Mission planning, task assignment and allocation
- Guidance, path planning, and trajectory optimization
- Motion planning, intelligent, predictive, and robust control
- AI/ML-based decision making and situational awareness
- Collaborative homogeneous/ heterogeneous multi-UVs mission engineering
- Manned-unmanned teaming

Accepted and presented papers will be submitted for inclusion into IEEE Xplore subject to meeting IEEE Xplore's scope and quality requirements and indexed by EI Compendex and Scopus. Selected papers will be invited to SCI Journal Special Issues.