Call for Papers

DroneSense-AI 2024

1st Workshop on Artificial Intelligence for Networked Drone and Sensor Applications

In conjunction with **SINCONF 2024-** 17th International Conference on Security of Information and Networks

Date & Venue: 2 December 2024. Fully On-line

The integration of machine learning (ML) with networked drone and sensor technologies is revolutionizing multiple sectors. This convergence allows drones and sensors equipped with ML algorithms to process vast amounts of data, enhancing autonomous and intelligent operations within interconnected systems. Although this integration drives innovation and efficiency in fields such as agriculture, environmental monitoring, and disaster response, challenges remain, including longer processing times and a lack of standardized integration. These issues, along with the need for distributed processing and coordinated decision-making, highlight the necessity for further advancements to fully unlock the potential of these technologies. Quantum technology represents a promising frontier for addressing these challenges, particularly concerning the computational, communication, and security demands of networked systems. With growing interest from both research and industry communities, the **DroneSense-AI** workshop seeks to explore and inspire novel ways in which ML can optimize and expand the capabilities of networked drones and sensors. We invite submissions addressing innovations, challenges, and future directions in ML-driven networked drone and sensor systems. DroneSense-AI welcomes original contributions on all aspects of AI applications within this rapidly evolving field.

Topics of Interest include (but not limited to)

- Introduction to Machine Learning in Drone Networks

  - Overview of ML techniques applicable to drones.

  - Integration challenges and opportunities for ML in drone operations.

- Drone Trajectory Design and Optimization

  - Techniques for planning efficient drone flight paths.

  - ML algorithms for optimizing trajectory in dynamic environments.

- Drone Swarm Technology

  - Principles and applications of drone swarms.

  - Coordination and communication strategies for swarm operations.

  - ML methods for managing and optimizing swarm behaviour.

- Precision Agriculture and Crop Monitoring

  - ML for plant recognition, yield prediction, and crop health monitoring.

  - Applications of drones in precision agriculture and sustainable farming.

- Environmental Monitoring and Wildlife Conservation

  - Using ML for biodiversity tracking, species identification, and habitat monitoring.

  - UAVs in conservation efforts and real-time environmental data analysis.

- Surveillance and Security

  - ML-based object and person detection for security purposes.

  - Automated threat assessment and intelligent monitoring with drones.

- Disaster Response and Emergency Services

  - Enhancing disaster response with ML-equipped drones.

  - Real-time situational awareness and search and rescue operations using drones.

- Construction and Infrastructure Management

  - Automated inspection and monitoring of infrastructure through ML.

  - Predictive maintenance and asset management for construction projects.

- Energy and Utilities

  - ML applications for monitoring and managing energy infrastructure.

  - Predictive maintenance and operational efficiency improvements for utilities.

- Logistics and Transportation

  - ML-driven automated delivery systems and logistics management.

  - Optimizing traffic management and route planning using drones.

- Public Safety and Law Enforcement

  - Enhancing public safety with ML-driven UAV surveillance.

  - Applications of drones for automated monitoring and law enforcement.

- Healthcare and Medical Services

  - Delivery of medical supplies and real-time patient health monitoring with drones.

  - Emergency medical response and logistics using ML-equipped UAVs.

- Internet of Things (IoT)

  - Integrating ML and IoT with drones for advanced data collection and analysis.

- Cellular Networks

  - Optimizing cellular network performance and coverage through ML-driven drones.

- Quantum processing and communication using drones

Important Dates:

- Full paper submission date: 10 October 2024

- Author Notification: 10 November 2024

- Camera-ready submission: 15 November 2024

- Registration Due for Accepted Papers: 15 November 2024

- Workshop date: 2 December 2024

Submission Guidelines:

- Please use the IEEE Conference paper template while preparing your manuscript: https://www.ieee.org/conferences/publishing/templates.html
- EDAS submission link: https://edas.info/newPaper.php?c=32575&track=126837

Registration Fees:

- One Day student $AU349.50
  One Day full $AU499.50

Workshop Chairs

- Dr Jahan Hassan (Central Queensland University, Australia)
- A/Prof. Biplob Ray (Central Queensland University, Australia)
- Dr Hailong Huang (Hong Kong Polytechnic University, Hong Kong)
- Dr Jaime Galán-Jiménez (University of Extremadura, Spain)

Program Committee:

- Dr Simeon Ajakwe, South Korea
- Dr Kai LI, Portugal
- Dr Hsin-Hung CHO, Taiwan
- Dr Gour Karmakar, Australia
- Dr Zhenglin Wang, Australia
- Dr Evizal Kader, Indonesia
- Dr Nahina Islam, Australia
- Mohsin Iftikhar, UAE.
- Dr Adnan Anwar, Australia
- Dr Nurun Nabi, Australia
- Dr. Kiran M , India