International Conference on Data-Processing and Networking (ICDPN-2024)

Date: 25th-26th October, 2024

ORGANISED BY : Institute of Technology and Business in České Budějovice, Near Prague, Czech Republic, Europe (Venue).

********** CALL FOR PAPERS **********

SPECIAL SESSION ON

Transforming the Capabilities of Unmanned Systems with Artificial Intelligence and IoT

SESSION ORGANIZERS:

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EDITORIAL BOARD:

SESSION DESCRIPTION:

The special session on "Transforming the Capabilities of Unmanned Systems with Artificial Intelligence and IoT" seeks to examine the revolutionary progress and practical uses of combining Artificial Intelligence (AI) and the Internet of Things (IoT) in Unmanned Systems, such as aerial, ground, and undersea vehicles. This special session highlights pioneering AI and IoT research that improves unmanned system autonomy, efficiency, and functionality. This will highlight successful AI and IoT case studies that solved complicated unmanned system problems, promoting applied research and real-world implementations. The session will also allow academic and industry researchers, developers, and practitioners to address difficulties, share ideas, and debate future research paths, boosting collaboration and networking. The session comprises of following segments:

- Two Keynote Speech: Insights from leading experts in AI, IoT, and unmanned systems.
- Research Presentations: Oral and poster presentations of cutting-edge research.
- Providing Panel Discussions segment and Networking Opportunities

RECOMMENDED TOPICS:

Topics to be discussed in this special session include (but are not limited to) the following:

- **AI-Driven Autonomy in Unmanned Systems:**
  - *Machine learning and deep learning algorithms for autonomous navigation and control.*
  - *AI-based decision-making processes in real-time operations.*
  - *Reinforcement learning for adaptive behavior in dynamic environments.*

- **IoT-Enhanced Connectivity and Communication:**
  - *Integration of IoT sensors and devices in unmanned systems for real-time data collection.*
  - *Communication protocols and networks for UAV-to-UAV and UAV-to-Ground interactions.*
  - *Edge computing and distributed processing for efficient IoT operations.*

- **Advanced Applications of Unmanned Systems:**
  - *Precision agriculture using UAVs and IoT for crop monitoring and management.*
  - *Disaster management and emergency response with AI-enabled unmanned systems.*
  - *Environmental monitoring and data collection for climate change studies.*

- **Security and Privacy in Unmanned Systems:**
  - *Cybersecurity measures for protecting unmanned system communications and data.*
  - *Privacy concerns and regulatory frameworks in the deployment of AI and IoT in unmanned systems.*
  - *Secure data transmission and storage solutions for IoT-enabled unmanned systems.*

- **Optimization Techniques in Unmanned Systems:**
  - *Path planning and obstacle avoidance using AI algorithms.*
  - *Energy-efficient algorithms for prolonged operations of unmanned systems.*
  - *Resource allocation and management in multi-agent unmanned systems.*

- **Human-Machine Collaboration:**
  - *Interfaces and interaction models for effective human control of AI-enabled unmanned systems.*
  - *Collaborative missions involving humans and unmanned systems.*
  - *Ethical considerations and societal impacts of human-machine collaboration.*

- **Emerging Technologies and Future Directions:**
  - *Advances in UAV hardware and software integration.*
  - *Future trends in AI and IoT applications for unmanned systems.*
  - *Potential of quantum computing in enhancing unmanned systems capabilities.*

- **Case Studies and Real-World Implementations:**
  - *Success stories of AI and IoT integration in commercial unmanned systems.*
  - *Lessons learned from deploying unmanned systems in various industries.*
  - *Impact analysis of AI and IoT on the efficiency and effectiveness of unmanned systems.*

- **Multi-Agent Systems and Swarm Intelligence:**
  - *Coordination and control strategies for multi-UAV systems.*
  - *Swarm intelligence algorithms for collective behavior in unmanned systems.*
  - *Applications of multi-agent systems in complex environments.*

- **Regulatory and Ethical Considerations:**

- *Current regulations governing the use of AI and IoT in unmanned systems.*
- *Ethical implications of autonomous unmanned systems in society.*
- *Developing guidelines and standards for responsible AI and IoT usage in unmanned systems.*

SUBMISSION PROCEDURE:

Researchers and practitioners are invited to submit papers for this special theme session on **Transforming the Capabilities of Unmanned Systems with Artificial Intelligence and IoT *on or before* 30th July 2024**. All submissions must be original and may not be under review by another publication. INTERESTED AUTHORS SHOULD CONSULT THE CONFERENCE'S GUIDELINES FOR MANUSCRIPT SUBMISSIONS at **https://www.icdpn-conf.com/Downloads**. All submitted papers will be reviewed on a double-blind, peer review basis.

NOTE: While submitting paper in this special session, please specify Session name as **"Transforming the Capabilities of Unmanned Systems with Artificial Intelligence and IoT"** at the top (above paper title) of the first page of your paper.

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