



SPECIAL SESSION

DRONE FOR NDT INDUSTRIAL APPLICATIONS

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OBJECTIVE AND TOPICS

The integrity and reliability of industrial and energy plants are at the core of today's operational challenges. Non-Destructive Testing (NDT) represents the first line of defense against unplanned shutdowns, catastrophic failures, and costly inefficiencies. However, traditional techniques often face significant limitations: slow inspections, high costs, safety risks for personnel in inaccessible areas, and a vast amount of complex data to interpret. The integration of drones, equipped with latest-generation sensors (thermal, multispectral, LiDAR), is revolutionizing data acquisition, making it faster, safer, and more cost-effective. Moreover, the real breakthrough is the application of Artificial Intelligence (AI) for the analysis of this data, which allows a shift from reactive to predictive maintenance strategies, optimizing resources and maximizing the useful life of assets.

Areas of interest include, but are not limited to:

- Advanced thermographic inspections (defect detection in photovoltaic plants, heat mapping, etc.).
- Defect detection in wind turbine plants (blades and towers).
- Inspection of high-voltage lines, insulators, and pylons for fault prevention.
- 3D Surveying and Modeling (LiDAR, photogrammetry, and digital twins).
- Innovative techniques for detecting corrosion on pipes and tanks.
- Confined space inspections (tanks, vessels, and boilers without human entry).
- Gas leaks in Oil & Gas facilities.
- Management of different types of drones (underwater, land, radio-controlled, wire-controlled, etc.).
- Artificial Intelligence for data processing.
- Machine learning and computer vision algorithms for automated image analysis.

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