

Special Issue

Intelligent Sensor Systems in Unmanned Aerial Vehicles

Message from the Guest Editors

While the physical principles behind UAV sensors remain unchanged compared to that of individual sensors, the intelligence of UAV sensor systems arises from their ability to process, interpret, and correlate the data they provide. Intelligent sensor systems do not merely sense the environment—they understand it. This understanding emerges through real-time data fusion, context-aware interpretation, and adaptive decision-making algorithms, which allow UAVs to navigate complex environments, anticipate changes, and coordinate with other platforms. Relevant sensors include RGB, infrared (IR), monochrome and stereo cameras, multi- and hyperspectral imaging systems, and ultrasonic and ultra-wideband (UWB) sensors, which are being used for localization and obstacle avoidance increasingly frequently. Inertial measurement units (IMUs) of various precision levels, including those integrated with vision (visual-inertial systems), are essential for UAV pose estimation.

Guest Editors

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