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Active technological development has fuelled rapid growth in the number of Unmanned Aerial Vehicle (UAV) platforms being deployed around the globe. Novel UAV platforms, UAV-based sensors, robotic sensing and imaging techniques, the development of processing workflows, as well as the capacity of ultra-high temporal and spatial resolution data, provide both opportunities and challenges that will allow engineers and scientists to address novel and important scientific questions in UAV and sensor design, remote sensing and environmental monitoring. This work features papers on UAV sensor design, improvements in UAV sensor technology, obstacle detection. methods for measuring optical flow, target tracking, gimbal influence on the stability of UAV images, augmented reality tools, segmentation in digital surface models for 3D reconstruction, detection, location and grasping objects, multi-target localization, vision-based tracking in cooperative multi-UAV systems, noise suppression techniques, rectification for oblique images, two-UAV communication system, fuzzy-based hybrid control algorithms, pedestrian detection and tracking as well as a range of atmospheric, geological, agricultural, ecological, reef, wildlife, building and construction, coastal area coverage, search and rescue (SAR), water plume temperature measurements, aeromagnetic and archaeological surveys applications.