Special Issue Reprint

Unmanned Aerial Vehicles

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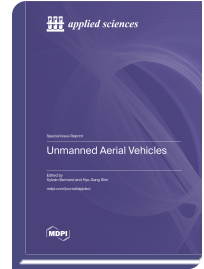
Unmanned aerial vehicles (UAVs) are recognized as very useful tools to replace, help, or assist humans in various tasks, such as inspection and monitoring, surveillance, search and rescue, exploration, logistics and transportation, etc. Practical uses for such missions in both civilian and defense contexts have experienced a significant growth as a result of recent technological progresses. Nevertheless, some challenges and open issues regarding ensuring a full operational use of UAVs remain unanswered.

This reprint aims to present recent advances in technologies and algorithms to improve the levels of autonomy, reliability, and safety of UAVs. Different topics are addressed, covering vehicle design and characterization (aerodynamics, flight dynamics, design optimization, communications), algorithms for autonomy (guidance and control, path planning, machine learning, computer vision, perception), traffic and risk management (unmanned traffic management, reliability, risk assessment). Open issues related to new missions such as precision agriculture or telecommunication relays are also considered.

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