

## **An Online Priority-Configuration Algorithm for Obstacle Avoidance of the Unmanned Air Vehicles Swarm**

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**Abstract :** Collision avoidance problems of a swarm of unmanned air vehicles (UAVs) flying in an obstacle-laden environment are investigated in this paper. Given that the UAV swarm needs to adapt to the obstacle distribution in dynamic operation, a priority configuration is designed to guide the UAVs to pass through the obstacles in turn. Based on the collision cone approach and the prediction of the collision time, a collision evaluation model is established to judge the urgency of the imminent collision of each UAV, and the evaluation result is used to assign the priority of each UAV to further instruct them going through the obstacles in descending order. At last, the simulation results provide the promising validation in terms of the efficiency and scalability of the proposed approach.

**Keywords :** UAV swarm, collision avoidance, complex environment, online priority design

**Conference Title :** ICAASHA 2018 : International Conference on Aerospace Avionics Systems and Hazard Analysis

**Conference Location :** Paris, France

**Conference Dates :** September 20-21, 2018