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Three-Dimensional Off-Line Path Planning for Unmanned Aerial Vehicle Using Modified Particle Swarm Optimization

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Abstract : This paper addresses the problem of offline path planning for Unmanned Aerial Vehicles (UAVs) in complex three-dimensional environment with obstacles, which is modelled by 3D Cartesian grid system. Path planning for UAVs require the computational intelligence methods to move aerial vehicles along the flight path effectively to target while avoiding obstacles. In this paper Modified Particle Swarm Optimization (MPSO) algorithm is applied to generate the optimal collision free 3D flight path for UAV. The simulations results clearly demonstrate effectiveness of the proposed algorithm in guiding UAV to the final destination by providing optimal feasible path quickly and effectively.

Keywords : obstacle avoidance, particle swarm optimization, three-dimensional path planning unmanned aerial vehicles
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