论文

人工免疫算法规划复杂环境下三维飞行航迹

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摘要：

应用人工免疫算法规划复杂地形和火力威胁环境下的三维飞行航迹.根据实际地形的特点提取在山岭横栏的地形和多火力威胁包围的复杂场景,利用人工免疫算法的3种情况分别进行飞行器的航线设计,同时根据飞机的机动性和适航性对上述规划出的航迹进行优化;并把免疫算法3种情况的模拟结果进行比较.仿真结果表明,与遗传算法相比,人工免疫算法在规划复杂环境下三维航迹是可行的,在时间上有一定的优势.

关键词： 人工免疫算法　遗传算法　三维航迹规划　复杂环境

Artificial immune algorithm for three-dimensional flight path planning under complex environment

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Abstract:

Artificial immune algorithm (AIA) was applied to plan three-dimensional flight tracks under complex terrain and firepower threat environment, which was done in the three cases of AIA. Meanwhile, the above-planned flight path was optimized based on mobility and seaworthiness of airplanes. Comparison of the results by AIA and by GA (genetic algorithm) indicates that under complex environment the three-dimensional flight path by AIA is not only feasible, but also has certain superiority in time.

Keywords: artificial immune algorithm　genetic algorithm　3D flight planning　complex environment

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