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月面巡视探测器路径规划性能评估算法

殷礼明1，贾阳2

1.清华大学 精密仪器与机械学系，北京100084; 2.哈尔滨工业大学 航天学院，哈尔滨150001

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摘要 通过分析月面巡视探测器路径规划性能对算法进行评估，提出路径规划算法性能的量化评估函数，并经过实验验证评估函数的可行性。针对巡视探测器常用的两种全局规划算法和两种局部规划算法，通过评估函数的理论分析和实验验证得到更适应于月面巡视探测的路径规划搜索算法。这种评估算法路径规划性能的量化评估函数，不仅可行而且具有通用性，同样适用于其他的路径规划搜索算法。

关键词 航天器结构与设计；月面巡视探测器；路径规划；算法评估

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Algorithm evaluation for lunar rover path-planning

YIN Li-ming1, JIA Yang2

1.Department of Precision Instrument and Mechanology, Tsinghua University, Beijing 100084，China; 2.School of Astronautics, Harbin Institute of Technology, Harbin 150001，China

Abstract In this paper the performance of the algorithm for lunar rover path planning is evaluated, and a quantified evaluating function for the performance of the path planning algorithm was proposed. The feasibility of the evaluating function was verified by experiments. Two commonly used global planning algorithms and two local planning algorithms were taken into consideration, and the search algorithm which is more adaptive for lunar exploration was identified by theoretical analysis using the evaluating function and by experiments. It is demonstrated that the proposed quantified evaluating function for the performance of path planning algorithm is not only feasible but also universal, which could be adaptable in evaluating other path planning algorithms.

Key words spacecraft structure and design lunar rover path planning algorithm evaluation

DOI:

通讯作者 殷礼明 nanshan1919@sina.com