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Author: Dr. Hao Zhou
Beijing Institute of Aerospace Systems Engineering, China

Mrs. Mengyun Yue
Beijing Institute of Astronautical Systems Engineering, China

A NOVEL OPTIMIZATION METHOD OF TESTING PROCESS FOR LAUNCH VEHICLES BASED
ON REINFORCEMENT LEARNING

Abstract

Facing the requirements of high efficiency cost ratio of launch vehicles and the high-density launch situation of space missions, the improvement of test efficiency has become an important constraint to achieve efficient access to space. Aiming at the problems of complex coupling of multiple systems, long test cycle and high comprehensive cost in the traditional launch vehicle test process, the complex optimization problems were decoupled and a two-level mathematical model was established without affecting optimality, and an optimization algorithm of testing process for launch vehicles based on reinforcement learning was proposed. The test process is optimized under the premise of ensuring test coverage, which also provides theoretical guidance for essentially improving test efficiency.