

Indoor path planning using harmonic functions via half-sweep arithmetic mean method

ABSTRACT

This paper presents the application of a two-stage Half-Sweep Arithmetic Mean (HSAM) iterative method to obtain the Harmonic functions to solve the path planning problem in a 2D indoor environment. Several path planning simulations in a known indoor environment were conducted to examine the effectiveness of the proposed method. It is shown that the proposed path planning algorithm is capable of generating smooth paths from various start and goal positions. Also, numerical results show that the proposed HSAM method converges much faster than the existing iterative methods, thus it drastically improves the overall performance of the path planning algorithm