

Adaptive Motion Planning for 6-DOF Robots Based on Trigonometric Functions

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Abstract : Building an appropriate motion model is crucial for trajectory planning of robots and determines the operational quality directly. An adaptive acceleration and deceleration motion planning based on trigonometric functions for the end-effector of 6-DOF robots in Cartesian coordinate system is proposed in this paper. This method not only achieves the smooth translation motion and rotation motion by constructing a continuous jerk model, but also automatically adjusts the parameters of trigonometric functions according to the variable inputs and the kinematic constraints. The results of computer simulation show that this method is correct and effective to achieve the adaptive motion planning for linear trajectories.

Keywords : kinematic constraints, motion planning, trigonometric function, 6-DOF robots

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