Trajectory Programming of Parallel Manipulators for Minimum Energy Consumption

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ABSTRACT

Has the singular point in the history all Stewart platform manipulator working space, in order to enable in the work to achieve most reduces effort the pattern, must have to enable the path to shunt these singular points, otherwise when contacts these singular points, the entire work radio station also can have the collapse possibility, in order to obtain avoids the singular point the best path, the present paper uses grain of subgroup optimization calculating method (PSOA) to obtain group of control points first, then in takes into this control point gradient calculating method (Gradient) to be possible to obtain group of more accurate control points, matching originally some and, may obtain the best path movement equation. These two calculating methods obtain the best path movement equation, may cause us to work the singular point, achieved most reduces effort the pattern, in the article the Boltzmann-Hamel-d' Alenbert method, calculates the enclosed type dynamics equation.

Keywords : Stewart platform manipulator, particle swarm optimization algorithm, Gradient, Boltzmann-Hamel-d ' Alenbert.

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