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Optimization practical SCARA robot trajectory based on a linear quadratic controller

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Abstract

SCARA (Specific consistent enunciated robot arm) comprises of three planar revolute joints as shoulder, elbow and wrist and a kaleidoscopic joint which works in vertical plane for legitimate situating of the work piece. It offers particularly a decent decision for get together errands. A wide range of studies are seen on displaying and control of SCARA type robot to get high precise direction in industrial and biomedical application. Direct quadratic controller with Gaussian (LQG-controller) models of the movement and detecting vulnerability, as it gives ideal control to managing a robot along an arranged way. For straight elements and perception models with Gaussian commotion and a quadratic cost work, the ideal methodology for executing the way is to utilize a LQR input controller in corresponding with a Kalman channel for state estimation, which is called direct quadratic Gaussian (LQG) control. A Kalman channel gives the ideal gauge of the state given past state evaluations, estimations and control inputs, and a LQR controller gives the ideal control input given the gauge of the state. This paper exhibits another way to deal with SCARA robot movement arranging that considers the sensors and the controller that will be utilized during execution of the robot's way. LQG depends on the straight quadratic controller with Gaussian models of vulnerability and expressly portrays ahead of time from the earlier likelihood dispersions of the condition of the robot along its way.

Biography

Yousif Ismail Mohammed Al-Mashhadany is a Lecturer in Electrical Engineering Department, College of Engineering (Control Engineering). Senior Member IEEE, He received the BSc (1995), MSc (1999), and PhD (2010) in Department of Electrical and Electronic Engineering from the Rashid School of Engineering and Science/ University of Technology in Baghdad/Iraq. He completed his Postdoctoral fellow research in Electrical Engineering - Control Department at the University of Malaya in Malaysia (UMPEDAC) in 2012. He works since 2004, a Lecturer in the Department of Electrical Engineering, University of Anbar, Iraq. He has many publications that included three books, two chapters, thirty seven journal papers most of them (Clarivate, Scopus indexed international journals), and thirty two conferences papers.

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