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Abstract

This paper develops an optimization procedure to estimate the parameter values of a given dynamic system. The actual nonlinear model of the system is assumed available with the approximate range of parameter values. The model used in this work is the PS4 actuator with nozzle dynamics which is used for the liquid upper stage control system of PSLV. The objective is to estimate the parameter values so that the error between actual system output and the simulated output is minimized. This is achieved through Genetic Algorithms(GA) which is a global optimization technique. GAs are stochastic algorithms based on Darwin's theory of survival of the fittest. They are inspired by biological phenomena of natural genetics and natural selection. The basic elements of natural genetics- reproduction, crossover and mutation- are used in the genetic search procedures. GA is proved robust and efficient in finding optimal solutions in complex problem spaces.

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Index Terms

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Keywords

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