Abstract

In this paper, the application of the Artificial Immune System (AIS) algorithm for optimization problems is presented, DC Servo Motor (DCSM) speed control was taken as a case study. The PID controller was tuned using AIS algorithm by minimizing the Integral Time Absolute Error (ITAE). The results were compared with the results of the Ziegler-Nichols tuning method and it was obvious that the AIS gives better results. The AIS algorithm showed it has the ability to find the global optimum solution and it gave a response better than the response of the traditional tuning methods in terms of rise time, settling time, steady state error and overshoot.

References

Artificial Immune System based PID Tuning for DC Servo Speed Control


Index Terms

Computer Science Circuits and Systems

Keywords

PID Controllers, Artificial Immune System (AIS), Ziegler Nichols (ZN), PID Optimization, DC Servo Motor (DCSM)