Abstract

This paper presents the performance comparison between the various soft computing techniques used for optimization of the PID controllers, implemented for speed control system for a DC motor. PID controllers are extensively used in industrial control because of their simplicity and robustness, but when industrial control is imperilled by external glitches, leads to the instability of the system. PID controller optimization using soft-computing algorithms lays emphases on obtaining the best possible PID parameters for improving the stability of the system. The PID controller has been implemented for speed control of a DC motor and the results obtained from optimization using soft-computing are compared with the ones derived from the Ziegler-Nichols method, and comparatively better results are obtained in Stimulated Annealing case.

References

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Optimal Tuning of PID Controller for DC Motor using Bio-Inspired Algorithms

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Index Terms

Computer Science  Control Systems

Keywords

PID Controllers  Controller Optimization  DC Motor  Genetic Algorithms
Stimulated Annealing

Multi-objective Genetic Algorithms