Kim (2011) uses a hybrid GA-BF for obtaining the optimal gains of a PID controller.

Questions

1. Explain the optimization problem. What other optimization methods have been used for PID tuning? Explain at least three and their use for finding the gains. What are the objective functions used? Comment on the reported results and explain the advantages and shortcomings of the methods based on the reported results.

2. Choose a simple linear system that can be controlled using a PI or PD controller. Describe how GA or BF can be used for computing the gains. Implement and use either GA or BF to optimize the gains. Compare the results obtained to those obtained by other tuning methods. Explain the advantages and shortcomings of the method based on your implementation and the obtained results.

References