

Effects of genetic algorithm parameters on multiobjective optimization algorithm applied to system identification problem

Abstract

The growing interest in multiobjective optimization algorithms and system identification resulted in a huge research area. System identification is about developing a mathematical model for representing the system observed. This paper describes the effects of genetic algorithm parameters used in multiobjective optimization algorithm (MOO) that is applied to system identification problem. Two simulated linear systems with known model structure were considered for representing the system identification problem. The performance metrics used in this study are convergence and diversity metric. These metrics show the performance of MOO when GA parameters are varied. The simulation results show the effects of GA parameter on MOO performance. A right combination of GA parameters used in MOO is shown in this study

Keywords; Algorithm parameters; Diversity metrics; Performance metrics; Research areas; Simulation result; System identification problem