
Intelligent Control Homework 3: Intelligent Optimization Method

In this homework, you may use any programming language but MATLAB is preferable. Although teamwork is allowed, you must complete your own homework separately. You may not use homework report written by someone else. The maximum number of points is 100. Of course, you can use English to do homework

Let us use the **genetic algorithm** and the **PSO algorithm**, respectively, to find the minima of the function described below:

$$f(\mathbf{x}_1, \mathbf{x}_2) = \mathbf{x}_1^2 + \mathbf{x}_2^2 - 0.3\cos(3\pi\mathbf{x}_1) - 0.4\cos(4\pi\mathbf{x}_2) + 0.7$$

where $\mathbf{x}_1 \in [-1, 1]$ and $\mathbf{x}_2 \in [-1, 1]$. Please show the curves on the average fitness value and the best fitness value as the number of generations increases.